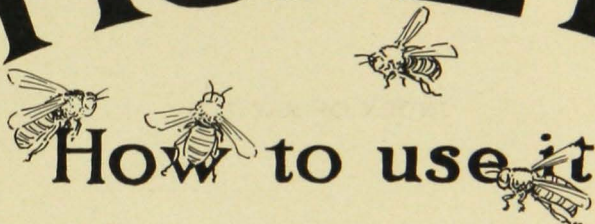
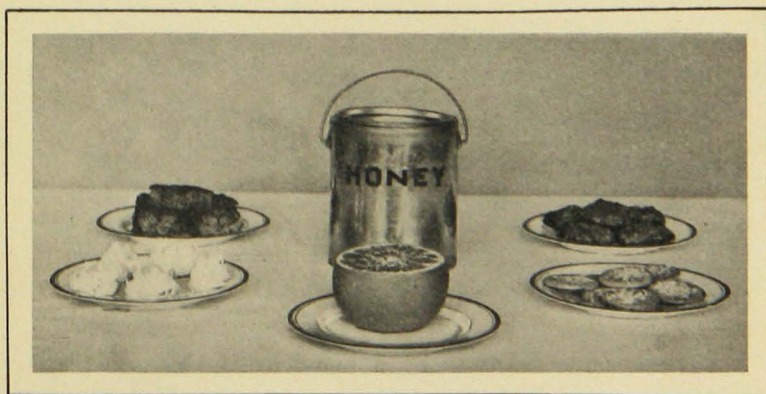


HONEY



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HONEY—HOW TO USE IT

ALICE M. CHILD and KATHRYN B. NILES¹

The flavor and aroma of honey are influenced by the blossoms from which the nectar is gathered. Honey is designated by the flavor that predominates. Dark honeys are usually of a stronger flavor, and the cost is usually a little less.

The common types of honey in Minnesota are alfalfa, clover, basswood, and buckwheat. Alfalfa honey is usually white and has a pleasant, spicy flavor. Clover honey is white or light straw color with an agreeable, mild flavor. Basswood honey is white. The flavor varies from mild to strong aromatic. Buckwheat honey is dark and of strong flavor.

SEVERAL FORMS OF HONEY AVAILABLE

Honey is usually sold as either comb or extracted honey. Comb honey is contained in the cells of the comb. Comb honey is graded as to finish of the sections, color of the honey, and weight. The net weight must be marked on each section of honey that enters interstate trade. Sections usually weigh from 12 to 15 ounces. Extracted honey has been separated from the uncrushed comb by centrifugal force or gravity. Strained honey is honey removed from the crushed comb by straining or other means. Granulated honey is sometimes sold on the market in paper cartons.

Honey may be either liquid or granulated. Some varieties, such as alfalfa, granulate much more readily than others. All honey granulates more quickly after it is removed from the comb. Granulation in extracted honey is the best evidence of its purity.

HOW TO LIQUEFY GRANULATED HONEY

To liquefy granulated honey, place the jar in warm water, or put the honey in the top of a double boiler. The temperature of the water should be kept below the boiling point, as a temperature above 140 degrees Fahrenheit, in honey, changes the flavor, aroma, and color.

HOW TO STORE HONEY

Unless honey is sealed it should be kept in a dry place, as it may absorb moisture. Diluted honey will ferment and sour readily. The easiest way to prevent fermentation of honey is to heat it to 160 de-

¹ The authors are indebted to Prof. M. C. Tanquary for his cooperation and also for supplying honey for the experimental work.

grees Fahrenheit, and immediately place it in sterilized containers and seal. This honey can be stored at any temperature. Freezing does not injure the color or flavor of honey but may hasten granulation.

WHAT IS IN HONEY?

Honey is eaten principally for the sugar it contains and for its delicate and characteristic flavor. The sugars are largely the simple sugars, dextrose and levulose. These are the sugars into which cane sugar is changed in digestion, therefore honey is readily digested.

In addition to sugars, honey contains water and a small amount of the minerals, calcium, phosphorus, iron, and copper.

As far as we know, the amount of vitamin in honey is of no practical importance. The nutritional values of honey are essentially those of carbohydrates as a class.

See appendix for a more complete description of the composition of honey.

HONEY IN BATTERS AND DOUGHS

The flavor of honey in batter and dough products is especially pleasing to most persons. Honey flavor blends well with mocha, chocolate, date, and apple.

Baking Batters and Doughs

When baking products made with honey, a lower temperature or less time should be given than for those where sugar is used for sweetening, because honey products brown more quickly and if over-browned the honey flavor is affected and is disagreeable.

Baked products containing honey keep moist longer than those made with sugar, due to the moisture-retention quality of honey. Experimental work showed that the inexpensive chocolate cake (page 8) kept moist three weeks. Some cakes and cookies which contain a large proportion of honey are better after aging than when fresh.

Honey is especially desirable in fruit cake as the fruit cake remains moist.

Acidity of Honey

Experimental work has proved the acidity of honey to be so slight that it can be disregarded, and the amount of soda needed to neutralize it is so small that baking powder can be used as the leavening agent in honey products.

Liquid in Honey

Each cup of honey is about 20 per cent water, therefore the amount of liquid called for in a recipe should be reduced when the quantity of

honey used is as much as one-half cup. For each cup of honey used, reduce the liquid one-fourth cup or four tablespoons.

In batter and dough products such as griddle cakes, waffles, muffins, quick breads, bread, and rolls, in which less than one-half cup of sugar is used, honey in amount equal to the quantity of sugar may be substituted without any change in the recipe.

How to Substitute Honey for Molasses

For each cup of molasses in a recipe use one cup of honey and omit the soda. For each teaspoon of soda omitted use four teaspoons baking powder.

How to Substitute Honey for Sugar

One cup of honey will sweeten a product as much as a cup of white sugar. To insure a good product, about half the sugar should be retained in a recipe and honey substituted for the other half.

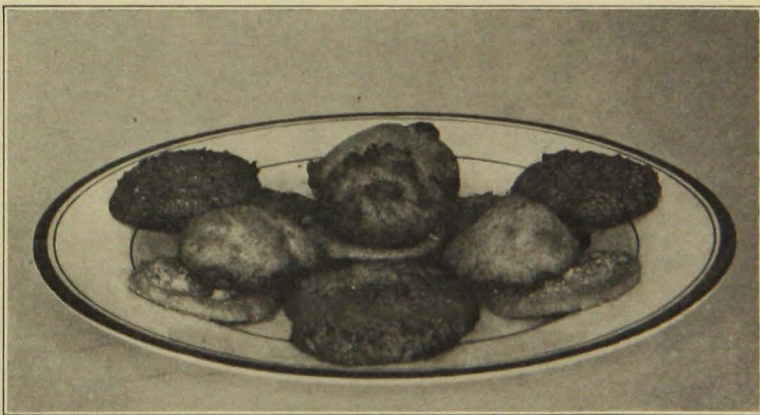


Fig. 1. Honey Cookies

Measuring Honey

If fat is one of the ingredients, measure it first, then the honey in the same cup. The fat will form a light coating on the cup and the honey will come out easily. If no fat is used, grease the cup lightly with melted fat before measuring the honey.

If both honey and sugar are to be used in the recipe, grease the upper division of the cup into which the honey will be measured. Measure the necessary sugar into the lower part and then fill the upper portion with honey.

RECIPES FOR USING HONEY

The following recipes are the result of experimental work with honey. All measurements are level.

HONEY QUICK BREADS

Honey Orange Biscuit (16 medium size)

Temperature: 400° F.

Time: 25 minutes

2 cups flour	1 cup milk
1 teaspoon salt	2 tablespoons honey
4 teaspoons baking powder	2 tablespoons finely cut orange peel
6 tablespoons shortening	

1. Sift dry ingredients.
2. Work in shortening.
3. Add liquid, honey, and orange peel, and stir a few times after dough thickens.
4. Drop by spoonfuls in muffin tins and bake in a hot oven until well-browned.

Honey Date Nut Bread (1 medium loaf)

Temperature: 350° F.

Time: 1 hour

1 cup white flour	½ cup nuts
2 teaspoons baking powder	½ cup dates
½ teaspoon salt	1 egg, well beaten
1 cup whole wheat flour	1 cup milk
	½ cup honey

1. Sift white flour, baking powder, and salt. Add whole wheat flour, brown sugar, nuts, and dates.
2. Combine egg, milk, and honey.
3. Turn liquids into dry ingredients, stirring just enough to combine.
4. Place in greased pan and bake in a moderate oven until golden brown.

Honey Cinnamon Rolls (18 to 24—small)

Temperature: 400° F.

Time: about 30 minutes

3 cups flour	6 tablespoons shortening
1 teaspoon salt	2 tablespoons honey, mixed into
6 teaspoons baking powder	1 cup milk

1. Sift dry ingredients and work in shortening.
2. Add liquid and honey and stir until the dough thickens.
3. Roll dough one-half inch thick and sprinkle with cinnamon.
4. Roll the dough into a long roll and cut crosswise one-half to one inch thick. Bake on greased tin or in muffin tins in a hot oven until well browned.

Honey Coffee Cake (9"×9")

Temperature: 400° F.

Time: 35 minutes

2¼ cups flour	1 cup milk
1 teaspoon salt	1 egg, beaten
6 teaspoons baking powder	2 tablespoons honey
6 tablespoons shortening	

1. Sift dry ingredients.
2. Work in shortening.

3. Mix milk, egg, and honey, add to dry mixture and stir until the dough thickens.
4. Spread in a pan, spread top with honey butter spread or with honey orange spread. Bake in a hot oven until well browned.

Variations: Sliced apples may be laid on top the coffee cake before it is spread with the honey mixture.

Honey Butter Spread

½ cup honey

¼ cup butter (softened)

Blend honey and butter until creamy.

Variation: For orange spread add two tablespoons grated rind of orange.

Honey Muffins (12 medium)

Temperature: 400° F.

Time: 20 minutes

2 cups flour

1 egg, well beaten

4 teaspoons baking powder

1 cup milk

½ teaspoon salt

4 tablespoons shortening, melted

2 tablespoons honey

1. Sift dry ingredients thoroly.
2. Combine egg, milk, melted shortening (slightly cooled), and honey.
3. Turn into dry materials, stir just enough to combine. Mixture should have a rough appearance.
4. Fill greased muffin tins two-thirds full and bake in a hot oven until a golden brown.

Honey Bacon Muffins (12 medium)

Temperature: 400° F.

Time: 20 minutes

2 cups flour

1 egg, well beaten

4 teaspoons baking powder

1 cup milk

¼ teaspoon salt

2 tablespoons honey

½ cup bacon, cooked and cut in small pieces

2 tablespoons bacon fat

1. Sift dry ingredients thoroly, and add the bacon.
2. Combine egg, milk, melted shortening (slightly cooled), and honey.
3. Turn into dry materials, stir just enough to combine. Mixture should have a rough appearance.
4. Fill greased muffin tins two-thirds full and bake in a hot oven until a golden brown.

HONEY CAKES

Honey Apple Sauce Cake (8"×8"×2½")

Temperature: 350° F.

Time: about 1 hour

½ cup lard

1 teaspoon soda

1 cup honey

1 teaspoon cinnamon

1 egg

½ teaspoon cloves

2¼ cups flour

½ teaspoon salt

1 cup raisins

1 cup apple sauce (thick puree)

1 cup nuts

½ teaspoon vanilla

1. Cream the lard, add the honey, and cream until well mixed.
2. Beat egg into the creamed mixture.
3. Mix one-fourth cup flour with the raisins and nuts. Add to creamed mixture.
4. Add the apple sauce and sifted dry ingredients.
5. Pour into greased pan and bake in a moderate oven until well browned.

Honey Chocolate Cake (8"×8"×2½")

(Sour Milk)

Temperature: 370° F.

Time: 40 minutes

½ cup fat	1 teaspoon baking powder
½ cup sugar	1 teaspoon soda
¾ cup honey	½ teaspoon salt
1 egg, separated	¼ cup water
2 squares chocolate, melted	½ cup sour milk
2½ cups flour	1 teaspoon vanilla

1. Cream fat, sugar and honey thoroly (about 2 minutes).
2. Add egg yolk and chocolate; beat thoroly.
3. Add sifted dry ingredients alternately with liquids (water, sour milk, vanilla).
4. Fold in stiffly beaten egg white.
5. Pour in greased or lined pan and bake in moderate oven until well browned.

Honey Devils Food Cake (11"×7"×2½")

Temperature: 350° F.

Time: 45 to 50 minutes

½ cup fat	2¼ cups bread flour (or
¾ cup honey	2½ cups cake flour)
½ cup sugar	½ teaspoon soda
1 egg, separated	½ teaspoon salt
2 to 4 squares bitter chocolate	2 teaspoons baking powder
	¾ cup milk
	½ teaspoon vanilla

1. Cream sugar, fat, and honey thoroly.
2. Add egg yolk well beaten, then melted chocolate.
3. Add sifted dry ingredients alternately with liquid. Add vanilla.
4. Fold in egg white beaten until stiff.
5. Bake in moderate oven (350° F.) for 45 to 50 minutes.

Honey One-Egg Cake (8"×8"×2½")

Temperature: 360° F.

Time: 40 minutes

½ cup shortening	2½ cups bread flour
½ cup sugar	3 teaspoons baking powder
½ cup honey	½ teaspoon salt
1 egg	1 cup milk
	1 teaspoon vanilla

1. Cream softened shortening, sugar, and honey. Beat in the egg.
2. Add the sifted dry ingredients alternately with the milk. Add vanilla.
3. Pour into greased pan and bake in moderate oven about 40 minutes.

Honey Spice Cake (Sour Milk) (8"×8"×2½")

Temperature: 360° F.

Time: 40 minutes

½ cup lard	½ teaspoon allspice
½ cup sugar	¼ teaspoon cloves
½ cup honey	½ teaspoon cinnamon
1 egg, beaten	1 cup raisins or currants
½ teaspoon salt	2¼ cups cake flour
½ teaspoon soda	1 cup sour milk
1 teaspoon baking powder	

1. Cream lard, sugar, and honey. Add egg.
2. Add sifted dry ingredients alternately with milk to creamed mixture. Add floured raisins.
3. Pour into greased pan and bake in moderate oven for about 40 minutes.

Honey Crumb Torte (10-inch pie tin)

Temperature: 275-300° F.

Time: 15-20 minutes

Crust:

- 1¼ cups browned bread crumbs
- ¼ cup sugar
- ¼ cup shortening
- ¼ teaspoon cinnamon

Filling:

- 2 cups milk
- ¼ cup honey
- 3 tablespoons flour
- ⅛ teaspoon salt
- 2 eggs, separated

1. Mix ingredients for crust and pack into a baking pan, reserving 2 tablespoons for the meringue topping.
2. Mix flour, honey, salt, and egg yolks thoroly and cook with the milk until thickened.
3. Pour onto the crumb crust.
4. Beat egg whites until they begin to pile but not stiff.
5. Add 1 tablespoon honey and ⅛ teaspoon of salt and beat until stiff.
6. Spread on top of custard, sprinkle with the reserved crumbs.
7. Bake in slow oven until meringue is delicately browned.

NOTE: If pie is to be served immediately or a short time after baking, increase flour in the filling to 4 tablespoons. Left-over toast may be used for the crumbs.

Honey Fruit Cake (about 5 pounds)

Temperature: 200° F.

Time: 2½ to 3 hours for 1 pound

- ¼ pound citron
- ¼ pound lemon peel
- ¼ pound orange peel
- ½ pound candied cherries
- ½ pound nuts
- ½ pound dates
- ½ pound candied pineapple
- ¼ pound cocoanut
- ½ pound raisins
- ½ pound (2 cups) flour

- 1 teaspoon allspice
- ½ teaspoon nutmeg
- ½ teaspoon cloves
- 1 teaspoon baking powder
- 1 teaspoon salt
- ½ pound (1 cup) shortening
- ½ cup honey
- ½ cup sugar
- 5 eggs—well beaten
- ½ cup fruit juice

1. Shred peel. Halve cherries, nuts, and dates. Cut pineapple in pieces size of almonds. Chop cocoanut very fine.
2. Add ¼ cup of flour (or more) to coat fruit thoroly.
3. Sift remaining flour with dry ingredients.
4. Cream shortening, sugar, and honey. Add eggs.
5. Add dry ingredients and fruit juice alternately.
6. Mix batter and fruit thoroly and place batter in baking tins lined with 2 or 3 layers of paper, allowing ½ inch of the paper to extend above all sides of the pan. Fill pans ¾ full. Bake in a slow oven 2½ to 3 hours for 1-pound size.

NOTE: For 1-pound cakes, use tin approximately 2¼"×6"×2½". Place shallow pan with water in oven during the baking. This helps to give a glaze on top. Peel paper free from cakes while warm.

Cakes may be decorated with pieces of fruit before placing in oven. One-half cup honey may be used in place of the ½ cup sugar, making 1 cup honey for the cake. Other fruits may be used. Honey cakes keep moist longer than sugar cakes.

Honey Prune Cake (9"×9" pan)

Temperature: 325° F.

Time: about 1 hour

½ cup shortening	1 teaspoon cinnamon
½ cup honey	¾ teaspoon salt
½ cup sugar	¼ cup sour milk
1 egg, well beaten	1 teaspoon vanilla
2 cups bread flour	1¼ cups prunes, cut fine
1 teaspoon soda	

1. Cream shortening, add honey and sugar. Add egg and beat to blend.
2. Add sifted dry ingredients alternately with the liquid (including vanilla).
3. Pour half the batter into the greased tin.
4. Add fruit to remaining batter and pour on top of first batter.
5. Bake in slow oven until well browned.

NOTE: Soaked or cooked prunes may be used. Do not have prunes too moist.
Dried apricots may be substituted for the prunes.
All honey (1 cup) may be used in place of honey and sugar.

Rich Honey Ginger Bread (9"×12"×1")

Temperature: 325° F.

Time: 40 minutes

1½ cups flour	½ teaspoon cinnamon
¼ cup sugar	½ teaspoon cloves
2 teaspoons baking powder	1 egg, well beaten
¼ teaspoon soda	½ cup honey
½ teaspoon salt	½ cup milk or water
½ teaspoon ginger	4 tablespoons shortening, melted

1. Sift dry ingredients.
2. Mix egg, milk, honey, and shortening (slightly cooled).
3. Combine liquid and dry ingredients and mix thoroly.
4. Pour into well-greased flat pan and bake in a slow oven for about 40 minutes.

HONEY FROSTINGS**Honey Frosting with Cocoa (Uncooked)**

1 cup powdered sugar	¼ cup honey
3 tablespoons cocoa	2 teaspoons lemon juice
⅛ teaspoon salt	2 tablespoons butter

1. Mix sugar, cocoa, and salt.
2. Add honey, then lemon juice and melted butter.
3. Mix until creamy; ¼ cup of nuts may be added.

Honey Frosting (Uncooked)

1 teaspoon butter, softened	2 teaspoons lemon juice
1 cup powdered sugar	½ teaspoon salt
¼ cup honey	

1. Add powdered sugar to the butter, little at a time, and cream well.
2. Add honey and remaining ingredients, mixing well. One-fourth cup of nuts may be added.

Seven-Minute Icing (for 1 average-size cake)

1 tablespoon water	⅓ cup sugar
1 egg white	⅛ teaspoon salt
¼ cup honey	

1. Heat water to boiling in lower part of double boiler.
2. Place ingredients in upper part of double boiler in the order given. Place over boiling water.
3. Beat mixture with a rotary beater, beating steadily until mixture piles when tested by raising beater above the surface.
4. Remove from fire, beat until cool enough to spread.

NOTE: All honey may be used ($\frac{2}{3}$ cup) if desired. This proportion gives a very sweet frosting.

Honey Meringue (for 1 small pie)

(Uncooked)

1 egg white $\frac{1}{4}$ cup honey $\frac{1}{8}$ teaspoon salt

1. Add honey and salt to egg white.
2. Beat until mixture peaks. This requires considerable beating.
3. Place on pie or pudding.

NOTE: Use as garnish for desserts instead of cream, as meringue for single-crust pies, or as frosting for cakes.

May be kept uncovered in refrigerator for several weeks. A larger quantity prepared at one time is recommended if well-liked.

HONEY COOKIES

Honey Almond Cookies (5 dozen 2" diameter)

Temperature: 425° F.

Time: 10 minutes

$\frac{1}{2}$ cup fat	3 cups flour
$\frac{3}{4}$ cup sugar	4 teaspoons baking powder
2 eggs and 1 egg yolk, beaten	$\frac{1}{2}$ teaspoon salt
$\frac{1}{2}$ cup honey	1 egg white, slightly beaten
1 tablespoon lemon rind, grated	$\frac{1}{2}$ cup blanched almonds

1. Cream the fat and sugar thoroly.
2. Add beaten eggs, honey, and lemon rind.
3. Add sifted dry ingredients. Chill one hour or longer if mixture does not handle easily.
4. Roll thin, cut and place on baking sheets.
5. Brush top of cookies with beaten egg white, sprinkle with chopped almonds and granulated sugar.
6. Bake in hot oven for about 10 minutes.

NOTE: One-fourth cup of flour may be added if cookie dough is not chilled.

Honey Brownies (10"×10"× $\frac{1}{2}$ ")

Temperature: 350° F.

Time: about 20 minutes

3 tablespoons shortening	1 teaspoon baking powder
1 cup honey	$\frac{1}{8}$ teaspoon salt
1 egg, unbeaten	$\frac{1}{4}$ cup milk
2 squares chocolate, melted	$\frac{1}{2}$ teaspoon vanilla
1 cup flour	$\frac{1}{2}$ cup nuts

1. Combine shortening, honey, egg, and chocolate. Beat well.
2. Add sifted dry ingredients, milk, vanilla, and nuts. Mix thoroly.
3. Spread in greased pan about $\frac{1}{4}$ inch thick and bake in a moderate oven.
4. Cut in serving-size pieces.

NOTE: The brownies may be rolled in powdered sugar after being cut.

Honey Chocolate Drop Cakes (4 dozen 1½" diameter)

Temperature: 350° F.

Time: 15 minutes

1 egg, beaten	½ teaspoon salt
1 cup honey	½ teaspoon soda
½ cup shortening	2 teaspoons baking powder
1½ squares chocolate	½ cup sour milk
1¾ cups flour	½ teaspoon vanilla
	½ cup nuts

1. Combine egg, sugar, honey, shortening, and chocolate. Beat well.
2. Add sifted dry ingredients, liquids, and nuts. Mix thoroly.
3. Drop from a spoon onto a greased baking sheet and bake in a moderate oven about 15 minutes.

Honey Date Bars (2 shallow pans—9"×6")

Temperature: 325° F.

Time: about 45 minutes

3 eggs, well beaten	½ teaspoon salt
1 cup honey	1 teaspoon baking powder
½ to 1 cup chopped nuts	1 cup flour
1 pound dates, stoned and cut	

1. Add honey, nuts, dates, and the dry ingredients sifted together, to the eggs. Mix thoroly.
2. Spread ½ inch (or less) thick in a greased shallow baking pan.
3. Bake in a moderately slow oven.
4. When cold cut into strips, or any desired shapes.

NOTE: Serving pieces may be rolled in powdered sugar or frosted. If baked in thin sheets, pieces may be put together sandwich fashion with a frosting or filling between.

Store in covered jar or tin box and age at least one week before serving.

For Chinese Balls: Cut into 1-inch squares while hot and roll into balls as soon as possible. Roll in granulated sugar, or when cold dip into melted chocolate or fondant.

Honey Ice-Box Cookies (about 5 dozen)

Temperature: 375° F.

Time: 8 to 10 minutes

½ cup fat	3 cups flour
½ cup sugar	2 teaspoons baking powder
½ cup honey	½ teaspoon salt
1 egg, beaten	1 teaspoon vanilla

1. Cream fat, sugar, and honey until thoroly blended.
2. Add egg, sifted dry ingredients, and flavoring. Mix thoroly.
3. Form into smooth roll about 2½ inches in diameter and place in refrigerator or cold place over night, well covered to avoid drying out.
4. With a sharp knife slice as thin as possible (about ⅛ inch) and place on a cookie sheet.
5. Bake in a hot oven until nicely browned.

NOTE: If well covered the cookie roll may be kept in the refrigerator for a week or more and cookies baked as needed.

Soft Honey Cookies (about 3 dozen)

(Drop or Rolled)

Temperature: 375° F.

Time: about 15 minutes

½ cup honey	1¾ cups flour
½ cup shortening, softened	¼ teaspoon salt
1 egg, well beaten	½ teaspoon soda
¼ teaspoon vanilla	2 teaspoons baking powder

1. Mix honey and shortening, add egg and vanilla and beat thoroly.
2. Add sifted dry ingredients. Mix thoroly.
3. Chill dough at least 40 minutes for a rolled cookie. Need not chill for the drop cookie.
4. For drop cookies, drop from teaspoon on greased cookie sheet, or roll chilled dough ¼ inch thick for rolled cookies.

Chocolate-Honey Cookie: Add 4 tablespoons cocoa to the dry ingredients.

Peanut Butter Cookies (about 40 small cookies)

Temperature: 325° F.

Time: 12 to 15 minutes

½ cup brown sugar	1 teaspoon vanilla
1 cup honey	1 teaspoon salt
1 cup peanut butter	1 teaspoon soda
1 cup shortening (lard)	1 teaspoon baking powder
2 eggs, beaten	2 cups flour

1. Cream brown sugar, honey, peanut butter, and softened shortening. Add egg and vanilla.
2. Add sifted dry ingredients. Chill thoroly.
3. Drop cookie dough (½ teaspoon) on cookie sheet and pat out with a fork.
4. Bake 12 to 15 minutes in a moderate oven.

Honey Scotch Short-Bread Cookies (about 24, 1½" diameter)

Temperature: 350° F.

Time: 15 to 20 minutes

1 cup butter	¼ teaspoon salt
¾ cup sugar	2½ cups flour
¼ cup honey	

1. Cream butter, add sugar and honey.
2. Work in flour and salt.
3. Shape into balls using about 1 rounding teaspoon of the dough. Place 1 inch apart and flatten with hand, fork, or knife to ¼ inch thickness.
4. Bake in moderate oven till golden brown.

The short bread may be spread in a pan and cut in squares after baking. Use a tin 9"×9"×½". Bake 30 minutes.

HONEY IN CONFECTIONS

Honey is composed of the sugars levulose and dextrose. It is difficult to crystallize levulose, therefore honey must be used sparingly in products such as cream candies and frostings, in which crystallization is desired. Altho dextrose crystallizes readily, there is not enough to overcome the non-crystallizing property of levulose. Honey foams when heated, therefore it is necessary to watch products (candies, sauces) during the cooking process.

It is not always easy to substitute honey for sugar in candy recipes; therefore recipes resulting from experimental work are desirable.

In a moist atmosphere, the surface of a honey product will become sticky and in the case of candies (taffies, etc.) a syrupy liquid will form. Since no storage place assures a dry atmosphere, honey products are best stored (and aged) in a tight, moisture-proof container. Taffies, caramels, etc., should be wrapped in waxed paper.

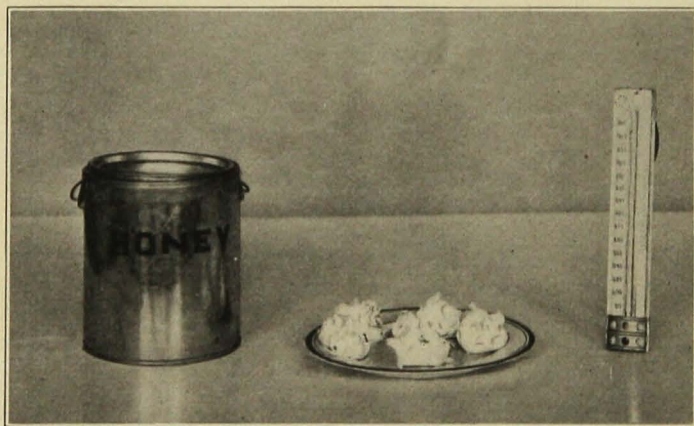


Fig. 2. Honey Divinity

The thermometer was used to insure a satisfactory product.

Cream Butterscotch Balls (1 lb.—40 $\frac{3}{4}$ " balls)

1 cup white sugar	$\frac{1}{3}$ cup butter
$\frac{1}{2}$ cup brown sugar	$\frac{1}{2}$ cup heavy cream
$\frac{1}{2}$ cup honey	1 teaspoon flavoring
$\frac{1}{2}$ teaspoon salt	

1. Mix all ingredients except flavoring and boil to 264° F. or firm ball stage.
2. Remove from fire and add vanilla or lemon flavoring.
3. Pour into buttered pan.
4. When cool, shape into small balls. Wrap in waxed paper.

Honey Crackerjack or Popcorn Balls (32 pieces 2"×1½"×1")

$\frac{1}{2}$ cup honey	1 tablespoon butter
$\frac{1}{2}$ cup sugar	$\frac{1}{4}$ teaspoon vanilla
$\frac{1}{2}$ teaspoon salt	1 to 1½ quarts popped corn
1 teaspoon vinegar	

1. Cook together honey, sugar, salt, and vinegar until it is brittle when tested in cold water, or 278° F.
2. Remove from heat and add butter and vanilla.
3. Pour hot syrup over unsalted popcorn placed in a very large bowl. Mix well and shape into balls with greased hands, or pack into greased pan. Cut into squares when firm.

NOTE: Rice Crispies, or corn flakes may be used.

Nuts may be added.

Honey Divinity (pan 11"×7"×1")

2 cups sugar	½ cup water
¼ teaspoon cream of tartar	2 egg whites
¼ teaspoon salt	½ cup or more nuts or cocoanut
¼ cup honey	

1. Mix salt and cream of tartar with sugar.
2. Add honey and water and boil to hair stage (hair 4 inches long) at 250° F. Pour over stiffly beaten egg whites, beating constantly.
3. When stiff enough to hold its shape, add cocoanut. Drop by spoonfuls on waxed paper or pour into buttered pan and cut into squares. Nuts, candied cherries, or pineapple may be used.

Fruit Medleys (1½ pounds—about 50 pieces 1"×½"×¼")

2 cups ground fruit (dried)	½ to 1 cup nuts
¼ to ⅓ cup honey	½ teaspoon salt

1. Mix ingredients and press into shallow pans lined with waxed paper.
2. Cover with waxed paper and weight down over night.
3. Cut into squares. Roll in granulated sugar or dip into melted chocolate, or fondant if desired.

NOTE: Dates, figs, apricots, prunes, etc., and candied fruit peels alone or in combination may be used. Grated lemon rind, or lemon juice are excellent additional flavors.

Lollypops: Shape mixture on wooden skewers instead of pressing into pans. Dip in melted chocolate or fondant when firm and slightly dried over surface.

Honey Salt-Water Taffy

1 cup sugar	½ cup water
¼ tablespoon cornstarch	1 tablespoon butter
¼ cup corn syrup	1 teaspoon salt
¼ cup honey	1 teaspoon vanilla

1. Mix sugar and cornstarch thoroly.
2. Add remaining ingredients (except vanilla) and stir until sugar is all dissolved and the mixture boils.
3. Boil to hard-ball stage (256° F. if thermometer is available).
4. Remove from fire, add flavoring, and pour on greased platter after bubbling has ceased.
5. When cool enough to handle, pull until light colored.
6. Cut into serving pieces and wrap in waxed paper.

NOTE: For variation, chopped nuts or cocoanut may be added. These may be sprinkled over the cooled candy before it is taken up for pulling. If several batches are being made, some may be delicately colored.

Honey Taffy (⅞ pound—50 pieces 1½"×¾")

1½ cups sugar	2 teaspoons butter
¼ cup honey	½ teaspoon vanilla
¼ cup water	

1. Heat sugar, honey, and water, stirring until sugar is dissolved.
2. Cook without stirring until mixture is brittle when tested in cold water, or 278° F.

3. Add butter and vanilla and pour into greased pan.
4. Cool, then pull until it is no longer possible.
5. Cut into serving pieces with scissors (grease blades) and wrap in waxed paper.

Candied Orange Peel

1½ cups cooked orange peel	¼ cup sugar
¼ cup water	¼ teaspoon salt
½ cup honey	

1. Remove peel carefully in as large sections as possible.
2. Cover with hot water and simmer for 45 minutes. Drain.
3. Cut peel in quarter-inch strips.
4. Weigh peel.
5. Measure the same weight of sweetening agent as you have peel, using ½ sugar and ½ honey. With each cup of sweetening agent use ¼ cup of water. Add a sprinkle of salt.
6. Make a syrup of sugar, honey, water, and salt. When it boils, add the peel.
7. Cook peel until transparent, or about 20 minutes.
8. Let stand in remaining syrup for 24 hours.
9. Drain. Roll in granulated sugar.
10. Spread on waxed paper and expose to the air until stickiness is gone.
11. Pack into tight containers of glass or tin. Peel may be kept in refrigerator if desired.

NOTE: One pound of peel contains about 75 pieces ¼"×2".

HONEY SAUCES

Butterscotch Sauce (1½ cups)

1½ cups light brown sugar	½ cup water
¾ cup honey	¼ cup butter

1. Cook sugar, honey, and water until syrupy (230° F.).
2. Remove from fire and add butter.
3. Mix thoroly. Serve hot or cold.

NOTE: One tablespoon of lemon juice adds to the flavor and lessens the sweetness.

Honey Chocolate Sauce (1¼ cups)

1 square chocolate	¼ cup water
½ tablespoon cornstarch	½ cup milk
½ cup honey	2 tablespoons butter
½ teaspoon salt	½ teaspoon vanilla
Cinnamon (speck)	

1. Melt chocolate in upper part of double boiler.
2. Mix salt, cinnamon, cornstarch, honey, and water together and add to melted chocolate.
3. Cook directly over heat until mixture thickens. Stir constantly.
4. Add milk slowly and cook over hot water 15 minutes.
5. Remove from fire and add butter and vanilla.

Emergency Chocolate Sauce (about 1 cup)

2 squares bitter chocolate	¼ teaspoon salt
1 cup honey	

1. Melt chocolate in double boiler.
2. Add honey and salt and beat with rotary beater until well blended. Do not store in refrigerator. Keeps indefinitely.

NOTE: Use hot or cold as sauce over ice cream, or with any desserts with which chocolate sauce may be served.

Honey Whip-Cream Sauce (1 cup)

$\frac{1}{2}$ cup heavy cream 2 tablespoons honey $\frac{1}{8}$ teaspoon salt

1. Beat cream and fold in the honey and salt.

HONEY IN JAMS, JELLIES, AND MARMALADES

Honey may be substituted for all or a part of the sugar in jam, jelly, and marmalade.

The product made with honey is a little darker than the one made with sugar.

As a rule, it is better to substitute only half of the sugar with honey in jelly or there will be a honey flavor rather than a fruit flavor and the product may have a gummy texture.

Jellies made with honey must be cooked to a higher temperature. All honey may be easily used in preparing fruit butters and marmalades and pickles.

Apple Jelly with Honey

3 pounds (1 dozen) apples 3 cups water

1. Wash, remove stems, blossom ends and any unsound portions of apples. Cut into small pieces, place in preserving kettle, and add water.
2. Cover, cook with medium heat for 20 minutes or until fruit is soft, stirring frequently.
3. Pour cooked fruit into bag wrung out of hot water. Drain several hours or over night.
4. Test cold fruit juice for pectin to determine quantity of sugar necessary.
5. Measure juice and concentrate for 3 minutes.
6. If pectin test is not used, use $\frac{1}{2}$ cup sugar plus $\frac{1}{2}$ cup honey for 1 cup juice if apples are tart; if not tart, $\frac{3}{8}$ cup sugar plus $\frac{3}{8}$ cup honey.
7. Add sugar and honey slowly to boiling juice, stirring until sugar is dissolved. Boil rapidly until syrup sheets readily from a spoon or until the thermometer registers 219° F. Remove from stove, skim, and pour into hot sterilized glasses, cool, and paraffin, cover, and label.

NOTE: If apple juice does not taste sour, add 1 tablespoon lemon juice. Grape juice may be made up in the same way, but mash the grapes and add no water or a very little. Cook grape jelly to 220° F.

Honey Spiced Grape (7-8 jelly glasses)

$3\frac{1}{2}$ pounds grapes 1 teaspoon nutmeg
 3 cups honey 1 teaspoon cinnamon
 $\frac{3}{4}$ cup vinegar $\frac{1}{2}$ teaspoon cloves
 $\frac{1}{4}$ cup water $\frac{1}{2}$ teaspoon salt

1. Wash grapes. Separate skins and pulp. Simmer the latter enough to press through colander, leaving behind the seeds.
2. Mix all ingredients and simmer until thick, or about $\frac{3}{4}$ hour, stirring frequently.
3. Pour into hot sterilized glasses and seal with paraffin.

NOTE: The grape skins may be chopped or ground, making a smoother product. Spiced grape should be thick enough to hold its shape, with a uniform distribution of fruit throughout.

Nuts or raisins may be added just before serving.

An asbestos mat used under the kettle, after mixture begins to simmer, relieves danger of scorching.

Honey Grape Butter (9-10 jelly glasses)

6 cups grape pulp	2 cups honey
1 cup grape juice	½ teaspoon salt

1. Cook grape pulp and juice for 5 minutes.
2. Add honey and salt. Cook until thick and clear, about 30 minutes, stirring often.
3. Pour into hot sterilized glasses and seal at once.

NOTE: Honey grape butter should be smooth and thick enough to spread but not to hold its shape, or a consistency of soft butter.

Spices and vinegar may be added to taste.

The pulp left after jelly extraction may be used.

Nuts or raisins may be added just before serving.

Amber Marmalade

1½ cups orange, pulp and peel	½ cup lemon, pulp and peel
2 cups grapefruit, pulp and peel	½ teaspoon salt

1. Wash fruit and remove any scale, rust, or soft places.
2. Cut in sections and grind through food chopper.
3. Measure fruit and for each cup of fruit add 2½ cups of water.
4. Cook ten minutes.
5. Measure and add ½ cup honey and ¼ cup sugar for each cup of mixture.
6. Cook until it gives a jelly test or about 221° F.
7. Pour into sterilized glasses and when cool seal.

NOTE: A medium size of grapefruit and lemon and two medium-size oranges make approximately the quantities given above.

Orange Carrot Lemon Marmalade

1½ cups carrots	2 cups oranges, pulp and peel
¼ cup lemon, pulp and peel	

1. Prepare and cook fruit as for Amber Marmalade, using the same proportions. The time of first boiling should be increased to 15 minutes in order to get the carrots tender.

NOTE: The carrots may first be cooked until tender in a small amount of water.

Rhubarb Honey Jelly

1 cup juice	⅝ cup sugar
1 tablespoon dry pectin	¾ cup honey

1. Measure juice into saucepan and place over fire.
2. Add pectin slowly, stirring constantly until dissolved.
3. Add sugar and honey, stirring until dissolved, and bring to a boil.
4. Boil rapidly until jelly test is obtained (5 to 10 minutes).

Honey Chocolate Ice Cream (1 quart freezer)

1½ teaspoons gelatin	½ cup honey
¾ cup milk	1½ squares chocolate
¾ cup cream	½ teaspoon vanilla

1. Soften the gelatin in half the milk.
2. Dissolve softened gelatin in scalded milk and cream.
3. Add honey and melted chocolate and vanilla.
4. Cool and freeze, using 8 parts ice by volume to 1 part salt.
5. Remove dasher and pack to ripen.

Variations: **Banana**—Omit the chocolate and add one medium-sized banana, crushed.

Mocha Grapenut—Omit the chocolate and add 3 tablespoons mocha flavoring and ⅓ cup grapenuts.

Mocha Flavoring—4 tablespoons coffee, ½ cup water. Simmer 5 minutes.

Honey Ice Cream (1 quart freezer)

2 cups thin cream (18%), scalded	⅛ teaspoon salt
⅓ cup honey	1½ teaspoons vanilla
1 egg (or 2 egg yolks)	

1. Add scalded cream slowly to blended egg and honey. Cook over hot water with constant stirring until mixture forms a coating on the spoon.
2. Cool the custard and add salt and flavoring.
3. Freeze until stiff, remove dasher, and ripen.

Variations: **Chocolate**—Omit ½ teaspoon vanilla and add 1 square of melted chocolate to the custard.

Banana—Omit vanilla and add a mashed banana to the custard.

Strawberry—Omit vanilla and add ¾ to 1 cup crushed strawberries to custard.

MISCELLANEOUS HONEY USES**Chilled Fruit Bouillon**

1 tablespoon gelatin	¼ cup honey
½ cup cold water	Juice and rind of 1 orange
2 cups rhubarb juice, boiling	Whipped cream—if desired

1. Soften gelatin in the cold water.
2. Add the boiling fruit juice and stir until thoroly dissolved.
3. Add remaining ingredients (except the cream) and pour into a large mold having a layer not more than ¾ inch thick. Chill.
4. Cut into cubes for service. Garnish with whipped cream if desired.

Fruit Juice Cocktail I

1½ cups rhubarb* juice (or other tart juice)	1 cup water
½ cup honey	Few grains salt

1. Mix ingredients and chill thoroly.

Fruit Juice Cocktail II

1 cup rhubarb* juice (or other tart juice)	1 to 2 teaspoons lemon juice
1½ cups pineapple juice (or other canned fruit juice)	3 to 4 tablespoons honey
	Few grains salt

1. Mix ingredients and chill thoroly.

*Rhubarb juice: ½ cup water to each pound of rhubarb cut in ½-inch pieces.
Cook until tender and strain through cloth.

Coddled Apples in Honey

1 cup honey	¼ teaspoon cinnamon or cinnamon candies
¼ cup vinegar	Apples
¼ cup water	

1. Make a syrup with honey, vinegar, and water by boiling together for three minutes.
2. Core whole apples or cut in quarters, leaving skins on.
3. Place apples in syrup and cook gently until they become soft or transparent.
4. Remove to serving dish and pour remaining syrup over apples.

NOTE: If red apples are desired, add to the syrup 6 cinnamon candies for each apple. These apples may be served with ham or other meats. If a dessert is desired, use water in place of vinegar.

Honey Syrup

1 cup honey	¼ cup hot water
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1. Mix honey with hot water and heat to just below the boiling point. This syrup may be used for breakfast cereals, griddle cakes, waffles, or cornbread.

Honey Butter Syrup: Add ¼ cup butter to the honey syrup and stir to blend.

Drizzled Honey

Honey, drizzled, gives a more delicate flavor and tastes less sweet than poured honey, because less is used. To drizzle, place the honey pitcher in warm, not hot, water for about ten minutes before using. Pour the warm honey in tiny threads on the food to be flavored.

Drizzled honey will be relished on griddle cakes, waffles, grapefruit, cereals, pumpkin pie, unsweetened whipped cream, ice cream, bread and butter slices.

Cooked Salad Dressing (1½ cups)

3 tablespoons flour	¾ cup water
¼ to ½ cup honey	¼ cup vinegar or lemon juice
1 teaspoon mustard	2 tablespoons butter
½ teaspoon salt	2 eggs, or 4 yolks—beaten
¼ teaspoon pepper	

1. Mix dry ingredients; add water, honey, and vinegar to form smooth paste.
2. Boil 5 minutes or cook 10 minutes in double boiler.
3. Remove from flame, and pour slowly into eggs, stirring to combine thoroly.
4. Return to fire and cook until egg thickens, stirring constantly (about one minute). Add butter, and stir enough to blend.

NOTE: The dressing may be thinned with cream when used, or folded into whipped cream.

Lemon juice may be substituted for part or all of vinegar, especially for fruit dressings.

Pepper may be omitted for fruit dressing, or white pepper used.

Pumpkin Pie with Meringue (1 medium)

Temperature: 275° F.

Time 15 to 20 minutes

2 egg yolks, beaten

½ cup honey

1 cup pumpkin pulp

1 tablespoon cornstarch

½ teaspoon salt

¼ teaspoon each cinnamon,
ginger and nutmeg

2 egg whites

1 tablespoon honey

1 baked pie shell

1. Mix yolks, honey, pumpkin, cornstarch, salt, and spices thoroly.
2. Cook until cornstarch is thoroly done (10 to 15 minutes).
3. Cool and place in baked shell.
4. Beat egg whites until they pile slightly, but not stiff.
5. Add honey (1 tablespoon) and few grains salt and beat until stiff.
6. Spread over filling, bringing it to edge of pie crust and leaving irregular surface.
7. Bake in slow oven until meringue is delicately browned.

Honey in Sandwiches

The following sandwich fillings are tasty :

Crystallized honey and cream or cottage cheese and chopped nuts.

Crystallized honey and chopped raisins and nuts.

Crystallized honey and chopped raw carrots, raisins, and nuts.

Crystallized honey and candied ginger or orange peel.

Honey and peanut butter.

Honey and cream cheese.

Honey and ground dried fruits.

APPENDIX

THE AVERAGE CHEMICAL COMPOSITION OF HONEY,¹ BASED
ON A SAMPLE 500 CUBIC CENTIMETERS, TOTAL
WEIGHT 725 GRAMS (25.6 OZ.)

The Principal Components

	Per cent	Grams	Ounces
Water	17.7	128.3	4.5
Dextrose (grape sugar).....	34.0	246.6	8.6
Levulose (fruit sugar).....	40.5	293.6	10.2
Sucrose (cane sugar).....	1.9	13.7	0.8
Dextrins and gums.....	1.5	10.9	0.3
Ash (silica, iron, copper, manganese, chlorine, calcium, potassium, sodium, phosphorus, sulphur, aluminum, magnesium)	0.18	1.305	0.04
Total	95.78	694.4	24.44

Substances Occurring in Relatively Small Quantities

Acids (formic, acetic, malic, citric, succinic, amino)
Pollen grains
Beeswax
Pigments (carotin, xanthophyll)
Albuminoids (proteins)
Chlorophyll decomposition products

Known Substances Difficult to Demonstrate Quantitatively

Enzymes:

Invertase (converts sucrose to dextrose and levulose)
Diastase (converts starch to maltose)
Catalase (decomposes hydrogen peroxide)
Inulase (converts inulin to levulose)

Aromatic bodies (terpens, aldehydes, esters)
Higher alcohols (mannitol, dulcitol, etc.)
Maltose, rare sugars (sometimes melezitose, etc.)

Analysis of White Clover Honey (*Trifolium repens*)²

	Moisture	Invert Sugar	Sucrose	Ash	Dextrin	Undeter- mined	Free acid (as formic)
	per cent	per cent	per cent	per cent	per cent	per cent	per cent
Maximum....	20.24	78.15	7.09	0.20	2.46	7.45	0.10
Minimum....	14.54	70.32	0.00	0.04	0.07	3.11	0.05

Honey Equivalents

Measure	Weight
1 cup honey (extracted)	12 ounces
1 cup honey (extracted)	340.2 grams
1 gallon honey (extracted).....	12 pounds

¹ Prepared by U. S. Department of Agriculture.² U. S. Department of Agriculture, Bureau of Chemistry Bulletin 110 (1908) or J. A. M. A. 103:918 (1934)