Canning & Preserving Recipes

(EDITION "E")

HOW TO PRESERVE FRUITS AND VEGETABLES

ISSUED BY
Ball Bros. Glass Mfg. Company
Muncie, Indiana
INDEX

APPLES ........................................ 19
  Baked—Canned .............................. 21
  Butter .................................... 21
  Canned .................................... 19
  Chutney ................................... 21
  Ginger ..................................... 21
  Jelly ...................................... 20
  Marmalade ................................ 21
  Pickled .................................... 20
  Preserved ................................ 20
  Spiced ..................................... 20
  With Quince ................................ 20

APRICOTS .................................... 39
  Apricots and Pineapples .................. 39

ASPARAGUS—Canned ......................... 39

BARBERRIES—
  Pickled .................................... 48
  Preserved .................................. 48

BEANS—
  Canned, String .......................... 40
  Canned, Lima .............................. 40

BEETS ......................................... 41

BLACKBERRIES—
  Canned .................................... 32
  Cordial .................................... 33
  Jam ......................................... 33
  Jelly ....................................... 33
  Preserved .................................. 33

BLUEBERRIES—
  Canned .................................... 49

BRUSSELS SPROUTS ......................... 47

CANNING—
  Methods of ................................ 9
  Principles of ............................. 7
  Rules for .................................. 5-6

CARROTS—Canned ......................... 47

CATSUP—
  Crab Apple ................................ 22
  Currant .................................... 30
  Cucumber .................................. 42
  Gooseberry ................................ 29
  Sweet Pepper ................................ 47
  Tomato ..................................... 46
  Wild Grape ................................ 35

CAULIFLOWER ......................... 41

CELERY ......................................... 41

CHERRIES—
  Barriers .................................. 25
  Canned ..................................... 24
  Maraschino ................................ 25
  Preserved .................................. 24
  Syrup ....................................... 25
  With Currants ............................. 25
  With Pineapple ............................ 25

CHILI SAUCE ................................ 45

CHOW CHOW .................................. 43

CHUTNEY—
  Apple ...................................... 21
  East India ................................ 21
  Peach ....................................... 17

CIDER—
  Boiled Down ................................ 23
  Sweet Apple ................................ 22

CITRON ......................................... 49

CRAB APPLES—
  Butter .................................... 22
  Catsup ..................................... 22
  Pickled ..................................... 22
  Preserves .................................. 22
  Spiced ..................................... 22

CUCUMBERS .................................. 42

CURRANTS—
  Catsup ..................................... 30
  Jellies ..................................... 30
  Preserved .................................. 29
  Relish ..................................... 30
  Spiced ..................................... 29
  With Red Raspberries .................... 29

Egg Plant ................................... 47

FIGS—
  Marmalade ................................ 37
  Pickled ..................................... 37
  Preserved .................................. 37

GENERAL PRINCIPLES OF CANNING ......... 8

GINGER—
  Apple ...................................... 21
  With Pears ................................ 18

GOOSEBERRIES—
  Canned ..................................... 28
  Catsup ..................................... 29
  Conserve ................................... 29
  Marmalade .................................. 28
  Preserved .................................. 28
  Relish ..................................... 29
  With Rhubarb ................................ 28

GRAPEFRUIT—Marmalade .................... 37

GREENS ......................................... 47

GUAVAS ........................................ 38

HUCKLEBERRIES ......................... 48

INDIA RELISH ......................... 45

JAM—
  Blackberry ................................ 33
  Black Raspberry and Currant ............. 32
  Green Gage ................................ 24
  Kumquat .................................... 36
  Red Raspberry ................................ 31
  Strawberry and Pineapple ................ 27

JELLY—
  Apple ...................................... 20
  Blackberry ................................ 33
  Black Raspberry .......................... 31
  Black Raspberry and Currant .......... 32
  Currant .................................... 30
  Currant and Red Raspberry ............. 30
  Elderberry ................................ 48
  Grape ....................................... 34
  Mulberry ................................... 48
  Persimmon .................................. 50
  Plums ....................................... 23
  Quince ...................................... 19

JELLY MAKING ....................... 14-15

KUMQUIATS ................................. 38

LEMONS ....................................... 48
| INDEX—Continued |
|-----------------|-----------------|
| Page | Page |
| MANGOS— | Marmalade .......... 19 |
| Cucumber Sweet .......... 43 | Preserves .......... 19 |
| Peach .......... 17 | RASPBERRIES—BLACK— |
| Pepper .......... 46 | Canned .......... 31 |
| METHODS OF CANNING .......... 9-10 | Jam .......... 31 |
| MULBERRIES .......... 48 | Jelly .......... 31 |
| MUSKMELON .......... 49 | Marmalade .......... 31 |
| NEARINES .......... 38 | Preserves .......... 31 |
| ONIONS .......... 40 | RASPBERRIES—RED |
| Oranges— | Canned .......... 30 |
| Marmalade .......... 31 | Jam .......... 31 |
| Whole .......... 38 | Marmalade .......... 30 |
| With Currants .......... 31 | ORANGES— |
| PARSNIPS—Canned .......... 47 | Marmalade .......... 38 |
| PEACHES— | Whole .......... 38 |
| Brandied .......... 17 | PARSNIPS—Canned .......... 47 |
| Butter .......... 16 | PEACHES— |
| Canned .......... 16 | Brandied .......... 17 |
| Chutney .......... 17 | Butter .......... 16 |
| Mangoes .......... 17 | Canned .......... 16 |
| Pickled .......... 17 | Chutney .......... 17 |
| Preserved .......... 16 | Mangoes .......... 17 |
| PERSIMMONS .......... 50 | PEACHES— |
| PICKLED— | Pickled .......... 18 |
| Apples—Sweet .......... 20 | Preserved .......... 18 |
| Barberries .......... 48 | Preserved .......... 18 |
| Cauliflower Mustard .......... 42 | Pickled .......... 18 |
| Carrots—Sweet .......... 46 | Preserved .......... 18 |
| Celery .......... 41 | Pickled .......... 18 |
| Crab Apples .......... 22 | Preserved .......... 18 |
| Butter .......... 42 | Pickled .......... 18 |
| Cucumber Oil .......... 42 | Preserved .......... 18 |
| Cucumber Ripe .......... 43 | Pickled .......... 18 |
| Dill Winter .......... 43 | Pickled .......... 18 |
| Eggs .......... 37 | Pickled .......... 18 |
| Grapes .......... 35 | Pickled .......... 18 |
| Guava—Sweet .......... 38 | Pickled .......... 18 |
| Lemon .......... 38 | Pickled .......... 18 |
| Onions .......... 40 | Pickled .......... 18 |
| Peaches .......... 17 | Pickled .......... 18 |
| Pears, Whole .......... 18 | Pickled .......... 18 |
| Rummage .......... 45 | Pickled .......... 18 |
| Strawberries—Sweet .......... 27 | Pickled .......... 18 |
| String Beans .......... 40 | Pickled .......... 18 |
| Tomatoes—Ripe .......... 45 | Pickled .......... 18 |
| Tomatoes—Green .......... 45 | Pickled .......... 18 |
| Tomatoes—Sweet—Green .......... 45 | Pickled .......... 18 |
| Walnuts .......... 51 | Pickled .......... 18 |
| Watermelons .......... 49 | Pickled .......... 18 |
| PINEAPPLES— | SWEET POTATOES .......... 47 |
| Canned .......... 33 | SYRUP— |
| Preserved .......... 33 | Directions for Making .......... 12 |
| With Cherries .......... 33 | TOMATOES .......... 44 |
| With Rhubarb .......... 33 | VEGETABLES .......... 39 |
| PLUMS— | Asparagus .......... 46 |
| Butter .......... 23 | Beans .......... 40 |
| Canned .......... 23 | Beets .......... 41 |
| Conserve .......... 23 | Brussels Sprouts .......... 47 |
| Jam .......... 23 | Carrots .......... 46-47 |
| Jelly .......... 23 | Cauliflower— .......... 43 |
| PLUMS— | Canned .......... 41 |
| PUMPKIN .......... 41 | Pickled .......... 42 |
| QUINCE— | Celery .......... 41 |
| Canned .......... 19 | Corn .......... 39-40 |
| Jelly .......... 19 | Cucumbers— |
| SASSAFRAS SHRUB .......... 50 | Pickles, Catsup & Sauces .......... 42-43 |
| SQUASH .......... 47 | SYRUP— |
| SWEET POTATOES .......... 47 | Directions for Making .......... 12 |
| VINEGAR— | TOMATOES .......... 44 |
| Apple Paring .......... 22 | VEGETABLES .......... 39 |
| Blackberry .......... 27 | Asparagus .......... 46 |
| Black Raspberry .......... 27 | Beans .......... 40 |
| Cider .......... 23 | Beets .......... 41 |
| Clover Blossom .......... 50 | Brussels Sprouts .......... 47 |
| Homey .......... 50 | Carrots .......... 46-47 |
| Strawberry .......... 27 | Cauliflower— .......... 43 |
| Tarragon .......... 50 | Canned .......... 41 |
| WALNUT .......... 51 | Pickled .......... 42 |
| WATERMELON .......... 49 | Celery .......... 41 |
| WATERMELON .......... 49 | Corn .......... 39-40 |
| WINE— | Cucumbers— |
| Dandelion .......... 51 | Pickles, Catsup & Sauces .......... 42-43 |
| Elderberry .......... 50 | SYRUP— |
| Elderberry .......... 50 | Directions for Making .......... 12 |
With the general progress of knowledge in all lines, the needs of the human body have not been forgotten. Scientists have given a great deal of time to the study of foods and their dietetic value and it is a subject well worth the attention of all thinking people. The old adage "Man eats to live" is as true to-day as it ever was, only now we give more care to supplying the right elements of food in the right proportions. Food is classified as follows:

1. Proteid  
2. Carbohydrates (sugar and starch)  
3. Fats and oils  
4. Mineral matter  
5. Water

The chief use of the carbohydrates is to furnish energy and maintain heat. So we see that they are an important factor in the food of the adult or child who is constantly using up mental or physical force.

Fruits and vegetables are the chief foods that furnish carbohydrates and are valuable for their starch, sugar, acids and salts. Fruits especially are stimulating and refreshing and act as a tonic and assist in purifying the blood. The following formula is the average ration for the adult for a day:

\[ \frac{4}{3} \text{ Ounces Proteid} \\
2 \text{ Ounces Fat} \\
18 \text{ Ounces Starch} \\
5 \text{ Pints Water} \]

From this formula we see what large factors starch or fruit sugar are in the diet of man. Since vegetables and fruits supply these elements in a large degree, we recognize the importance of supplying these foods the year around. Some people are not able to eat much sugar, but they need not exclude fruits entirely, for plums, peaches, apricots or raspberries contain very little sugar and can be eaten with safety by people who can not digest other fruits.

In cases where uncooked fruit can not be eaten, many kinds can be taken cooked, and form a valuable addition to an otherwise restricted diet.

In order to have a variety of good fruit and vegetables the year around the wise housekeeper improves the opportunity of canning and preserving the many fruits and vegetables in their season.

Any housekeeper who will read carefully and follow explicitly the directions and receipts in this book may always have on hand a store of wholesome fruits and vegetables and so can offer not only a variety of food to her family, but can supply the right proportion of food elements which will help to keep all members of the family well and strong.

Desiring to urge the raising of more and better fruit, we have included a few pages of information on the now important subject of SPRAYING and hope that any who raise any fruit whatever will read those pages carefully.

Suggestions for improving future editions of this book will be appreciated.

Your friends,

BALL BROS. GLASS MFG. CO.

Use a granite colander when making marmalade.
Preserve fruits as soon as possible after picking. Canning within twelve hours is better than within twenty-four, and within one hour better than either.

Select fruit slightly underripe; avoid fruit overripe or decayed. Fruit slightly underripe contains more acid, and therefore requires less heating. The less heat required, the better the color, shape and flavor of the preserved fruit. Get a good Jar and sterilize the glass and the cap and rubber thoroughly by immersing them in boiling water.

Use the method of canning best suited to the fruit. The syrup method is adapted for acid fruits such as berries and currants, and the steaming or boiling method for hard fruits which must be cooked soft, such as the apple and the pear. All three methods of canning are described in detail beginning on page 7.

Whichever method of canning fruit is used, proceed as follows: Put Jars and caps in a pan, cover with boiling water and keep hot until ready for use. This is for the purpose of sterilizing them, prevents breakage, and is important. Many find it desirable to sterilize by boiling the Jars and caps for twenty minutes. When ready to fill Jars, place them on a clean china plate or granite pan to catch the liquid that overflows, put a new rubber in place and see that it lies flat on the sealing shoulder or seat and does not set on the edge against the neck of the Jar, fill the Jar to overflowing with the boiling fruit or liquid, and seal it at once. Fill the Jar to overflowing to drive out all the air. Return to the kettle the liquid and fruit that overflows.

As soon as the Jar is filled to overflowing, seal it without waiting to fill another. Bacteria are liable to fall upon the fruit in the Jar if it stands open, and they may later cause fermentation.

Screw the cover on the Jar promptly and as tight as possible, when it is first put on, and do not disturb thereafter by later attempts to tighten. Some believe the Jars are more likely to be sealed air-tight if, after they have stood over night, an attempt is made to further tighten the cover. If they are properly tightened in the first place any later attempt will not tighten them more, but will only tend to disturb the sort of cement which the heat has formed and which assists in shutting out the air and bacteria.

After sealing, stand the Jars in the kitchen, out of a draft, over night. A draft of cold air coming in contact with hot glass sometimes causes Jars to break. After a few days examine the Jars carefully and if the fruit has “worked” at all, open and repeat the process of heating, filling, etc. The “working” may be due to some little error which the second attempt will correct.

Never try to wipe the overflowing juice off the rubber or the outside of the Jar before the Jar is sealed, as bacteria are almost sure to fall upon the fruit from the cloth.

*Success in canning lies in complete sterilization.*
Always use new rubbers of good quality; throw away the old rubber. More fruit spoils on account of “last year’s” rubber than from any other single cause. It is poor economy to lose a Jar of fruit, with the sugar and labor, in trying to save one rubber. The rubbers that are packed in BALL Jars are the best.

The rubber should be moist when put on the jar.

Throw away all metal caps dented on the edge and all glass covers that are chipped, for they will not seal the Jars tight enough to keep out air. The covers of BALL Mason Jars are made from the purest acid-proof zinc.

Can vegetables while they are fresh; only thus is it possible to secure the best results.

Always use one of the methods of sterilization, described in detail on page 11, for canning all vegetables except tomatoes. Use the steaming method for tomatoes.

When the vegetables are steamed for the third time, seal each Jar as it is removed from the boiler without waiting to take out a second Jar.

Remember that two things are necessary for successful canning: (1) The killing of all bacteria in the fruit or on its surface and on the Jar and cover; (2) The sealing of the Jar so that the bacteria, always present in the air, can not enter. Bacteria can go wherever air goes, so the Jars must be sealed air-tight.

To open Jars run a knife under the rubber, between the rubber and the glass, not between the rubber and the metal cap, and hold it until the air enters. The cover can then be removed easily. Do not pry, for that dents the cover. Pouring fairly hot water on top of the Jar will also permit the cap to be removed easily. If the rubber can be grasped between the fingers it may be pulled out until air enters.

To test a Jar—Before using a Jar for canning, it can be tested. This testing is accomplished by partly filling the Jar with water, adjusting cover and rubber, sealing, and inverting the Jar. If it leaks, examine to find whether the leakage is owing to an imperfect Jar or cap or glass lid or to poor rubber. If the Jar is imperfect, reserve it for use in canning pickles or some fruit that does not require sealing.

Some find it a good plan to turn the filled Jars of fruit upside down over night before storing them away. Thus, if by chance a defective ring or Jar or cap has been used it will be detected and the contents can be transferred to another jar.

Use glass Jars in place of tin cans for all canning and preserving, for the glass is more sanitary than tin and is much more economical, although the first cost may be double, for the glass will last many years, while the tin can not be used more than once.

Small fruits such as cherries and berries will usually rise to the top of the Jar, leaving the clear liquid syrup or juice at the bottom of the Jar. This is because the fruit shrinks and is lighter than the liquid. Therefore, fruit so rising does not mean that there is anything wrong with it.

**BE CAREFUL TO HAVE THE JAR AS HOT AS THE FRUIT THAT IS PUT INTO IT. IF NOT THE JAR MAY BREAK.**

You can not get first-class canned fruit from second-class fresh fruit.
General Principles of Canning

The preservation of fruits and vegetables by canning is now an exact and known science. Our grandmothers, and even our mothers, were content to lose entirely many quarts of fruit each year; and they were never surprised to find a layer of mold on top of each jar. Science has made wonderful advances, however, and in these days any woman can preserve fruit and vegetables without the loss of a single jar or a trace of mold.

No housewife can be sure of success in canning until she understands why fruit and vegetables, canned or uncanned, spoil. There are two principal reasons—bacteria and molds. Bacteria and molds are minute plants, generally so small that single individuals can not be seen without the microscope. Both grow from seed-like bodies called spores. The spores are so small and light that they float about in the air when dry. They are always present on the outside of fruits and vegetables, but can not enter until the skin is broken. When the spores once fall upon a spot favorable for growth, such as peeled apples or corn cut from the cob or mashed strawberries, they immediately grow and multiply with great rapidity. Under favorable conditions a single spore may produce millions of bacteria in a single day; and in a short time they become so numerous that they cause the decay of the fruit or vegetable.

To be successful the efforts of the fruit canner should be directed toward the killing of the bacteria and molds in and on the fruit, and then the sealing of the fruit in jars so that no more spores can enter to set up growth. The molds are easier to deal with than the bacteria. Molds require a constant supply of fresh air, so they cause little trouble, even if the jar is not absolutely air-tight. The bacteria that thrive in fruits and vegetables, however, work even if no air is present; therefore all in the fruit must be killed and the jars must be sealed so tight that no more can enter. On the other hand, the acid usually present in fruit has no effect on molds, but is very unfavorable for bacteria.

Bacteria can be killed or made inactive by the use of preservatives, but this is highly undesirable. The same chemicals that preserve fruits and vegetables from bacteria in the jars prevent entirely the proper action of the digestive fluids on these same fruits in the stomach. In addition, the preservatives are likely to act as poisons in the body. There are three means used in dealing with bacteria in fruits and vegetables—the natural acid (if any is present), the use of sugar, and the application of heat. Such fruits as gooseberries and cherries con-

Never fill a second Jar before sealing the first.

[7]
tain so much acid that little else is necessary to protect them from bacteria. In a strong sugar solution, such as preserves or jelly, bacteria are entirely unable to "work." Most bacteria are killed if heated to the boiling point of water for a few minutes, and no bacteria that cause canners trouble can withstand this temperature longer than a few hours.

The four methods of using sugar, heat and the natural fruit acid so as to make bacteria inactive or to kill them, are called the Syrup Method, the Steaming Method, the Boiling Method, and the Method of Intermittent Sterilization. All four methods are described in detail under METHODS OF CANNING.

The rules for the canning of fruits and vegetables given on preceding pages are the best that have been devised to make sure of the killing of all bacteria on the fruit and in the jars, and to insure that none enter the jars after sealing. Any woman can preserve fruit and vegetables successfully by following carefully the simple rules given there, and the more detailed rules which follow for each fruit and vegetable.

The housewife should always remember that though the application of heat kills bacteria, it also destroys the natural color, shape, and flavor of most fruits. Therefore heat should be applied only as far as is absolutely necessary. If fruit contains acid, less heat is necessary. In fact, rhubarb contains so much acid that it need not be heated at all; its own acid will protect it from bacteria. Cherries, gooseberries, and strawberries contain considerable acid, so they need but little heating. If it contains proteid also, it offers a good field for bacteria; the proteid in part offsets the effect of the acid by furnishing an abundant food supply. Apples contain acid, but also much of the proteid favorable for the growth of bacteria, so they require considerable heating. Corn contains little acid but much proteid, so it must be cooked thoroughly for several hours. The following table is simple and shows at a glance the different classes fruits and vegetables fall into. It enables the housewife to judge roughly for herself how much heat is necessary for preservation:

Strongly acid fruits and vegetables (little or no heating required)—Rhubarb, cherries, strawberries, gooseberries, red raspberries, currants, pineapples, tomatoes.

Fruits containing considerable acid but also considerable proteid (moderate amount of heating necessary)—Apples, pears, quinces, grapes, peaches, plums, blackberries, black raspberries.

Vegetables containing little acid and much proteid (long continued heating required)—Corn, beans, peas, beets, asparagus, carrots.

Do you read the general directions as well as the individual recipes? [8]
Methods of Canning

Twenty years ago the housewives used only the boiling method of canning, because they knew no other. Since then great progress has been made in the methods of canning just as there has been progress along all lines of work.

We have taken great pains to investigate the scientific methods developed by the United States Government and by advanced domestic science schools, and have tried to take the most practical recipes from all these sources and present them in the simplest form for the use of our friends.

It will be seen below that there are four methods of canning. The one should be chosen that is best adapted to the product that is to be canned.

The Syrup Method is perhaps the easiest and will be successful when used for small fruits or those containing much acid, that need little cooking.

The Steaming Method is also quite simple and is the best method to use when it is desired to preserve the form and color of the product.

The Method of Sterilization is the only means of insuring the preservation of vegetables that require long cooking—corn for example.

The Boiling Method is preferred by people who care more for the flavor of the syrup than for the form and color of the fruit.

PREPARING THE FRUIT AND JARS

Select only firm fruit, picked as recently as possible. Such fruits as strawberries and raspberries deteriorate very rapidly after leaving the vine, and even cherries and gooseberries are at their best when picked. Only such fruits as apples and pears may stand long without considerable loss. With smaller fruits it is impossible to begin canning too soon; whenever circumstances permit they should be preserved within an hour after picking.

With the exception of cherries, apples, blackberries, and pineapples, select fruit underripe rather than overripe. The underripe fruit contains more acid, and therefore less heat is necessary in preserving it. Slightly underripe fruit is also less likely to be soft or decayed as the result of handling and shipping.

Wash the fruit by gently lifting it in and out of water several times. Do not allow the fruit to stand in water for even a few minutes, as this causes softening and makes the entrance of bacteria easy.

Don’t use the same rubber twice; your fruit may spoil if you do.
If the syrup method of canning is used, sterilize the jars and covers by boiling them in water twenty minutes.

It is not necessary to sterilize the jars and covers if any of the other methods are used, as the steaming of the hot fruit will kill all bacteria present on jars and covers. However, the jars should be well cleaned.

**THE SYRUP METHOD**

Put the prepared fruit into BALL Jars that have been sterilized by boiling for twenty minutes. Stand one jar on a clean china plate or granite pan, put a new rubber in place, fill the jar to overflowing with a heavy boiling syrup, and seal it at once with a sterilized cover. (See directions for making the syrup on page 12.) Proceed likewise with the other jars.

When using this method the jars must not be packed too closely with fruit, because there would then be too much fruit in comparison with the amount of syrup and the syrup would therefore not heat the fruit nor the jar sufficiently. This is especially true if the fruit being canned is somewhat solid. The syrup must be boiling when it is poured into the jar.

The syrup method should only be used for small fruits, which do not require much cooking, such as berries and currants.

**THE STEAMING METHOD**

A steam cooker is necessary for the steaming method. Steam cookers can be bought for a few dollars, but the home-made ones serve fully as well. Any flat-bottomed vessel that has a cover fitting moderately tight, and that is deep enough to be covered after the jars are placed inside, makes a good steamer. The steam cooker must be provided with a false bottom of some sort so the jars will not be broken by the fierce heat applied on the bottom. This false bottom may be strips of wood, shingles, common window screening, or excelsior.

Place the prepared fruit in BALL Jars, put the covers in place loosely without the rubbers, and with the “Sure Seal” Jar DO NOT put the top wire or lever wire in final place, but leave them loose so as to not hold the glass cover tight, stand the jars in a wash boiler (or other steam cooker) on a false bottom and surround them with a few inches of warm water. Boil the water until the fruit is well heated throughout. The time required varies widely with different fruits; in general about half an hour is necessary if quart jars are used, and more than twice as long with two-quart jars. When the fruit
is well heated throughout remove one of the jars, stand it on a plate, fill the jar to overflowing with a boiling syrup, and seal it at once. (See directions on page 12 for making the syrup.) Proceed likewise with the other jars.

Steaming causes all fruits to shrink, but some much more than others. For these fruits more syrup is required to fill the jars to overflowing. Some housewives prefer to use the fruit in one jar to fill the others; but if this is done great care should be taken to prevent the fruit from cooling, or it may become infected with bacteria.

This method retains the color and shape of the fruit better than the boiling method. Some think the flavor is not as rich as when the fruit is boiled in the syrup.

THE BOILING METHOD

Make a thin syrup of sugar and water. The proportion varies with different fruits, but is generally about a pint of sugar to two pints of water. Place the prepared fruit in enough syrup partially to cover it and boil it until thoroughly heated. Twenty minutes of boiling is necessary in any case if the fruit contains little acid. During the boiling stir the fruit as little as possible so that the shape may be at least partially retained. Place a BALL Jar on a clean china plate or in granite pan, put a new rubber in place, fill the jar to overflowing with the boiling fruit and syrup (always dipping from the part of the kettle that is boiling hardest) and seal at once. Proceed likewise with the other jars until the kettle is empty.

METHODS OF STERILIZATION

Vegetables such as corn, beans, peas and asparagus are difficult to preserve for three reasons:
1. They contain little or no acid.
2. They contain considerable proteid, the very best food for bacteria.
3. They are infested with the kinds of bacteria that form spores which resist a high degree of heat for a long time.

The method of sterilization, however, even though it is somewhat troublesome, makes possible the home canning of vegetables.

There are two methods for sterilization, the Intermittent and the Continuous. Both have been advocated by the United States Government in the Department of Agriculture. We give both methods. The Continuous method requires much less work and is the one now recommended by the

*It is economy to can fruit within an hour after picking it.*

[11]
Department, and the rules for it will be found in the receipt for Corn. The Intermittent Method is as follows:

Put the vegetables to be canned in BALL Jars as for the steaming method. Put the covers in place loosely with the rubbers, and with the "Sure-Seal" Jar DO NOT put the top wire or lever wire in final place, but leave them loose so as to not hold the glass cover tight, stand the jars in the wash boiler (or other steam cooker), surround them with a few inches of warm water, and steam them for an hour. This kills all the growing bacteria, but the spores for the most part escape. Remove the jars from the cooker, seal them tight, and let them stand twenty-four hours. Though the high temperature of the steaming fails to kill the spores, it stimulates them to growth. At the end of twenty-four hours most of them will have started growth, and will be in the stage where moderate heat kills them easily. Therefore at the end of twenty-four hours place the jars in the boiler again, loosen the covers, leave the wire of "Sure-Seal" Jars loose, and steam the jars again for an hour. This steaming kills all the spores that have developed. To make sure that none escape, however, seal the jars again, let them stand another twenty-four hours, and then steam them an hour for the third time. This insures death of the last spores. Remove one jar from the boiler, and seal the jar at once for the last time, this time with "Sure-Seal" Jar, being sure to put top wire in place and snap down lever wire, which should have sufficient tension to press glass cover down firmly on the rubber. Proceed likewise with the other jars.

This method insures the preservation of corn, peas, beans, and other vegetables. The amount of work at first seems large, but it can easily be reduced. Instead of removing the jars from the steamer each day, merely set the steamer to one side, after tightening covers. Allow the jars to remain in the boiler until the next day. Then continue the operation for two days as above.

DIRECTIONS FOR MAKING SYRUP

To make a syrup suitable for plain canning take a pound of sugar to two and one-half large cups of water. This can be varied to suit the taste. If a sweeter syrup is desired, more sugar may be added. The directions in this book sometimes call for a heavy syrup. Make this syrup by boiling together three pounds of granulated sugar and a quart of water. This makes one and a fourth pints of syrup. This should be boiled until it shows indications of threading. At this point it should be put in the jar at once, for should it boil longer it will candy in the bottom of the jars. If more syrup is needed, use more sugar and water, in the same pro-

Bacteria can not thrive in acid fruits.
portion as above. The syrup should always be boiling when poured into the jar.

RECOVERING FRUIT AND SYRUP THAT OVERFLOWS

One of the commonest mistakes in home canning is the failure to fill the jars to overflowing with the boiling fruit or syrup. This should always be done without fail, as the hot material drives out the remaining air and kills all bacteria on the cover, rubber and rim of the jar. It is cheaper to lose a little fruit and syrup than a whole jar of fruit. The overflow, however, need not be lost; if the jars are placed in a clean china plate or a granite pan when they are filled, the fruit and syrup may be caught and returned to the kettle. Under no conditions wipe off any of the overflow from the outside of the jar before it is sealed, because of the danger of introducing bacteria.

IMPORTANT

Put the cover in place IMMEDIATELY after the jar is filled to overflowing and screw it tight, and with "Sure-Seal" Jar put wire levers firmly in place with sufficient tension to press glass cover tightly down on rubber. It is dangerous to let the jar stand for even half a minute, as spores are floating about in the air at all times, and even one that is not killed by the hot syrup or fruit is enough to spoil a whole jar of fruit. Many women prefer to invert the jars at once so the hot contents may thoroughly sterilize the covers, but if the jars are filled to overflowing this is not necessary. The jars should be set aside on a newspaper to cool, and the overflow washed off at leisure.

It is important that the jars be stored in a cool, dry place. Bacteria flourish in warm and damp places and are likely to secure entrance to the fruit, in time, if stored in such places. Light fades fruit. BALL Jars are made of green glass, which protects the contents from the effects of too strong light.

Never let the water from a faucet run on delicate fruit like berries or currants.
The Principles Underlying Jelly Making

Few things connected with the preservation of fruit cause more trouble and irritation than the failure of fruit juice to "jell" at all times. At one time the jelly is perfect, and the housewife congratulates herself that at last she has found the best method. But again, under conditions apparently exactly the same, the juice simply will not "jell," or it turns to a mass of sugar and candy. Without the instrument called the syrup gauge, no person can be sure of uniform success; there are some simple rules, however, that ordinarily insure success.

The explanation of many failures lies in the composition of fruits. All fruits at the time they are ripe contain more or less of a substance called pectin. If the fruit juice is extracted, the pectin goes with it in solution. If the right proportion of sugar is now added to the juice, and the mixture heated to the boiling point for some time, the pectin causes the juice to harden into jelly.

The pectin, however, does not exist in the fruit at all stages of ripeness. In fact, it forms just at the time of ripening or a little before, and it disappears soon afterward. Therefore, fruit for jelly making should be just ripe or slightly underripe. It is for this reason that overripe fruit almost invariably fails to make good jelly; the pectin has disappeared, in whole or in part. If the extracted juice is allowed to stand in a warm place for any length of time it ferments; and fermentation takes from the pectin its power to cause hardening. Too long heating has exactly the same effect upon the pectin as fermentation.

Adding the improper amount of sugar to the juice also causes failure. If too much sugar is added, the juice candies or crystalizes. If too little is added, the juice must be boiled a long time to evaporate the surplus water, and this causes the pectin to lose its power to bring about hardening.

Not all fruits contain pectin in the same abundance. In general the acid (or sour) fruits contain most; but the strawberry, though acid, contains very little pectin. Often extremely good jelly can be made from the juice of some fruit not containing much pectin, such as the cherry, by mixing it with the juice of a fruit rich in pectin, such as the currant. The most desirable fruits for jelly making, in the order of their desirability, are: Currant, crab apple, apple, quince, grape, blackberry, raspberry, plum.

Always keep the cover on the boiler while steaming fruit.
Clear jelly can be obtained only when the juice is extracted without subjecting the fruit to pressure. Doubling the cloth through which the fruit drains, adds to the clearness. When all the juice possible has been drained off without pressure, more may be obtained by applying pressure. Jelly made from this juice is just as well flavored and as nutritious as any, but is not clear.

One must use judgment and test jellies in the making by putting a spoonful on a plate. If the juice jellies quickly, it is done. If a jelly is not as hard as it should be the day after it is made, setting it in the sun for several hours helps it greatly.

If water has been added to the fruit in boiling it before the juice is extracted, or if the fruit has been picked shortly after a rain, boiling the juice down somewhat before adding the sugar produces good results. Boiling the juice in a large-bottomed vessel makes possible more rapid evaporation and reduces the length of time required; it prevents both the candying and the gumminess of the jelly to a considerable extent.

It is almost impossible to succeed with jelly if the juice is boiled slowly. There is greater likelihood of success, therefore, if only a small amount of juice is boiled at a time.

Jelly contains so much sugar that bacteria can not work in it. Molds, however, find jelly a good feeding-ground. As molds require a constant supply of oxygen, the jelly can be protected by covering it with melted paraffine as soon as it has cooled. The paraffine soon hardens and shuts out the air and also dust. Store jelly in a cool, dry place.

If the syrup gauge is used, it reads 25 degrees when the right amount of sugar has been added to the juice. If the reading is more than 25 degrees, add more unsweetened fruit juice; if less than 25 degrees, add more sugar.

If a “mint jelly” or mint flavor is desired, remove the leaves from the mint stems, using leaves from about six to twelve stems for each twelve glasses of jelly. Crush the leaves and tie them in a cheese-cloth bag. Put the bag in the kettle with fruit to boil. When enough flavor has been boiled out to suit taste, remove the bag. The mint flavor is used chiefly in crab apple and grape jelly.

Jellies may be colored by using vegetable coloring liquids. Different colors of jelly in the same glass or “layer jelly” may be had by mixing the coloring liquid in only a part of the jelly, pouring first a half-inch of uncolored into the glasses and letting it harden a trifle, and then a half-inch of colored and so on.
Peaches

Peaches to be preserved should be well ripened, as then the amount of sugar in the fruit is greatest. No special care is required in handling them, except they should not be bruised needlessly.

Peaches contain considerable acid, therefore they may be canned easily. The syrup, boiling and steaming methods may be used; there is little choice among the two methods. The clingstone varieties in general have the best flavor, but the flesh sticks to the seeds so closely that it is difficult to remove. For pickling purposes, however, clingstone peaches are the best. The “fuzz” on peaches is hard to wash off, but it may be easily removed by wiping with a damp cloth.

CANNED PEACHES—Syrup Method. Peel the peaches, cut them into halves, and remove the seeds. Drop them into water boiling in a granite kettle, and let them boil slowly without stirring until a silver fork will pierce them. In another granite kettle make a thin syrup, using enough sugar to sweeten the peaches. Remove the peaches from the boiling water and drop them carefully into the boiling syrup. Allow them to simmer for five minutes. Remove them to BALL Jars that have been sterilized by boiling in water for twenty minutes, fill the jars to overflowing with the boiling syrup, and seal them immediately, using new rubbers.

CANNED PEACHES—Steaming Method. Peel the peaches, cut them into halves, remove the stones, and drop them into BALL Jars. Put the covers in place loosely without the rubbers, stand the jars in a wash boiler on a false bottom, surround them with a few inches of warm water, and steam them until the peaches are thoroughly tender. This usually requires an hour for quart jars. Remove one jar, put a new rubber in place, fill the jar to overflowing with a heavy boiling syrup, and seal it at once. Proceed likewise with the other jars.

Note. The syrup may be added before the fruit is steamed.

CANNED PEACHES—Boiling Method. Make a thin syrup, using half as much sugar as water. Drop in prepared peaches and continue the boiling slowly until they are tender. Dip the peaches carefully into BALL Jars, fill the jars to overflowing with the boiling syrup, and seal them at once.

Note. Peaches canned by the boiling method retain their natural flavor better than any other fruit. In fact peaches cooked in the syrup in this way will have a better flavor than if steamed in the jar.

PRESERVED PEACHES. Drop the prepared peaches into a heavy boiling syrup, and continue the boiling until they are tender and the syrup very thick. Pour the preserves into carefully heated BALL Jars and seal them, using new rubbers.

Note. The flavor of preserved peaches is so rich that many people prefer the fruit in other forms.

PEACH BUTTER. Wash the peaches and remove the “fuzz” by rubbing them with a damp cloth, but do not
peel them. Place them in a granite kettle, add a little water, and stew them until they are very tender. Run them through a fruit press or colander to remove the pits and skins. Put the pulp into a clean preserving kettle and sweeten it to suit the taste. Boil it until it is very thick and of a rich color, stirring it constantly. Pour it into carefully heated BALL Jars while it is boiling hot, and seal them at once with new rubbers.

**Note.** Peach butter is ordinarily considered better if it does not contain spices.

**Caution.** Use great care in making the butter not to burn it; stir it constantly and vigorously.

**PEACH CHUTNEY.** Peel the peaches and remove the stones. Add a pint of vinegar to each four quarts of peaches and cook them until they are soft. Add another half pint of vinegar, half a cupful of chopped onions, half a cupful of sugar, a quarter of a pound each of raisins and white mustard seed, two ounces of scraped ginger root, one ounce each of red peppers and garlic. Mix the ingredients well and add another pint of vinegar. Cook the mixture fifteen minutes. Seal the chutney in BALL Pint Jars.

**Note.** Peach chutney is used as a catsup.

**PEACH MANGOES.** Rub freestone peaches with a damp cloth to remove the “fuzz”, cut them into halves, and remove the stones. Make a mixture of equal parts of white mustard, nutmeg, ginger and celery seed, and fill the cavities. Tie the halves together and place them in BALL Jars. Fill the jars three-fourths full of peaches. Then fill to overflowing with boiling vinegar and seal them at once.

**Note.** Whole cloves may be added if desired.

**BRANDIED PEACHES.** Add enough water to two and a half quarts of sugar to dissolve it, and make a syrup. When the syrup boils add four quarts of prepared peaches and continue the boiling for five minutes. Place the fruit carefully in BALL Jars and boil the syrup twenty minutes longer, or until it thickens. Add a pint of white brandy, and while the syrup is boiling hot pour it over the peaches. Seal the jars at once.

**PICKLED PEACHES.** Make a syrup of two quarts of best cider vinegar and six pounds granulated sugar. Place this in a kettle with a spice bag containing one tablespoonful of whole cloves and one-quarter pound of stick cinnamon. Pare and halve the peaches, leaving in an occasional stone for flavor. Cook the peaches in the syrup until tender, then place in glass jars. Fill jars with the vinegar syrup and seal. The peaches may be left whole if preferred.

**Pears**

Pears should be well ripened before they are preserved. Those not ripened may be kept for several weeks if wrapped in tissue paper and stored in a cool, dry place; this makes it possible to extend the time of canning and spread the work over a longer time. Pears are one of the standard fruits everywhere, and because of their high food value and other qualities, should appeal to the housewife. The small sugar pears are best for preserves and Bartlett pears for canning.

**CANNED PEARS—Steaming Method.** Select perfect

Do not give blackberries to very young children. The seeds often cause summer complaint.
pears, wash them thoroughly, peel and halve them, remove the cores, and drop the fruit at once into cold water to prevent discoloration. When the peeling is finished, pack the halves as closely as possible in BALL Jars, and proceed as directed for peaches.

**Note.** This is the best method for canning pears. A little ginger root and lemon may be added if desired.

**CANNED PEARS—Boiling Method.** Pare and halve the pears and remove the cores, but leave the stems, as they add to the appearance. Drop the fruit as soon as peeled into cold water to prevent discoloration. Make a syrup by using sugar and water in the proportion of a pint of sugar to a quart of water. Skim the syrup as soon as it boils; then drop in the pears and cook them slowly until they are tender. Transfer them to BALL Jars with a silver fork, fill the jars to overflowing with the boiling syrup, and seal them at once.

**PEAR PRESERVES.** Use the small sugar pears if they can be secured. Wash and peel the pears, cut them into halves, and steam them until a straw can readily be passed through them. Drop the pears into a heavy boiling syrup and boil them until they are a rich, red color, skimming the syrup as often as is necessary. A few slices of lemon improve the flavor. Dip the pears out carefully, place them in BALL Special Wide-Mouth Jars, and boil the syrup until it begins to jell around the edges. While it is still boiling hot pour it into the jars until they overflow, and seal them at once.

**PEAR BUTTER.** Wash the pears and without peeling them boil them until they fall to pieces. Put them through a colander to remove the cores and seeds. Place the pulp in a stone crock, add half as much sugar as there is pulp, and spice the mixture to suit the taste. Cook the mixture slowly until it becomes smooth and thick, stirring it carefully to prevent burning. Seal the butter in BALL Jars.

**BRANDIED PEARS.** Boil a quart of sugar and a pint of water for two minutes; add two quarts of pears and continue the boiling five minutes longer. Remove the fruit to heated BALL Jars. Boil the syrup until it thickens, add half a pint of brandy, pour the syrup over the fruit, and seal the jars.

**WHOLE PICKLED PEARS.** Peel three pounds of pears, and cut out the blossom ends, being careful to leave the stems. Boil the pears in a quart of water until they can be easily pierced by a straw. Remove the pears and add to the juice one and a half pints of sugar, one pint of vinegar, a stick of cinnamon, a little ginger, and some whole cloves. Boil this syrup five minutes; then place the pears in it and continue the boiling until the syrup is thick. Dip the pears out carefully and place them in BALL Jars. Boil the syrup five minutes longer, remove the spices, fill the jars to overflowing with the boiling syrup, and seal them immediately, using new rubbers.

**PEARS WITH GINGER.** Soak three-fourths of a pound of green ginger root in cold water for two days and drain it. Mix together five pints of water drained from the ginger root, five pints of sugar, five quarts of firm, hard, unpeeled pears cored and cut into pieces, the ginger root scraped and cut into thin slices, and the yellow peeling and juice of four lemons. Cook the mixtures two hours, or until the fruit is transparent and the syrup thick. Seal the pears in BALL Jars.

*Try the BALL “Sure-Seal” Jars. You will like them.*
Quinces

Quinces should be fairly well ripened before they are preserved. The troublesome “fuzz” may be removed by wiping the quinces with a damp cloth.

CANNED QUINCES—Steaming Method. Rub the “fuzz” from the quinces with a damp cloth. Peel, quarter and core the quinces, and place them in BALL jars. Proceed as directed under peaches.

CANNED QUINCES—Boiling Method. Pare the quinces and slice them into quarters. When enough are prepared for two or three jars, put them into a kettle, cover them with water, and boil them until they are tender. Proceed as with peaches.

PRESERVED QUINCES AND APPLES. Make a syrup of three parts of sugar to one part of water. Let this come to a boil. Drop into it quinces which have been pared and halved. When the quinces are cooked tender, remove from the kettle and put in half as many peeled and quartered apples. When these are cooked tender, put the two fruits in a jar in alternate layers and fill up the jars with boiling syrup. The quinces will require considerable more cooking than the apples.

QUINCE JELLY. Remove the “fuzz” with a damp cloth. Cut the quinces into small pieces, put them into a preserving kettle, cover them with water, and boil them until they are soft. Proceed according to the directions given for APPLE JELLY; see page 20.

QUINCE MARMALADE. Cut and quarter unpeeled quinces. Put in kettle and just cover with water. Let cook until tender. Press through a sieve. Measure and add an equal part of sugar. Cook this slowly until quite stiff, being careful to stir frequently to keep from burning.

Apples

Apples are probably used more than any other fruit. They may be preserved fresh for a long time, but the loss from decay is so large after a few weeks that the housewife is forced to preserve a considerable supply if she is to have economical dishes at all seasons with apples as a base. Apples have greater food value than most other fruits because of their large supply of proteids and carbohydrates. This makes them more difficult to preserve than the small fruits, though they also contain considerable acid. They may be canned successfully by either the boiling or steaming method.

The possibilities of crab apples are not realized by most housewives. For some purposes crab apples are superior to other apples. The large number of recipes for crab apples given below show something of their varied uses.

CANNED APPLES—Boiling Method. Make a thin syrup by boiling together water and sugar, using enough sugar to sweeten the quantity of apples to be

Do not let water from a faucet run on delicate fruit.

[19]
canned. Wash, peel, quarter, and core the apples. Drop the quarters into the boiling syrup and boil them until they are tender. Add the grated yellow rind of one lemon for each two quarts of apples. Boil the apples a few minutes longer. Set a BALL Jar on a clean, china plate, put a new rubber in place, fill the jar to overflowing with boiling syrup and apples, and seal it at once. Proceed likewise with other jars until the kettle is empty.

CANNED APPLES—Steaming Method. Wash, peel, halve, and core the apples, and place them in BALL Jars. Proceed as with peaches.

SPICED APPLES. Wash, peel, quarter and core the apples, and then chop them fine. Make a syrup by boiling together for fifteen minutes two quarts of water and two and a half quarts of sugar. Add the rind and pulp of two oranges, two pounds of seeded raisins chopped fine, two teaspoonfuls of cinnamon, and one and a half teaspoonfuls of ground cloves. While this mixture is boiling, add three quarts of the chopped apples. Continue the boiling fifteen minutes longer. Seal the spiced apples in BALL Jars.

Note. Do not stir the apples while they are cooking.

SWEET APPLE PICKLES. Put two quarts of vinegar and three quarts of light brown sugar into a kettle with a spice bag containing a tablespoonful of whole cloves and a quarter of an ounce of cinnamon. Wash, peel, and cut into halves or quarters a peck of ripe sweet apples, and cook them in the syrup until they are almost transparent. Transfer the apples to BALL Jars, cover them with the boiling syrup, and seal the jars at once.

Note. If there is too much syrup, boil it a few minutes after the apples are removed before pouring it into the jars.

SWEET APPLE PRESERVES. Make a heavy syrup of sugar and water, and add the juice and rind of two or three lemons. Wash, peel, and quarter the sweet apples. While the syrup is boiling, add the apples, and continue the boiling slowly until the apples are the consistency of preserves. Seal them in BALL Jars.

Note. When the preserves are done they are a rich golden color and the juice almost jells when cold.

SWEET APPLE AND QUINCE PRESERVES. Use any proportion of apples and quinces desired. Peel, quarter, and core both the apples and quinces, and steam them separately until they are tender. Make a heavy syrup, drop the steamed fruit into it while it is boiling, and continue the boiling until the fruit becomes a rich red color. Avoid stirring if possible. Transfer the fruit to BALL Jars. Boil the syrup down until it is very thick, pour it into the jars until they overflow, and seal them at once.

Note. A few slices of lemon boiled with the fruit improves the flavor.

APPLE JELLY. Wash the apples and cut them into pieces without peeling them or removing the cores and seeds. Put them into a kettle, just cover them with cold water, and cook them until they are soft and tender. Transfer them to a jelly bag and let them drain. Carefully avoid applying pressure if clear jelly is desired. When the juice has all drained out, measure it and return it to the kettle. For every pint of juice add a pint of sugar and boil together for twenty or thirty minutes, testing all the time. When it will jelly on a cool plate it is done. Pour the jelly into

Never use a tin pan for cooking fruit.
BALL Ideal Family Jelly Glasses and cover it with melted paraffine.  
**Note.** If desired, part of the jelly may be flavored with vanilla or other extracts when it is poured into the glasses.

**CIDER APPLE SAUCE.** Wash, peel, quarter and core eight quarts of sweet apples. Put them into a large preserving kettle and add five quarts of boiled-down cider. Boil the apples and cider slowly until the fruit is clear and tender; this takes from two to three hours. Avoid stirring as far as possible. Seal the sauce in sterilized BALL Jars.

**CIDER APPLE BUTTER.** Use sweet cider of good quality and apples that cook easily. Boil the cider down one-half. Wash, peel, quarter and core the apples. Then boil together rapidly equal amounts of apples and boiled-down cider. If the boiling is slow the apples at once sink to the bottom and are liable to scorch. After the first two hours constant and vigorous stirring is necessary to prevent burning. If the butter becomes too thick before it is perfectly smooth, add a little more cider and continue the boiling and stirring. Add sugar at any time after the stirring begins if the butter is not sweet enough. Spice the butter to suit the taste and seal it in BALL Jars.  
**Note.** Apple butter is usually considered better if not highly spiced.

**APPLE CHUTNEY.** Wash, peel, and core four quarts of apples. Cook them with a quart of brown sugar and two quarts of cider vinegar until they are smooth. When the mixture is thick, place it in a crock and add two pounds of seeded raisins chopped fine, a small, mild onion, an ounce each of white and black mustard seed, two ounces of ground ginger, one tablespoonful of salt, and two or three red peppers chopped fine. Mix the ingredients thoroughly, heat them, and let them stand over night. In the morning place the chutney in BALL Pint Jars and seal them.  
**Note.** Apple Chutney may be used as a catsup.

**EAST INDIA CHUTNEY.** Wash, peel, and core twelve sour apples. Remove the seeds and stems from three peppers, one of which should be red. Chop together until they are fine, the apples, a mild onion, the peppers, and a cupful of seeded raisins. Add the juice of four lemons, a pint of cider vinegar, and half a cupful of currant jelly, and let the mixture simmer gently for an hour. Then add a pint of cider vinegar, two cupfuls of sugar, one tablespoonful each of salt and ground ginger, and a quarter of a teaspoonful of cayenne pepper. Cook the mixture another hour, stirring it constantly, and seal it in BALL Jars.  
**Note.** This chutney is used as a catsup.

**APPLE GINGER.** Wash, peel, quarter, core, and chop fine two quarts of sour apples, put them in a pan, and add three pints of brown sugar, the juice and rind of one and a half lemons, half an ounce of ginger root, a little salt, and enough water to keep the apples from burning. Cover the mixture and cook it slowly for four hours, adding water as it is needed. Seal the apple ginger in BALL Jars.

**APPLE AND QUINCE MARMALADE.** Equal parts of apple and quince may be used, or crab apple and quince. Proceed as for Quince Marmalade, page 19.

**CANNED BAKED APPLES.** Wash and core good, sound, tart baking apples. Fill cavities with sugar. Bake until tender in pan containing a little water. Pack the baked apples in hot sterilized jars. Fill the jars complete with syrup made by boiling together for two minutes one part water and one part sugar. Seal the can. By this plan you may have baked apples for little money when fresh fruit is most expensive.

*Always fill each Jar to overflowing and seal it at once.*

[21]
PRESERVED CRAB APPLES. Select perfect, well-colored crab apples, wash them thoroughly, and remove the blossom ends, leaving the stems and skins. Place the apples in a heavy boiling syrup and stew them gently until they are well done. Lift them out of the syrup and put them into BALL Jars. Unless the syrup is very thick, boil it longer until it becomes like jelly; then fill the jars to overflowing and seal them at once.

Note. Crab apple preserves are easily made, and they are superior to other apple preserves in color, shape and flavor.

SPICED CRAB APPLES. Prepare the crab apples as for preserves. Make a heavy syrup, and add to it a few slices of lemon and a bag containing cloves and cinnamon. Drop the apples into the boiling syrup and continue the process as with preserved crab apples.

CRAB APPLE PICKLES. May be made same as Sweet Apple Pickles.

Note. Highly colored crab apples make the best appearance.

CRAB APPLE BUTTER. Wash the apples carefully, cut them up without peeling or coring them, place them in a granite kettle, add enough water almost to cover them, and boil them slowly until they fall to pieces. Remove the apples to a granite colander and press them through. Add the pulp to the water in which the apples were cooked, and allow it to simmer until it is quite thick. Add enough sugar to sweeten the butter, and if desired a little spice. Continue the boiling with constant stirring until the butter is perfectly smooth; then seal it in BALL Jars while it is still hot.

Note. Crab apple butter is somewhat inferior to cider apple butter, but it serves well when apples are scarce, as crab apples are nearly always cheap and abundant.

CRAB APPLE CATSUP. Wash carefully four quarts of crab apples and cook them in a granite kettle with a little water until they are soft. Press them through a coarse granite colander and add one and a half quarts of sugar, two quarts of vinegar, two teaspoonfuls of cinnamon, one tablespoonful of cloves, one tablespoonful of pepper, and two tablespoonfuls of salt. Cook the catsup until it is thick and smooth, and seal it in BALL Jars.

Caution. Stir the catsup constantly while it is boiling to prevent burning.

SWEET APPLE CIDER. Use fully ripened apples free from decay. Wash them thoroughly and remove all leaves. Crush the apples and extract the juice by either a horse or hand power press; but in either case see that it is clean and in a sanitary condition. Fill BALL Jars with the fresh cider, put the covers in place loosely, without the rubbers, stand the jars in a wash boiler on a false bottom, surround them with a few inches of warm water, and steam them an hour. Remove a jar, put a new rubber in place, and seal the jar at once. Proceed likewise with the other jars.

Note. Cider made and preserved according to the directions remains sweet indefinitely. It is excellent to use in making mince meat.

APPLE PARING VINEGAR. Put the parings and cores of apples into a jar, cover them with cold water, and add a pint of molasses for each three or four gallons. Tie mosquito netting over the jar, and add more parings as they accumulate. This makes the very best vinegar.

Do not allow small fruits to stand in water while washing them.
CIDER VINEGAR. Select ripe, sound apples, wash them thoroughly, and grind or press them in a clean press to extract the juice. Place the extracted juice in a large receptacle and allow it to stand for a few days. Then drain off, leaving the sediment in the bottom undisturbed. Wash out the barrels or kegs in which it is to be placed as thoroughly as possible with boiling water. Fill them three-fourths full with the juice. Leave the bung out, but put in a loose plug of cotton to prevent dirt from falling in.

For each five gallons in the barrel add a cake of compressed yeast dissolved in luke warm water. Keep the barrels at a temperature of from 75 to 85 degrees F. if possible. As soon as the alcoholic fermentations cease (which will take several months), drain out the clear liquid, rinse the barrels, and put the clear liquid back again, filling the barrels three-fourths full. Add from two to four quarts of vinegar containing more or less "mother" for each five gallons of liquid. Store the barrels in as warm a place as possible until the vinegar is made; this usually requires from six to twelve months. Then fill the barrels full and bung them tight.

BOILED-DOWN CIDER. Make the cider as directed under SWEET APPLE CIDER. While it is fresh and sweet put it into a large open preserving kettle and boil it until it is reduced one-half, skimming it frequently. Seal it in BALL Jars.

PLUMS

PLUMS are best when allowed to ripen well before picking. They remain in good condition for a week or more after leaving the trees. The Damson plum is a small, blue plum, and it makes a very rich, fine-flavored sauce.

CANNED PLUMS. Measure out a pint of sugar and a pint of water for each quart of plums, and make a syrup. Wash the plums and drop them whole into the boiling syrup. Boil them eight minutes; then seal them with the boiling syrup in BALL Jars.

Note. The plums are less likely to burst if they are pricked with a fork before they are dropped into the syrup.

PLUM JELLY. Use slightly underripe plums. Follow the directions given for CURRANT JELLY; see page 30.

PLUM BUTTER. Follow the directions given under APPLE BUTTER; see page 21.

CANNED DAMSON PLUMS. Wash and stem the plums, measure them, and put them into a kettle with one-half pint of sugar to every one pound of fruit and let them stand over night. In the morning heat slowly and let simmer until the fruit is soft and tender. Seal in BALL Jars, using new rubbers.

Note. The plums are less likely to boil to pieces if a few are cooked at a time.

DAMSON PLUM PRESERVES. Measure out equal amounts of plums and sugar, and put them in layers in a stone crock. Set the crock in a moderately hot oven and cook the contents for three hours without stirring. Seal the preserves in BALL Jars.

PLUM CONSERVE. Remove the stems from a peck

_Canned fruit makes excellent puddings in the winter._

[23]
of Damson plums, and add five pints of sugar, the juice and rind of three oranges and two lemons, and two pounds of seeded raisins chopped fine, or nuts may be substituted for raisins. Boil the mixture until it is the consistency of jelly, and seal the conserve in BALL Jars.

GREEN GAGE JAM. Wash the plums, remove the seeds but not the skins, and for each quart of fruit measure out a little less than a pint of sugar. Dissolve the sugar over the fire in a very little water, and boil and skim it. Add the fruit and cook it rapidly until it jellies. Seal the jam in BALL Pint Jars.

Cherries

Unlike strawberries, cherries should not be preserved until they are dead ripe. If allowed to hang on the trees for a week or two after they are apparently ripe, they almost double in size, turn a rich red color, and become much sweeter. Cherries do not have to be preserved immediately after picking to obtain good results. They remain in good condition twenty-four or even thirty-six hours after leaving the trees.

The application of heat changes the flavor of cherries even more quickly than that of strawberries; they become strong and bitter even when heated for only a short time. Fortunately, however, the large amount of acid in cherries makes continued heating unnecessary. The flavor is improved if sugar is added in the preserving process, though this is not necessary for preservation.

Cherries may be canned with or without the seeds. If the seeds are left in, the fruit has a peculiar spicy flavor that many people like. Cherry seeders are now so cheap and so efficient that it does not pay to seed cherries by hand.

CANNED CHERRIES—Syrup Method. Wash the cherries carefully, remove the seeds, and drop the fruit at once into BALL Jars that have been sterilized by boiling for twenty minutes. Pack the cherries into the jars closely. Put a new rubber on one jar, fill it to overflowing with a heavy boiling syrup, and seal it at once. Proceed likewise with the other jars.

Note. If the cherries are to be used for pies only, the syrup may be made much thinner.

CANNED CHERRIES—Steaming Method. Wash and seed the cherries. Place them in BALL Jars and shake them down carefully. Put the covers in place loosely without the rubbers, set the jars in a wash boiler on a false bottom, surround them with a few inches of warm water, and boil them until the cherries are heated through. Remove one jar, put on it a new rubber, fill it to overflowing with a heavy boiling syrup, and seal it at once. Proceed likewise with the other jars.

CANNED CHERRIES—Boiling Method. Wash and seed the cherries, place them in a preserving kettle with enough sugar to sweeten them (but without water), and heat slowly until the boiling point is almost reached. Put a new rubber in place on a BALL Jar, fill the jar to overflowing with the hot juice and cherries, and seal it at once. Proceed likewise with other jars until all the fruit is sealed.

Note. Boiling is unnecessary to preserve cherries, and it destroys the natural flavor.

PRESERVED CHERRIES. Put two quarts of seeded cherries into a wide-bottomed granite pan, pour over

Sell your surplus canned fruit; there is always a demand.
them three pints of sugar, and set the pan over a slow fire. Do not stir the cherries, but shake the pan frequently as if popping corn. As the sugar dissolves, a liquid covers the cherries. After about thirty minutes, or as soon as the liquid forms, increase the heat enough to cause simmering. Continue the simmering without stirring for twenty minutes. Seal the preserves in BALL Jars.

**Note.** Cherries preserved in this manner have a bright red color and a mild flavor. Regulate the fire carefully and shake the pan frequently to avoid scorching.

**CHERRY AND PINEAPPLE MARMALADE.** Wash, drain, and seed the cherries, and run them through the meat grinder. During this process they lose a great deal of juice; but in making marmalade this is desirable, as long-continued cooking makes the flavor strong, and removing part of the juice helps to remedy this. Peel and slice the pineapple and run it through the meat grinder. Mix with the ground cherries a fourth to a third as much ground pineapple. Place the mixture on the fire and add two-thirds as much sugar as there is fruit and juice. Cook the mixture slowly until it becomes almost thick, stirring it constantly to prevent burning. Pour the marmalade into BALL Ideal Family Jelly Glasses and cover it with melted paraffine.

**Note.** A considerably smaller proportion of pineapple may be used if desired without any loss in the flavor.

**PRESERVED CHERRIES WITH CURRANTS.** To four quarts of seeded cherries add one quart of stemmed currants and five quarts of sugar. After the sugar dissolves, cook the mixture slowly for thirty minutes. Put the preserves into BALL Ideal Family Jelly Glasses and cover them with melted paraffine.

**BARRIERS CHERRIES.** Select and seed fine large cherries, place them in a stone jar, and let them stand twelve hours. Then drain off the liquid, and to the cherries add an equal amount of sugar. When the sugar has dissolved, seal the cherries and liquid in BALL Jars.

**Note.** Cherries preserved thus keep indefinitely. They are excellent served with cold meat.

**OLIVED CHERRIES.** Fill jars with cherries, only the perfect ones with stems. Boil together vinegar and salt in the proportion of one cupful of vinegar to two level tablespoonfuls of salt. Pour this liquid over the cherries after it has cooled, filling the jars to overflowing. Seal securely.

**Note.** Olived cherries serve as a good appetizer.

**MARASCHINO CHERRIES.** Seed the cherries, saving all the juice, measure them, and then measure out an equal amount of sugar. Drain the cherries in a colander and set them on ice. Put the juice and sugar into a preserving kettle and make a thick syrup; add the cherries and let the mixture simmer for fifteen minutes. Drain off half of the syrup and add an equal amount of Maraschino, keeping the kettle covered to prevent the evaporation of the volatile liquor; bring the mixture quickly to the boiling point. Then remove it from the fire and at once seal the cherries in BALL Jars.

**CHERRY SYRUP.** Wash and stone sound, ripe sour cherries. Pack in glass jars with layers of pure white sugar between the cherries. Place the jars in a steamer and surround them with several inches of cold water. Let them steam until the cherries look dry and shriv-
eled. The fruit syrup is then extracted. The jars may then be sealed and stored away or the syrup may be drawn off into other sterilized jars, reheated and sealed.

Strawberries

Because of their delicacy, strawberries are one of the most difficult fruits to can so as to preserve their natural color, shape and flavor. A very slight pressure breaks the skin, and then bacteria quickly enter and cause softening and decay. It is highly important, therefore, that strawberries for preservation be freshly picked and canned as soon as possible after picking. The amount of acid is largest when they are slightly underripe and the berries are also firmest then. They should not bestemmed until after they are washed, as they then lose less juice.

Strawberries contain so much acid that long-continued heat is not necessary to preserve them, therefore they may be canned by any of the three methods given on pages 10 and 11. The steaming and syrup methods perhaps preserve the color and shape of the fruit best, but great care should be used in the syrup method that the syrup boils hard during the entire time that the jars are being filled. If the boiling method is used the berries should not be cooked more than fifteen minutes. This old-fashioned method is sure to preserve the fruit and retain the flavor, but the color and shape may not be as natural.

CANNED STRAWBERRIES—Boiling Method. Wash and stem firm fresh strawberries. Weigh them and to every pound of fruit add one-half pound of sugar. Put berries and sugar in preserving kettle and heat up slowly, shaking kettle occasionally to keep from burning. When the mixture starts to boil let it cook slowly for fifteen minutes. Fill sterilized jars to overflowing with mixture and seal immediately.

Caution. Most important that mixture of syrup should be kept boiling when jars are being filled.

CANNED STRAWBERRIES—Steaming Method. Wash and stem firm strawberries and pack in BALL Jars which have just been sterilized. Have ready boiling a syrup made in proportion of one pound sugar to two and one-half cups of water. Place new rubbers on the jars and fill to overflowing with syrup. Put tops on loosely. Place in steamer and steam thirty minutes. Remove jars one by one and seal.

PRESERVED STRAWBERRIES—First Method. Prepare the berries as for canning. Place two quarts in a wide-bottomed preserving kettle and cover them with one and a half quarts of sugar. Place the kettle over a slow fire. Do not stir the berries, but shake the kettle frequently as if popping corn. Gradually the sugar dissolves and the liquid covers the berries. When this point is reached, increase the heat enough to cause boiling, and continue the boiling slowly for fifteen minutes. Place a new rubber on a BALL Jar, fill it to overflowing with berries and syrup, and seal it at once. Proceed likewise with other jars until all the fruit is sealed.

Caution. Strawberries heated thus scorch very easily, so the fire must be carefully watched. Strawberries can not be preserved successfully by this method if a small-bottomed kettle is used. After the boiling point is reached, avoid hard boiling; allow the berries to simmer.

PRESERVED STRAWBERRIES. Prepare the berries and a heavy syrup as for canning. While the syrup is boiling rapidly, drop in large, firm berries until the fruit is then extracted. The jars may then be sealed and stored away or the syrup may be drawn off into other sterilized jars, reheated and sealed.

Do not pick fruit for jelly making th. day after a rain; it contains too much water.

[26]
syrup is thick with them but not crowded. Lower the heat somewhat and continue the boiling for fifteen minutes, or until the berries are a rich red color and the syrup is thick. Place a new rubber on a BALL Jar, fill it to overflowing with the berries and syrup, and seal it at once. Proceed likewise with other jars until the preserves are all sealed.

**Caution.** Do not cook more than two quarts of berries in kettle at one time.

**STRAWBERRY MARMALADE.** Marmalade affords the best means of utilizing small and overripe berries free from decay. Wash the berries carefully and quickly, stem them, place them in a preserving kettle, crush them, and add three-fourths as much sugar as there is crushed fruit. Boil the marmalade over a slow fire for twenty minutes, stirring it often enough to prevent scorching. Seal it in BALL Jars.

**SWEET PICKLED STRAWBERRIES.** Prepare two quarts of berries as for canning. Add two cupfuls of sugar, and slowly heat the sweetened berries to the boiling point. Add half a pint of vinegar and continue the boiling slowly for ten minutes. Then keep the berries over a slow fire, but below the boiling point, for an hour. Remove the berries to BALL Jars and boil the syrup until it thickens. Put new rubbers in place, pour the boiling syrup into the jars until they overflow and seal them at once.

**FROZEN STRAWBERRIES.** Boil together for half an hour a pint of sugar and a quart of water. Add two quarts of canned strawberries and continue the boiling fifteen minutes longer. When the fruit and syrup cool, freeze them. When the beater is removed from the freezer, add one pint of whipped cream.

**Note.** Preserved strawberries may also be used, but in this case a quart of preserves and a quart of water should be added to the syrup. Other fruits may also be used in place of strawberries with good results.

**STRAWBERRY AND GOOSEBERRY MARMALADE.** Use any proportion of strawberries and gooseberries. Crush the gooseberries and cook them until they are tender. Remove the skins by running the fruit through a colander. Measure the pulp and juice, add an equal amount of sugar, and bring the mixture to a boil. Crush the strawberries, add half as much sugar, and bring the mixture to a boil. Mix the gooseberries and strawberries, and boil the combination slowly for twenty minutes. Pour the marmalade into BALL Ideal Family Jelly Glasses and cover it with melted paraffine.

**STRAWBERRY AND PINEAPPLE JAM.** Pare the pineapples and pick them into small pieces with a silver fork. Boil the pieces in a little water until the pineapple is tender. Make a heavy syrup and drop in the pineapple while it is boiling. Continue the boiling for ten minutes. Then drop in firm, slightly underripe strawberries that have been washed and stemmed. Continue the boiling very slowly ten or fifteen minutes longer. Seal the jam in BALL Jars.

**STRAWBERRY, BLACK RASPBERRY OR BLACKBERRY VINEGAR.** Put four quarts of strawberries, or black raspberries or blackberries into a bowl, add two quarts of vinegar, cover the bowl, and set it in a cool place for two days. Then strain the vinegar through cheese-cloth. Put four quarts of fresh berries into the bowl, and pour over them the vinegar strained from the first lot. Cover the bowl, set it in a

Don’t just order “Jars”—Specify the BALL Jars, whether you wish “screw top,” “glass top,” or “wire top.”
cool place two days, and then strain the vinegar as before. Put the
strained juice into a preserving kettle, add three quarts of sugar,
heat the mixture slowly, and when it boils skim it carefully. Continue
the boiling twenty minutes, and then seal the vinegar in BALL Jars.

Note. Two tablespoonfuls of the vinegar to a glass of water makes a
refreshing drink.

Gooseberries

Gooseberries are so firm that no special care is needed in handling them.
They usually remain in good condition even if allowed to stand for a week
after picking. They are better, however, if preserved sooner. They con-
tain so much acid that they may be canned by either the cold water, syrup
or steaming method. Unless sugar is added the canned product is very sour.

CANNED GOOSEBERRIES—Syrup Method. Prepare the berries
and place them in BALL Jars as for the cold water method. Put a
new rubber on one jar, fill the jar to overflowing with heavy boiling
syrup, and seal it at once. Proceed likewise with the other jars.

Note. This is the easiest method of canning gooseberries.

CANNED GOOSEBERRIES—Steaming Method. Prepare the ber-
ries and place them in BALL Jars as for the cold water method. Place
the covers on the jars loosely without the rubbers, stand the jars in a
wash boiler on a false bottom, surround them with a few inches of
warm water, and steam them until the berries are heated through.
Remove one jar, place a new rubber on it, fill it to overflowing with
a heavy boiling syrup, and seal it at once. Proceed likewise with the
other jars.

GOOSEBERRY PRESERVES. Stem and wash the berries, put them
into a preserving kettle, half cover them with water, and boil them
until they are tender but not until the skins burst. Add as much sugar
as there is fruit. Stew the mixture until it is a rich amber color. Seal
the preserves in BALL Pint Jars, or pour them into BALL Ideal
Family Jelly Glasses and cover them with melted paraffine.

Caution. Use care to prevent scorching.

GOOSEBERRY MARMALADE. Stem and wash the berries, put them
into a preserving kettle containing enough water to cover the bottom,
mash them thoroughly, and boil them over a slow fire until they begin
to soften. Add as much sugar as there is pulp, and boil the mixture
slowly twenty minutes longer. Pour the marmalade into BALL Ideal
Family Jelly Glasses and cover it with melted paraffine.

Caution. The marmalade must be stirred constantly while boiling to
prevent scorching.

GOOSEBERRY AND RHUBARB MARMALADE.
Stem, wash and mash the gooseberries, and add any
proportion of young rhubarb desired. Place the mix-
ture in a preserving kettle, add enough water to cover
the bottom well, and allow it to simmer slowly until
the fruit is soft. Add as much sugar as there is fruit,
and continue the boiling slowly for twenty minutes
longer. Seal the marmalade in BALL Jars, or pour it
into BALL Ideal Family Jelly Glasses and cover it with
melted paraffine.

Caution. Stir the marmalade constantly while it is
boiling to prevent scorching.
GOOSEBERRY CONSERVE. Wash three quarts of gooseberries and boil them until they burst. Add two quarts of sugar, one quart (less if preferred) of ground pineapple, and one pound of raisins chopped fine. Boil the mixture slowly until it is thick and then add two cupfuls of the meats of English walnuts. Put the conserve into BALL Ideal Family Jelly Glasses and cover with melted paraffine.

GOOSEBERRY CONSERVE. (Old English Recipe.) Five pounds of gooseberries, large English preferred. Four pounds of sugar. One and one-half pounds of seedless raisins. Juice and chopped rind of four oranges. Boil about forty-five minutes or until it is of the consistency of jam. Seal in BALL Jars to prevent mold.

GOOSEBERRY CATSUP. Stem, wash, and mash five quarts of gooseberries. Put them into a preserving kettle with six cupfuls of granulated sugar, one quart of vinegar, and one ounce each of ground nutmeg, allspice, cloves and cinnamon. Boil the mixture until it is quite thick, stirring it constantly. Seal the conserve in BALL Jars while it is still boiling hot.

GOOSEBERRY RELISH. Stem and wash one quart of gooseberries, add one cupful of sugar, and boil the mixture twenty minutes. Add two tablespoonfuls of vinegar, and season with allspice, cinnamon, and cloves to suit the taste. Seal the relish in BALL Jars while it is still hot.

Currants

Currants should be handled carefully and preserved as soon as possible after picking. They contain so much acid that little heat is necessary to preserve them. They may be canned with or without sugar, but are generally considered better when sweetened. Currants contain a great deal of the substance called pectin, which causes boiled sweetened juice to become jelly, so they are used a great deal in jelly making, both alone and in combination. Many forehand housewives always can a quart or two of currants to use in making mince meat.

CANNED CURRANTS—Syrup Method. Remove all foreign matter from the currants and wash them carefully. Drop them into sterilized BALL Jars and shake them down gently. Put a new rubber in place on one jar, fill it to overflowing with a heavy boiling syrup, and seal it at once. Proceed likewise with the other jars.

PRESERVED CURRANTS. Follow the directions for PRESERVED CHERRIES; see page 24.

CURRANT AND RED RASPBERRY JUICE. To every two quarts of red raspberry juice allow one quart of white or red currant juice and two cupfuls of sugar. Put the mixture into a kettle, allow it to come to a boil, and seal it in BALL Jars.

SPICED CURRANTS. Make a syrup of one and a half quarts of sugar and a pint of vinegar. Skim the syrup and add three quarts of currants and one pound of seeded raisins chopped fine. Boil the mixture thirty minutes; then add a teaspoonful of salt, and a half a teaspoonful each of cloves, allspice, and nutmeg. Pour Combine different fruits; it gives variety.
the spiced currants into BALL Ideal Family Jelly Glasses and cover them with melted paraffine.

CURRANT JELLY. Select currants that are not overripe, and avoid fruit gathered after a rain, as the juice is then too watery for making first-class jelly. Remove all leaves and imperfect fruit, wash and drain the currants without removing the stems, and mash them in a porcelain preserving kettle with a spoon or wooden potato masher. Heat the mashed fruit slowly, stirring it frequently to prevent burning and to break up the cells. When the fruit is thoroughly heated, put it into a jelly bag and drain off the juice. Be careful not to press the fruit if clear jelly is desired. The draining may be hastened, however, by occasionally shaking the bag gently.

Pour the juice into the preserving kettle and add to it an equal amount of granulated sugar. Place the kettle over a fire and stir the juice until the sugar dissolves. When boiling occurs remove the kettle, skim the contents, and replace the kettle on the fire. Do this three times. Test the contents frequently by putting a little of the liquid into a saucer and allowing it to cool. When it thickens well, pour the entire contents into BALL Ideal Family Jelly Glasses. The juice usually jells within two minutes after the sugar is added.

Note. A double flour sack serves well for a jelly bag. As the draining must continue for several hours, it is well to plan the work so this may continue over night. The temperature is then lower and there is less danger of fermentation.

CURRANT AND RED RASPBERRY JELLY. Follow the directions for CURRANT JELLY. Use any proportion of currants and raspberries desired.

CURRANT CATSUP. Boil together for two hours one and a half quarts of brown sugar, three quarts of currants, two tablespoonfuls of cinnamon, one tablespoonful of cloves, and one pint of good cider vinegar. Seal the catsup in BALL Jars while it is hot.

CURRANT RELISH. Mix together three quarts of currants, three quarts of sugar, one pound of raisins chopped very fine, the rind and pulp of two oranges (remove all seeds), and two lemons cut fine. Cook this mixture until it is solid. Keep the relish in BALL Ideal Family Jelly Glasses.

Red Raspberries

Red Raspberries, like the black, are liable to contain small worms, and must therefore be examined carefully. They also deteriorate very quickly after picking and should be canned at once. They lose their juice and shape so easily that great care must be used in washing them. This is best done by lifting them gently in and out of water several times, without allowing them to stand and then draining them well.

CANNED RED RASPBERRIES. Follow the directions given for black raspberries, for both Syrup and Steaming Methods.

RED RASPBERRY MARMALADE. Wash and drain the berries, crush them thoroughly, place them in a wide-bottomed granite pan, and bring them quickly to a boil. Run the mass through a fruit press to remove

Try the steaming method of canning strawberries and cherries.
all seeds. Measure the pulp and juice and place it in a clean granite pan with three-fourths as much sugar. Bring the mixture to a boil and then allow it to simmer for ten minutes. Pour the marmalade into BALL Ideal Family Jelly Glasses and cover it with melted paraffine.

**RED RASPBERRY JAM.** Follow the directions for RED RASPBERRY MARMALADE, but remove only three-fourths of the seeds.

**RED RASPBERRY AND CURRANT MARMALADE.** Wash and place in a preserving kettle four quarts of red raspberries and one quart of red currants. Mash the fruit thoroughly, add three-fourths as much sugar, and boil the mixture for ten minutes or until it jellies when cooled. Seal the marmalade in BALL Jars or pour it into BALL Ideal Family Jelly Glasses and cover it with melted paraffine. **Caution.** Stir the marmalade constantly to prevent burning.

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**Black Raspberries**

Black raspberries must be handled with care, especially while being washed. Dip them in and out of water several times, without allowing them to stand in the water. Occasionally very small worms or insects get into the cavities of the berries, so it is necessary to examine them carefully. This fruit deteriorates rapidly after picking, and should be canned as soon as possible. Either syrup or steaming method gives good results.

**CANNED BLACK RASPBERRIES—Syrup Method.** Remove all sticks, leaves, and so forth from the berries, wash them quickly but carefully, and drop them into BALL Jars. Pack them in as closely as possible without crushing. Put a new rubber on one jar, fill it to overflowing with a heavy boiling syrup, and seal it immediately. Proceed likewise with the other jars.

**CANNED BLACK RASPBERRIES—Steaming Method.** Prepare the berries and place them in BALL Jars as for the syrup method. Proceed as described for Peaches.

**BLACK RASPBERRY PRESERVES.** Follow the directions given for PRESERVED STRAWBERRIES; see page 26. Use either method.

**BLACK RASPBERRY MARMALADE.** Select fresh, ripe raspberries, wash them carefully, heat thoroughly, and run them through a colander to remove the seeds. Add as much sugar as there is pulp, and boil the mixture until it is thick enough to harden on a spoon held in the air. Put the marmalade into BALL Ideal Family Jelly Glasses and cover it with melted paraffine. **Caution.** Stir the marmalade constantly while it is boiling to prevent scorching.

**BLACK RASPBERRY JAM.** Follow the directions for BLACK RASPBERRY MARMALADE, but remove only half the seeds.

**BLACK RASPBERRY JELLY.** Wash and drain the berries carefully, place them in a granite kettle, and heat them slowly but thoroughly. Pour a small quantity at a time into a jelly bag and drain them. Boil the juice rapidly for five minutes, measure it, put it into a clean preserving kettle, and add an equal amount of sugar. Continue the rapid boiling until the liquid forms a jelly when cool. Pour the jelly into BALL.
Ideal Family Jelly Glasses and cover it with melted paraffine.

Caution. The directions must be followed carefully to insure success.

BLACK RASPBERRY AND CURRANT JELLY. Make the juice of each fruit into jelly separately. Fill BALL Ideal Family Jelly Glasses half an inch deep with raspberry jelly. While this is hardening allow the currant juice to cool also, but not so much that it can not easily be poured out. When the raspberry jelly in the glasses has hardened and the currant jelly cooled, pour half an inch of currant juice into each glass. Allow this to cool and then add half an inch of raspberry juice to each glass. Continue this process until the glasses are full; then cover them with melted paraffine.

Note. This makes a pretty red and black striped jelly. The flavor is also pleasing because the currant jelly is very tart while the raspberry jelly is mild. If the currants and raspberries do not ripen at the same time, the currant juice may be canned during the currant season and made into jelly when the raspberries ripen.

RASPBERRY SYRUP. Wash two quarts of black raspberries, place them in a granite kettle, mash them, and let them stand twelve hours. Add three-fourths of a cupful of cold water, heat the berries slowly to a boiling point, and let them simmer twenty minutes. Drain the juice through a double thickness of cheese-cloth, heat it to a boiling point, and seal it in BALL Jars.

BLACK RASPBERRY VINEGAR. Follow the directions for STRAWBERRY VINEGAR; see page 27.

Blackberries

The quality of blackberries depends upon the character of the season. In wet seasons the berries are large and juicy, and make a desirable addition to the store of canned goods. In dry, hot seasons, however, the juice is more or less bitter, and the fruit is small, dry and seedy. In canning, the berries lose some of their juice, becoming still dryer and harder. The result is that they contain little food material, and that little is almost indigestible. Berries of this sort should never be given to children. In fact, it is better to preserve other fruits than blackberries in hot, dry seasons.

In canning, blackberries must be heated longer than raspberries. The underripe berries are not so good as the ripe ones. Blackberries may be handled with ease; they keep well for thirty-six hours after picking.

CANNED BLACKBERRIES—Steaming Method. Fill BALL Jars with the washed fruit. Proceed as with Peaches. The steaming requires about thirty minutes.

Note. The fruit shrinks when steamed. If desired the fruit from one jar may be used to fill the others.

CANNED BLACKBERRIES—Boiling Method. Make a thin syrup of water and sugar, using enough sugar to sweeten the berries as for table use. While the syrup is boiling, drop the berries into it and boil them rapidly until they are heated through. Put a new rubber on a BALL Jar and fill it to overflowing with berries and juice, dipping from the part of the preserving kettle where the boiling is most rapid. Then dip a large spoonful of berries—not juice—from the hottest part of the kettle, stack them on top of the already overflowing jar, place over them a perfect cover, press the berries down, and seal the jar. Proceed likewise with the other jars.

Note. Pressing down a spoonful of berries into the

There is something the matter with your method if your fruit spoils.
The Wide Mouth Glass Top Jar

All Glass—Sanitary—Durable—Simple
Easy to Seal—Easy to Open
THE old and reliable jar with Porcelain-Lined Zinc Screw Cap. The jar your mother and grandmother used successfully. Better today than ever, because made by a new process.

Made in Green Glass, Because That Color is Best for Fruit Keeping
THIS jar seals by means of a wire spring or lever and is designed to meet a desire for a jar made entirely of glass with no metal. It seals by vacuum and also lever pressure—doubly secure. REMEMBER, the "Sure Seal" has a wider opening than any other glass top jar and so will preserve larger whole fruit, and is easier to clean. Call for the "Ball Sure Seal."
BETTER than any tin top vacuum jar, because more sanitary. More economical, because the glass cap will last for years, while tin caps are good for one year only.
overflowing jar forces out all remaining air and insures killing all bacteria on the fruit, rubber, and cover. Avoid boiling the berries more than enough to heat them thoroughly, as otherwise they lose their color and become slightly strong.

BLACKBERRY MARMALADE. Follow the directions for BLACK RASPBERRY MARMALADE; see page 31.

BLACKBERRY JAM. Follow the directions for BLACK RASPBERRY JAM; see page 31.

BLACKBERRY JELLY. Follow the directions for CURRANT JELLY; see page 30.

BLACKBERRY PRESERVES. Follow the directions for PRESERVED STRAWBERRIES (either method); see page 26.

BLACKBERRY VINEGAR. Follow the directions given under STRAWBERRY VINEGAR; see page 27.

BLACKBERRY CORDIAL. Boil together for fifteen minutes a quart of blackberry juice, a pint of white sugar, and a tablespoonful each of cloves, allspice, cinnamon, and nutmeg. While the liquid is boiling, pour it into BALL Pint Jars and seal them at once, using new rubbers.

Pineapple

There are several ways of preparing pineapple. In each the process is best begun by peeling the fruit and removing the eyes with a pineapple eyer. The pineapple may then be sliced; or it may be sliced first and then each slice peeled and the eyes removed. The former method is easier. The pineapple may be picked to pieces with a silver fork, beginning at the small end; it may be ground; or it may be cut into small dice with a silver knife or scissors. For most purposes pineapple is thus diced.

Pineapple may be bought fresh throughout the year in most markets, but as the price is high much of the time, it is true economy to can a good supply early in the spring when the price is lowest. The pineapple flavor is pleasing to most people; and it is so strong that a large amount of cheaper and more weakly flavored fruit can be combined with a little pineapple to make an economical combination.

CANNED PINEAPPLE—Steaming Method. Cut the pineapple into dice, using a silver knife or scissors. As the fruit does not mash easily, pack the dice closely into BALL Jars. Proceed as with Peaches.

PRESERVED PINEAPPLE. Peel the pineapple and remove the eyes. With a silver fork remove small pieces until the core is reached, beginning at the small end. When enough pineapple is thus prepared, place it in the preserving kettle, and add three-fourths as much sugar. Allow this to stand until it forms a syrup. Then cook the mixture slowly until the pineapple becomes transparent. Transfer to BALL Jars, fill them to overflowing with the boiling syrup, and seal them immediately.

PINEAPPLE AND CHERRY MARMALADE. See page 25.

PINEAPPLE AND RHUBARB MARMALADE. See page 36.

Try canning grape juice; it is delicious.

[33]
Grapes

Grapes are at their best when fully ripened, though for jelly they should be picked slightly underripe, and for green grape jelly, pick just as they have begun to turn color. Grapes are best washed by holding the separate bunches in running water. Grapes are rather widely grown, and stand transportation so well that they should form one of the staples in the housewife's store of canned goods. Their food value is high among fruits. Good use can also be made of wild grapes whenever they are available.

CANNED GRAPES—Steaming Method. Pick firm grapes from the bunches, wash them carefully, and pack them as closely as possible in BALL Jars without crushing them. Proceed as under peaches, steaming until grapes are heated through which will take from twenty to thirty minutes.

Note. This method preserves the flavor of the fresh grapes, and requires little work.

GRAPE MARMALADE. Wash the grapes carefully, removing all stems and imperfect fruit, and drain them in a colander. Separate the pulp from the skins. Heat the pulp to the boiling point in the preserving kettle, and cook it slowly until the seeds separate from the pulp. Remove the seeds by passing the pulp through a colander. Put the pulp and skins in the preserving kettle, add an equal amount of sugar, and cook the mixture slowly for thirty minutes. Seal the marmalade in BALL Jars.

GRAPE CONSERVE. Wash carefully two and a half pounds of grapes, remove the stems and separate the pulp from the skins. Place half the skins in a granite sauce pan on the back of the stove and allow them to simmer for five minutes. Throw away the rest of the skins, as the conserve is too strong if all are used. Cook the pulp until it falls to pieces; then run it through a colander to remove the seeds. Run through the meat grinder and add to the pulp, the pulp and rind of two oranges, one pound of seeded raisins, and the grape skins. Add also one and a fourth quarts of sugar. Boil the mixture for five minutes; then add one pound of chopped English walnuts and seal the conserve in BALL Jars at once.

GRAPE JELLY. Wash the bunches thoroughly, remove the fruit from the stems, put the grapes into a preserving kettle, add a little water, and boil slowly until the grapes burst open and are soft enough to drain. Drain the juice through a cheese-cloth bag, measure it, and add an equal amount of sugar. Cook the sweetened juice in a porcelain kettle rapidly for about twelve minutes or until a little of the juice hardens when cooled on a saucer, skimming it frequently. For green grape jelly the fruit should be gathered just as it begins to turn color. If a mint flavor is desired, see directions under general jelly instructions, page 14.

GRAPE JUICE. Use only sound, well ripened grapes. Wash them thoroughly and crush them. Heat the crushed grapes for about five minutes, but do not let Vegetables may be safely canned by long-continued sterilization.
them come quite to the boiling point. Then drain them through a jelly bag without applying pressure. Set the juice aside for twenty-four hours. At the end of this time drain the juice from the sediment, and run it through several thicknesses of flannel or woolen cloth. Pour the juice into BALL Jars that have been sterilized by boiling for twenty minutes. Put the covers in place loosely without rubbers, stand the jars in a wash boiler, surround them with water nearly to the top, and heat the water until it summers (do not allow it to boil). Remove one jar, put a new rubber in place, and seal it at once. Proceed likewise with the other jars.

Note. If the work is done carefully, the juice will keep indefinitely. If the grapes or juice is boiled, the flavor is not good. Sugar may be added if desired.

SPICED GRAPES. Weigh out seven pounds of grapes and slip the pulps from the skins. Put the pulps over the fire in kettle and let simmer until softened. Pass through a sieve fine enough to keep back the seeds. Add the sieved pulp to the skins with four pounds of sugar, one pint of vinegar, one nutmeg grated, one-half tablespoonful of ground cinnamon and one teaspoonful of ground cloves. Let the whole simmer for two hours. Seal while hot. The nutmeg may be omitted.

SPICED GRAPE BUTTER. Wash the grapes carefully, remove the stems, separate the pulp from the skins, and let them stand over night. In the morning heat the pulp to the boiling point in a porcelain kettle, and drain it through a colander. Put the skins and pulp together, and to each five pints of fruit add four pints of brown sugar and two tablespoonfuls each of cloves and cinnamon. Boil the mixture an hour, add a cupful of vinegar, and continue the boiling until the butter is thick. Seal it at once in BALL Jars.

PICKLED GRAPES. Take grapes as fresh as can be secured, just ripe, not dead ripe nor soft. Remove from stems carefully so as not to break the fruit. Wash them and shake in a cloth to remove moisture. Weigh the fruit and pack into BALL Jars. For every seven pounds of fruit take four pounds of granulated sugar and a quart of vinegar. Put these over the fire with a teaspoonful each of cloves and cinnamon tied in cheese-cloth. Bring the vinegar, sugar and spice to the boiling point. Turn this boiling mixture upon the grapes in the jar, filling to overflowing, and seal them. Watch them for any signs of fermentation, and if this should appear, drain off the liquid, scald it again, pour back on the grapes while boiling hot and seal again.

WILD GRAPE CATSUP. Mash thoroughly two quarts of well-ripened wild grapes, cover them with vinegar and thoroughly heat them. Strain them and add one cupful of sugar, one tablespoonful of cinnamon, one teaspoonful of cloves, and a quarter of a teaspoonful of cayenne pepper. Cook the mixture slowly until it is thick, and seal it in BALL Jars.

Rhubarb

Rhubarb contains a very large amount of acid, so it is easily preserved. It may be canned by either the cold water method, the steaming method, or the syrup method. The former is best for pies, and one of the last two if a sweeter sauce is preferred. Rhubarb may be combined with almost any other fruit. Young rhubarb makes the
best preserved product; in addition it need not be peeled. No special care is required in handling rhubarb.

CANNED RHUBARB—Cold Water Method. Wash and peel the rhubarb and cut it into small pieces. Sterilize BALL Jars and covers (but not the rubbers) by boiling them for twenty minutes. Fill the jars with rhubarb, pressing it down as firmly as possible without crushing it. Put new rubbers in place, fill the jars to overflowing with fresh, cold water, and seal them. After twenty-four hours remove the covers, drain off the water, refill the jars with fresh cold water, and seal them again. Repeat this process after another twenty-four hours; this time seal the jars permanently, screwing the covers as tight as possible.

CANNED RHUBARB—Steaming Method. Prepare the rhubarb and place it in BALL Jars as for cold water method. Put the covers loosely in place without the rubbers, stand the jars in a wash boiler, surround them with a few inches of water, and steam them until the rhubarb is heated through. Remove one jar, put a new rubber in place, fill it to overflowing with a heavy boiling syrup, and seal it at once. Proceed likewise with the other jars.

CANNED RHUBARB—Syrup Method. Prepare the rhubarb and place it in sterilized BALL Jars as for the cold water method. Put a new rubber in place on one jar, fill the jar to overflowing with a heavy boiling syrup, and seal it at once. Proceed likewise with the other jars.

Note. This method requires the least time and labor.

RHUBARB MARMALADE. Put into a preserving kettle two quarts of young rhubarb cut into cubes. Add from one to two quarts of sugar (depending upon the desired richness), the pulp and juice of two oranges, and one cupful of blanched almonds chopped fine. Boil the mixture very slowly for three hours, or until it has a rich, red color. Seal the marmalade in BALL Pint Jars or pour it into BALL Ideal Family Jelly Glasses and cover it with melted paraffine.

Note. If desired two sliced lemons may be added; and the nuts may be omitted. The marmalade must be stirred frequently while boiling to prevent scorching.

RHUBARB CONSERVE. Cook together for five minutes two quarts of rhubarb, two and a half cupfuls of sugar, and the pulp and juice of two oranges ground fine. Add one pound of seeded raisins chopped fine and cook the mixture five minutes longer. Remove the conserve from the fire, add two cupfuls of nut meats chopped fine, and seal the conserve in BALL Jars.

RHUBARB AND PINEAPPLE MARMALADE. Boil together until the mixture is thick, one quart of pineapple, four quarts of rhubarb, and the juice of two oranges. Then add a cupful of nut meats chopped fine, and seal the marmalade in BALL Jars or pour it into BALL Ideal Family Jelly Glasses and cover it with melted paraffine.

Caution. The marmalade must be stirred constantly while it is boiling to prevent scorching.

Note. A little spice may be added if desired. This marmalade is especially good for preparing the lunches of school children.

RHUBARB AND FIG PRESERVES. Cut fine three and a half quarts of rhubarb, add two quarts of sugar, and let the mixture stand over night. In the morning boil it till it is thick, and add a pint of chopped figs and the juice and rind of one lemon. Put the preserves into BALL Ideal Family Jelly Glasses and cover them with melted paraffine.

Success in canning lies in complete sterilization.
Southern Fruits

PRESERVED FIGS. Ten pounds of figs, ten pounds of sugar, two lemons, a pint of water, two tablespoonfuls ginger extract. Select the figs not too ripe. Place in preserving kettle. Cover with cold water and let boil five minutes. Then drain the figs and return to the kettle in alternate layers with sugar. Let stand over night. Cook two sliced lemons in one pint of water for half an hour. Add them to the figs and cook slowly until tender. Add the ginger extract and cook a little longer. Seal in BALL Jars.

PRESERVED FIGS. (Another One.) Gather the figs before they are perfectly ripe. Slit them on one side and soak in limewater or mild salt brine for three or four hours. Wash them thoroughly in cold water. Make a syrup of one pound of sugar and a pint of water to each pound of fruit. Place the syrup in a kettle and when boiling smartly, drop in the figs and cook until done. Place in BALL Jars. Fill up with hot syrup and seal.

PICKLED FIGS. Make a strong soda solution with boiling water and pour this over just enough figs to cover the bottom of a preserving kettle. Let them remain in this solution five minutes and then drain them thoroughly. Take one quart of vinegar to three pounds of sugar and when dissolved, add the figs and cook slowly for one hour. Seal in BALL Jars. If you have some syrup left, more figs may be cooked in it. A spice bag filled with whole cloves, cinnamon and allspice may be boiled with the vinegar syrup if desired. Some persons, instead of using a soda solution, prefer to soak in rather weak salt water for about six hours, rinse and then boil as above.

FIG MARMALADE. This can be made from the bruised and soft figs by mashing the fruit well. After bringing the fruit to a boil in a little water, add equal parts of sugar and cook for an hour. Stir all the time to avoid burning.

FIG AND RHUBARB PRESERVES. See page 36.

PRESERVED CITRON MELON. For five melons take two and a half pounds of sugar and half a teaspoonful of powdered alum. Peel the melon. Cut into slices and boil until tender in a little water to which the alum has been added. Drain and rinse in cool water. Make a syrup by boiling together the sugar and juice of two lemons with grated rind of half the lemons. A little ginger root may be added if desired when this syrup is hot. Put the sliced melon in it and cook for a few minutes. Fill BALL Jars to overflowing and seal.

GRAPE FRUIT MARMALADE. Wash thoroughly. Remove seeds and run through a chopper. Barely cover with water and let stand over night. In the morning boil thirty minutes and let stand another night. On the third morning boil thirty to forty minutes or until the white part of the fruit is very tender. Measure the fruit. Add equal quantity of sugar and boil until the mixture "jams" from the spoon. This will take from thirty to sixty minutes. Pour into hot sterilized glasses or BALL Pint Jars and cover with paraffine.

Preserve your corn in BALL Jars by continued sterilization.
GUAVAS. There are many varieties. For canning or preserves use the large, sweet kind if possible. Remove the seeds. Proceed same as with peaches.

GUAVA MARMALADE. Take quite over-ripe guavas. Slice. Place with a little cold water in a kettle. When cooked soft press through a coarse sieve. Add equal quantity of sugar and the juice of one lemon to each pint of pulp. Cook all together until thick.

GUAVA SWEET PICKLE. Make a syrup of three pounds of sugar to one quart of good cider vinegar. This will be enough for six pounds of fruit. The following spices may be added if desired—one teaspoonful of allspice; one teaspoonful of mace; one teaspoonful of cloves, and one tablespoonful of cinnamon. Cook the syrup and spices together for an hour. Drop into it the whole fruit which has been peeled. Cook thoroughly until tender. The fruit for the sweet pickle should be ripe. Skim out the fruit. Place it in BALL Jars. Cook the syrup until quite thick and pour boiling over the fruit and seal.

SOUR OR WILD ORANGE MARMALADE. Wash and peel the oranges. Let the yellow rind soak in salt water over night. In the morning pour off the salt water and bring the rind to a boil in enough fresh water to cover it well. When this has boiled up well, pour off the water and reserve this rind until ready to add to the pulp. After removing the juice and pulp from the orange, chop the shells and cook until tender. Then add juice, pulp and yellow rind, measure and add equal parts of sugar and cook all together until the proper consistency. This can be stored in BALL Ideal Family Jelly Glasses or small jars.

WHOLE ORANGES. Select fresh oranges and let lay in cold water for twenty-four hours, changing the water once. Bring them to a boiling heat in cold water and cook until soft enough to allow a straw to pierce them. Make a syrup of two pounds of sugar to a pint of water and drop the oranges into this, after perforating them well with a knitting needle. Let them come to boiling heat in the syrup. When tender place in BALL Jars. Let the syrup continue to boil until quite thick. Fill up the jars with it and seal.

LEMON PICKLE. Grate the yellow rind off the lemons and cut them across each end. Pack them in dry salt, covering them thoroughly and let remain eight days. Take them out. Put them in shallow dishes. Set in a hot oven until the salt dries and candies on them. Put in a jar and to each twenty-five lemons add one pound of white mustard seed, half a pound of black pepper, half a pound of ginger, tablespoonful of mace, two tablespoonfuls of celery seed, a little horseradish, two pounds of brown sugar. The spices may be bruised and the ginger sliced. Cover with boiling hot vinegar and seal.

NECTARINES. Are a smooth-skinned variety of peaches and may be canned without peeling. The same amount of sugar and the same methods may be used as are given under the heading of peaches.

KUMQUAT JAM. Slice the kumquats. Cook until tender in just enough water to keep from burning. Measure. Add equal parts of sugar with a little lemon juice. Cook all together until the consistency of jelly. This should be sealed in BALL Jars.

KUMQUAT PRESERVES. Make a heavy boiling syrup. When boiling briskly drop into it the kumquats,

Label your Jars plainly and save handling them to determine contents, as the less handled, the better kept.
halved or whole. Boil briskly until tender enough to be pierced with a straw. Seal at once on removing from the fire. These are delicious served with whipped cream.

APRICOTS. May be preserved or canned the same as peaches, but it is desirable to use a little less sugar, as this fruit is more delicately flavored.

APRICOTS AND PINEAPPLE. For four quarts of fresh, ripe apricots, use one quart of Hawaiian pineapple. Make a syrup as you would for peaches and cook the apricots, which have been sliced, until tender enough to pierce with a fork. Add the pineapple and cook until it is thoroughly heated. Then seal in BALL Jars. A handful of almonds added to each jar gives this sauce a fine flavor. They should be blanched and cooked with the apricots.

Vegetables

Vegetables differ from fruits in that they contain very little acid and considerable proteid. Therefore they are more difficult to can; both the absence of acid and the presence of proteid are favorable to bacteria. Moreover, the bacteria are often of the kind very resistant to heat.

Two methods of preserving vegetables are commonly used. One way is to use the vegetables in making relishes, catsups, pickles and the like. In these, spices and vinegar are always used. Both spices and vinegar protect from bacteria, the vinegar because of the acid it contains, and the spices for other reasons. The other method for preserving vegetables in common use is canning by sterilization. Vegetables can not be canned in any other way with reasonable certainty of success (with the exception of tomatoes, which contain considerable acid); some bacteria are almost sure to be introduced into the jars, even if all the bacteria in the vegetables to be preserved are killed.

Many women think that tomatoes can be preserved more easily in tin cans than in glass jars. This is a mistake. The chances are a little better in the glass jars, as the bacteria that cause tomatoes to spoil can not live in a moderately strong light. There is a better reason, however, for using glass jars. The acid in the tomatoes is liable to attack the metal of the cans and form products that are poisons when taken into the stomach. The use of BALL Jars, with their acid-proof covers, eliminates this danger.

In the following directions for canning vegetables the directions for corn are given in detail, and all others, as far as possible, referred to this. Housewives canning vegetables will do well to read not only the directions for corn, but also the description of the method of sterilization given on page 11.

CANNED CORN—Corn Off the Cob. Select sweet corn ears of as near as possible uniform size and proper ripeness. If too ripe the corn will color while processing. (Processing is the canning term for sterilization or cooking.) If not ripe enough much of the food value is lost in cutting the corn from the cob. Remove husk, silk, shank, tips, and injured or defective places. Blanch corn in boiling water or steam chest for from five to ten minutes. The time depends upon the stage of ripeness, size of ears, and degree of freshness. Remove the ears and plunge quickly in cold water. Cut the corn from the cob with a sharp, thin-bladed knife.

BALL Jars are made in green glass; this color protects the fruit from fading.
Pack well in glass jar; add hot water and a level teaspoonful of salt to the quart. Place rubber and jar top in place, not tight. Process the corn from three to four hours in the home-made or hot-water commercial bath outfits; for one and one-half hours in the water-seal outfits; for one hour when using from five to ten pounds of steam pressure, with the steam-pressure canning devices, and forty minutes when using the aluminum steam-pressure cooker outfit. After processing remove the jars, tighten covers, invert to test the joints and cool.

CANNED CORN—Corn on the Cob. Blanch in boiling water five to ten minutes, according to ripeness, size, and freshness; plunge quickly in cold water. Pack, alternating butts and tips; add just a little boiling water and one level teaspoonful of salt to each quart. Place rubber and top and partially tighten. Process three to four hours in hot-water bath; one and one-half hours, water-seal outfit; one hour under five or more pounds of steam; forty minutes in aluminum pressure cooker. Remove jars, tighten covers, invert, and cool. (Heat up for table use in steamer, not in water. If corn seems flat or water-logged, it has been overcooked or allowed to stand in too much water.) Quart jars will hold two ears, two-quart jars will hold from three to five ears, according to size of ear. Do not can large ears. If the corn is removed from can and steamed for a few minutes, it can not be distinguished from the sweet corn removed from the husk in midsummer. One advantage of sweet corn canned on the cob over other canned corn is that all the best food values are kept with the cob. In cutting corn off, the germ quality of the kernel, which keeps up its standard, is usually lost. This germ quality is the part of the corn that is sought by rats and mice when they look for food in the corn bin, and is the most vital part. Much of the corn is also rendered mushy when it is cut from the cob. Whenever possible, can the corn within an hour of the time it is pulled from the stock, as the amount of sugar diminishes rapidly thereafter.

Note. Glass jars are better to use than tin cans, as they can be more easily cleaned and sterilized. They are also much more economical even though the first cost may be double, as they may be used for years, while a tin can may be used but once.

CANNED STRING BEANS. Select young and tender beans, remove strings, break them into short lengths, and pack them firmly into BALL Jars. Add a teaspoonful of salt to each jar. Fill the jars with cold water and steam them an hour on three successive days as directed under CANNED CORN. Some are able to put up beans successfully by steaming them continuously for three hours and sealing them.

CANNED LIMA BEANS. Shell the beans and pack them closely in BALL Jars. Cover them with cold water and proceed as for CORN. Note. Lima beans lose their flavor quickly after they are shelled, so they should be canned as soon as possible after shelling.

PICKLED STRING BEANS. Wash and string the beans, but do not break them. Cover them with cold water and boil them ten minutes. Drain off the water, and then immediately pour boiling water over them. Salt them as for table use and boil them until they are tender. Skim out the beans and place them in BALL Jars. While the beans are boiling hot, cover them with boiling vinegar sweetened and spiced to suit the taste, and seal the jars at once.

PICKLED ONIONS. Remove with a knife the outer skins of small silver-skinned onions so that each is

Don't wipe the filled Jars before they are sealed.
white and clean, put the onions into a brine strong enough to bear up an egg, and let them stand twenty-four hours. Drain them and place them in BALL Jars, putting in thin layers made up of horseradish, cinnamon bark, cloves, and a little cayenne pepper. Heat to the boiling point a gallon of vinegar and a quart of brown sugar, pour the boiling syrup into the jars until they overflow, and seal the jars at once. 

**Note.** In making the seasoning use these proportions: Half a teaspoonful of cayenne pepper, two teaspoonfuls of chopped horseradish, two teaspoonfuls of cloves, four teaspoonfuls of cinnamon bark.

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**CANNED YOUNG BEETS.** Cut off the leaves so about an inch of stem remains and wash the young beets without bruising the skins. Cook them until they are tender enough for table use, drain them, and cover them with cold water. Push off the skins and put the beets into BALL Jars. Cover them with salted warm water, put the covers in place loosely without the rubbers, stand the jars in a wash boiler on a false bottom, and steam them until the beets are again thoroughly heated. Remove one jar, put a new rubber in place, fill the jar to overflowing with boiling water, and seal it at once. Proceed likewise with the other jars. 

**Note.** Sugar is not necessary to preserve the beets, but a little may be added to make up for that lost in cooking.

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**BEETS FOR WINTER USE.** Boil the beets in water until they are tender, and then put them into BALL Jars. Measure out equal parts of good cider vinegar and water, and add a little sugar and salt. Heat this mixture, pour it over the beets while it is boiling hot, and seal the jars at once.

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**CANNED PUMPKIN.** Slice and peel the pumpkin and cut it into pieces. Put the pieces in BALL Jars, put the covers in place loosely without the rubbers, stand the jars in a wash boiler on a false bottom, surround them with a few inches of warm water, and steam them until the pumpkin is tender. Remove one jar, put a new rubber in place, and seal the jar at once. Proceed likewise with the other jars.

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**PICKLED CELERY.** Clean and cut into half-inch lengths crisp celery, wash it in cold water, drain it, sprinkle it slightly with salt, and let it stand over night. In the morning for each quart jar boil together for five minutes one pint of vinegar, half a pint of water, and a cupful of granulated sugar. Add the celery and continue the boiling ten minutes longer. Pour the pickled celery into BALL Pint Jars and seal them.

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**SPICED CELERY.** Chop together five bunches of celery, fifteen ripe tomatoes, and a large red pepper. Add two cupfuls of sugar, one and a half cupfuls of vinegar, a tablespoonful of salt, a teaspoonful of mustard, a teaspoonful of celery seed and a teaspoonful each of ground cloves, allspice and cinnamon. Mix the ingredients thoroughly, boil the mixture for one and a half hours, and seal the spiced celery in BALL Jars. 

**Note.** Spiced celery is delicious with any kind of meat.

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**CANNED CAULIFLOWER.** Separate a head of cauliflower into flowerets and stand it head downward in a pan of cold salted water. Examine it carefully to see that there are no concealed insects. Then arrange it in BALL Jars, putting in as many pieces as possible without crushing them. Cover the cauliflower with boiling water, salt it slightly, and proceed as directed under CANNED CORN.

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*Be sure to sterilize your Jars and Caps.*

[41]
CAULIFLOWER MUSTARD PICKLE. Divide a large head of cauliflower into pieces and boil it with a dozen white button onions in salted water until it is about half done. Drain the cauliflower and onions, and add a dozen dill pickles chopped fine. To two quarts of vinegar add two cupfuls of sugar, two teaspoonfuls of celery seed, and one teaspoonful of mustard seed, and bring the whole to a boil. Mix together three-fourths of a cupful of flour, a quarter of a pound of ground mustard, a tablespoonful of turmeric powder, and a little cold water; add this mixture to the boiling vinegar and continue the boiling five minutes longer. Pour the boiling mixture over the pickle and seal it in BALL Jars.

Note. This pickle is easily prepared. The above amounts make about a gallon of pickle.

CORN SAUCE. Cut fine one large head of cabbage, let it stand over night, and in the morning drain off the water. Boil a dozen large ears of corn and cut off the corn. Chop fine three green and three red peppers. Dissolve two tablespoonfuls of mustard in vinegar. Mix all the ingredients together, and cover the mixture with vinegar. Add two tablespoonfuls of salt and a pint of vinegar, and boil the whole for half an hour. Seal the sauce in BALL Jars while it is still hot.

PICKLED CUCUMBERS. Scrub two hundred cucumbers with a small brush, put them into a stone jar, and cover them with scalding hot brine strong enough to float an egg. Let the pickles stand over night in the brine. In the morning rinse and drain them. Wash thoroughly several BALL Jars and place in the bottom of each a slice of red pepper, a slice of green pepper, and a little horseradish washed, scraped, and cut into pieces. Pack the jars full of the cucumbers, and on top of each scatter a few cloves, black mustard seed and white mustard seed. Add a small lump of alum and half a pint of brown sugar to a gallon of the best cider vinegar and bring it to a boiling heat. Fill the jars to overflowing with the boiling vinegar and seal them at once.

Note. It is well to go over the jars a second time before they are sealed and refill them to overflowing. Pickles preserved in this way keep for years.

CUCUMBER CATSUP. Pare very thin six large, fresh cucumbers, chop fine, add a scant tablespoonful of salt, and let them drain in a colander about an hour. Add two small onions or one large one chopped fine, one teaspoonful of white pepper, and a pint of vinegar. Stir the ingredients together well, and seal the catsup in BALL Jars. Let it stand at least a month before using it.

Note. This catsup keeps for years. It is made without cooking, and it retains so perfectly the taste of fresh cucumbers that any one fond of cucumbers likes it.

CUCUMBER OIL PICKLES. Slice fifteen medium-sized cucumbers thin without paring them, place them in a large jar with alternate layers of salt, and let them stand all night. In the morning rinse them and pour over them a mixture of a fourth of a teaspoonful of pulverized alum dissolved in a little vinegar, a cupful of olive oil, a quarter of a pound of whole black mustard seed, an eighth of a pound of white mustard seed, and one and a half teaspoonfuls of celery seed. Place the mixture in BALL Jars and fill them to overflowing with cold vinegar. Slice a few onions, place them in ice water for three hours, add a few slices to the top of each jar, and seal the jars.

If you have always boiled your fruit, try now the steaming method.
RIPE CUCUMBER PICKLES. Pare ripe cucumbers, cut them into strips, remove the seeds, and soak them in a weak brine for twelve hours. Pour off the brine and scald the pickles in water containing a little alum until they are clear. Wash them in water and drain them well. Make a syrup of one gallon of water and two quarts of sugar; add some stick cinnamon, nutmeg and mace. Boil the cucumbers in this syrup until a straw will pierce them; then seal them in BALL Pint Jars.

CUCUMBER CHOW CHOW. Make a brine strong enough to float an egg and soak in it for twenty-four hours a hundred small cucumbers, two heads of cauliflower, one quart of small white onions, one quart of string beans, one quart of green tomatoes, one pint of radish pods, one pint of nasturtium seeds, and twenty-five martinis. At the end of twenty-four hours drain off the brine. Scald three quarts of vinegar, a little red pepper, a quarter of an ounce of turmeric powder, three tablespoonfuls of black pepper, and a little brown sugar. When this mixture has cooled add three green peppers, some horseradish root, a quarter of a pint of mixed mustard, and a quarter of a pound of white mustard seed. Stir the two mixtures together thoroughly and seal the chow chow in BALL Jars.

CHOW CHOW. Chop together two quarts of green tomatoes, twelve small cucumbers, four green peppers, a small head of cabbage, six onions, and a quart of string beans. Let the mixture stand in a covered enamel pan over night. In the morning put the mixture into a pan with alternate layers of salt, using a cupful of salt, and reserving enough for the last layer. After this has stood twelve hours, drain it. To a gallon of vinegar add a tablespoonful each of celery seed, mustard, allspice, pepper, and cloves; heat the mixture to the boiling point, add the vegetables, and cook them until they are tender. Seal the chow chow in BALL Jars.

CUCUMBER SWEET MANGOES. Make a brine that floats an egg and soak in it for twelve days, twelve large cucumbers of uniform size. Remove the cucumbers and soak them in fresh water for twenty-four hours. Split the cucumbers lengthwise, remove the seeds, and place them in a kettle with alternate layers of grape leaves. Over each layer sprinkle a very little pulverized alum. Cover the whole with equal parts of good vinegar and water, and heat it to the boiling point. Remove the pickles and stuff them with seeded raisins and cubes of lemon; use a lemon without the rind removed, to a pound of raisins. Tie the parts of each cucumber together and place them in a large jar. Sprinkle whole cloves and cinnamon over each layer. Make a syrup of one quart of sugar to one pint of vinegar, and pour this over the pickles. Each morning for nine days pour off the syrup and reheat it.

CUCUMBER CHOWDER. Chop together two quarts of cucumbers with the seeds and skins removed, two quarts of cabbage, two onions, and three green peppers. Let the mixture stand in a weak brine six hours, and then drain it well. Make a smooth paste of half a cupful of flour, two tablespoonfuls of mustard, three cupsfuls of brown sugar, one tablespoonful of turmeric, one tablespoonful of mustard seed, two tablespoonfuls of celery seed, and a little vinegar. Thicken a half gallon of vinegar with this paste; boil it and add it to the chopped sauce. Heat the chowder until it boils well and seal it in BALL Jars.

WINTER DILL PICKLES. Make a brine by adding

Never fill a second Jar before sealing the first.
half a cupful of salt to each four quarts of water; in this soak a hun-
dred medium-sized cucumbers over night. Boil together ten quarts of
water, one quart of vinegar, and two cupfuls of salt; let this brine
stand over night. In the morning drain the cucumbers and pack them
tight in layers in BALL Two-Quart Jars between cherry leaves and
dill. Add a small piece of red pepper to each jar. Cover the cucumbers
with the boiled brine and seal them.

Note. A cupful of mustard seed and a cupful of horseradish shaved
fine may be added.

CANNED TOMATOES. Select tomatoes slightly underripe and free
from decay. Peel them, cut out all green and hard parts, place them
in a preserving kettle, salt them as for table use, and boil them until
they are thoroughly heated. Fill sterilized BALL Jars to overflowing
with the boiling tomatoes, add a teaspoonful of salt and a teaspoonful
of sugar to the top of each jar, and seal the jars at once.

Note. Some women scald the tomatoes before peeling them. This is a
bad practice, and unnecessary if a sharp knife is used.

WHOLE CANNED TOMATOES. Select smooth, ripe tomatoes, re-
move the skins, and pack the tomatoes in BALL Jars. Salt them as for
table use and proceed as directed under CANNED CORN.

CANNED TOMATOES—Cold Water Method. Tomatoes contain so
much acid that with care it is possible to preserve them without the
application of heat. Pack sterilized BALL Jars full of tomatoes, fill
them to overflowing with cold water, and put new rubbers in place.
Submerge one jar in a pail of clear cold water so that the top is cov-
ered with two or three inches of water. This tends to force out any
remaining air. While the jar is still submerged, screw the cover on.
Proceed likewise with the other jars, using a fresh pail of water for
each jar.

Note. Use only slightly underripe tomatoes free from all decayed
spots, then this method is perfectly safe.

SPICED TOMATOES. Mix together two quarts of tomatoes, skinned
and sliced, one quart of sugar, and spices to suit the taste. Boil the
mixture until it is the consistency of jam, and seal the spiced tomatoes
in BALL Jars.

Note. This is excellent served with cold meats.

TOMATO MARMALADE. To a quart of ripe tomatoes, skinned and
sliced, add half a cupful of cider vinegar, a third of a cupful of sugar, a
tea spoonful of salt, and a teaspoonful of mixed spices. Cook the mix-
ture slowly, stirring it with a wooden spoon, until it is reduced a half
in bulk. Seal it in BALL Pint Jars.

TOMATO MUSTARD. Boil together for an hour, a half bushel of ripe
tomatoes, sliced, and six small red peppers. Strain the
tomatoes through a colander and boil them an hour
longer with two tablespoonfuls of black pepper, two
ounces of cloves, one-eighth of an ounce of mace, and
a quarter of a pound of salt. When the tomatoes are
cold, add two ounces of mustard, two ounces of curry
powder, and one pint of vinegar. Seal the tomato mus-
tard in BALL Jars.

PICCALILLI. Chop together a peck of green tomatoes,
a head of cabbage, eight large onions, and three red or
green peppers. Add a cupful of salt and let the mix-
ture stand over night. In the morning drain off the
liquid, add two quarts of vinegar, one pound of brown

It is economy to can fruit within an hour after picking it.
sugar, a quarter of a pound of mustard seed, two tablespoonfuls of cinnamon, two tablespoonfuls of ground black pepper, a quarter of a teaspoonful of cayenne pepper, and a bag containing a tablespoonful of cloves, a tablespoonful of allspice, and two tablespoonfuls of ginger. Boil the mixture for thirty minutes, stirring it frequently to prevent scorching, and seal the piccalilli in BALL Jars.

CHILI SAUCE. Peel and slice a peck of ripe tomatoes, and add six green peppers chopped fine, six onions chopped fine, two tablespoonfuls of cinnamon, two teaspoonfuls of cloves, one tablespoonful of salt, two cupfuls of brown sugar, and five cupfuls of vinegar. Boil the mixture two hours, and seal the chili sauce in BALL Jars.

INDIA RELISH. Chop fine a peck of ripe tomatoes, drain them, and add three cupfuls of chopped celery, two cupfuls of chopped onions, and half a cupful of salt. Let the mixture stand two hours; then add two pints of vinegar, three cupfuls of brown sugar, half a cupful of white mustard seed, two red peppers chopped fine, one tablespoonful of ground cinnamon, one tablespoonful of allspice, and half a tablespoonful of cloves. Mix the ingredients well and seal the relish in BALL Jars without cooking it.

SWEET GREEN TOMATO PICKLES. Mix together one peck of green sliced tomatoes, six large sliced onions, and one teacupful of salt. Let the mixture stand over night, and in the morning drain off the liquid. Boil the mixture for five minutes in two quarts of water and one quart of vinegar. Drain it again. Boil for fifteen minutes four quarts of vinegar, a quart of brown sugar, half a pound of ground mustard, a tablespoonful of cloves, two tablespoonfuls of cinnamon, and two tablespoonfuls of ginger. Put the drained tomatoes and onions in BALL Jars, pour over them the boiling liquid, and seal the jars at once.

RUMMAGE PICKLES. Chop together two quarts of green tomatoes, one quart of ripe tomatoes, three bunches of celery, three large onions, three large red peppers, three green peppers, a small head of cabbage, and one large ripe cucumber. Sprinkle a cupful of salt over the mixture, and let it stand over night. In the morning drain it well and add three pints of vinegar, a quart of brown sugar, a teaspoonful of mustard, and a teaspoonful of black pepper. Cook the mixture until it is clear—this usually takes about an hour—and then while the pickles are still hot seal them in BALL Jars.

GREEN TOMATO PICKLE. Chop together four quarts of green tomatoes, four small onions, and four green peppers; add three-fourths of a cupful of salt and let the mixture stand over night. In the morning drain the vegetables. Measure out enough vinegar to cook them in, add a tablespoonful each of pepper, mustard seed, celery seed, allspice, and cinnamon, and heat the mixture to the boiling point. Add the vegetables and continue the boiling twenty minutes. Seal the pickles in BALL Jars.

RIPE TOMATO PICKLE—Uncooked. Chop together two quarts of peeled tomatoes, one cupful of celery or cabbage, four red or six green peppers, and six tablespoonfuls of chopped onion. Add a teaspoonful of ginger, a tablespoonful of celery seed, five tablespoonfuls of salt, half a cupful of sugar, half a cupful of mustard seed, two and a half cupfuls of vinegar, three-fourths of a teaspoonful each of cloves, cinnamon and grated nutmeg. Mix the ingredients thoroughly, and put the mixture into a covered jar. Let the pickle stand for a week before using it.

Keep the flies out of the kitchen while canning fruit.

[45]
GREEN TOMATO PRESERVES. For each pound of peeled and quartered tomatoes add three-fourths of a pint of sugar, a tablespoonful of lemon juice, ten cloves, an eighth of a teaspoonful of mace, and a quarter of a teaspoonful each of ginger and cinnamon. Let the tomatoes stand covered with the sugar for an hour. Then add the spices, bring the whole gradually to a boil, and cook the mixture slowly until the tomatoes are clear and tender, keeping the sides of the vessel carefully wiped down. Seal the preserves in BALL Jars.

BOILED TOMATO CATSUP. Peel and slice a peck of ripe tomatoes and boil them thoroughly. Drain off the juice and boil the tomatoes slowly for four hours longer. Add two tablespoonfuls of salt, a tablespoonful of black pepper, one and a half teaspoonfuls of cayenne pepper, and a tablespoonful of mustard. Continue the boiling an hour longer. Allow the catsup to cool, add a pint of vinegar, and seal it in BALL Jars.

CANNED ASPARAGUS. Cut the asparagus into short lengths and pack it together as closely as possible with heads up in BALL Jars. If quart jars are used, two or three layers are necessary. Fill the jars with cold water, and proceed as directed under CANNED CORN.

CANNED PEAS. Wash young peas in cold water and pack them into BALL Jars. Fill the jars with slightly salted, warm water and proceed as directed under CANNED CORN.

SWEET PICKLED CARROTS. Select young and even-sized carrots, boil them until they are tender, cool them and pack them into BALL Jars. Fill the jars to overflowing with a hot liquid made by boiling together for five minutes a pint of vinegar, a cupful of sugar, and two tablespoonfuls of mixed spices; seal the jars at once.

CARROT MARMALADE. Grate a dozen raw carrots, add a cupful of sugar for each cupful of grated carrot, and allow the mixture to stand over night. In the morning add the strained juice of three lemons, a teaspoonful of powdered cinnamon, a teaspoonful of powdered cloves, and a teaspoonful of allspice. Cook the mixture slowly for an hour. Seal the marmalade in BALL Jars.

CANNED PEPPERS. Wash a peck of red peppers and cut a slice from the stem end of each. Remove the seeds. With a pair of scissors cut the peppers into rings. Cover the rings with boiling water and let them stand two minutes. Drain them and put them at once into cold water (preferably ice water). After ten minutes drain them again and then pack them into BALL Pint Jars. Have ready a syrup made by boiling together for fifteen minutes a quart of vinegar and two cupfuls of sugar. Pour the boiling syrup over the peppers until the jars overflow and seal them.

PEPPER MANGOES. Select medium-sized red and green peppers, wash them, cut off the stem end, and remove all seeds and veins. Fasten the top of each pepper to the pepper with a straw or toothpick. Place the peppers in a jar, cover them with a fairly strong brine, and allow them to stand for three days. Chop very fine a head of red cabbage, and sprinkle it with a small quantity of cloves, a teaspoonful of celery seed, two tablespoonfuls of white mustard seed, and one tablespoonful of salt. Add some gherkins and some very small onions chopped fine. At the end of three days drain the peppers thoroughly and fill them with this mixture. Moisten the filling with vinegar that has been

Try the BALL "Sure-Seal" Jars. You will like them.

[46]
boiled and cooled. Put the tops in place on the peppers and pin them with straws. Pack the stuffed peppers into BALL Jars, fill the jars to overflowing with boiling vinegar, and seal them.

**Note.** The mangoes should stand at least six weeks before they are used.

**PEPPER HASH.** Remove the seeds and chop very fine twelve sweet red peppers, twelve green peppers, and twelve very small onions. Add three tablespoonfuls of salt and allow the mixture to simmer for ten minutes; then drain it and add a quart of vinegar and a cupful of brown sugar. Let the hash come to a boiling heat; then pour it into BALL Pint Jars and seal them.

**Note.** Pepper hash is excellent for sandwiches.

**RIPE SWEET PEPPER CATSUP.** Remove the seeds from a bushel of peppers, peel and seed a dozen ripe cucumbers and peel half a peck of apples. Add six stemmed and seeded small peppers, run all through a meat grinder, and add a quart of salt. Let the mixture stand twenty-four hours; then squeeze it through a cotton sack, a quart at a time. Mix together and bring to a boiling heat three quarts of cider vinegar, four pints of brown sugar, two ounces of ground mace, and three ounces of ground cinnamon. Boil half a pint of white mustard seed and a fourth of a pint of celery seed in half a pint of vinegar for an hour. Pour both mixtures over the catsup, stirring it all the time. Boil the catsup until it is tender and then seal it in BALL Jars.

**BRUSSELS SPROUTS.** Cut off the little heads or “sprouts”, remove any yellow or wilted leaves, and soak the heads in salted water for an hour. Pack the sprouts into BALL Jars, cover them with boiling water, salt them slightly, and put the covers in place loosely without rubbers. Proceed as directed under CANNED CORN.

**CANNED SQUASH.** Cut the squash into small cubes, pack the jars full, and fill them to overflowing with cold water. Add a teaspoonful of salt to each jar; then proceed as directed under CANNED CORN.

**CANNED SWEET POTATOES.** Peel and slice the potatoes and boil them in slightly salted water until they are tender. Pack them in jars, adding a little salt water and sugar for seasoning if desired. Put the covers on the jars loosely, and stand the jars in a wash boiler on a false bottom and proceed as directed for CORN.

**CANNED COOKED SQUASH.** Pare the squash and boil or steam it until it is thoroughly done; then mash the squash, pack it into BALL Jars, add salt, fill them to overflowing with cold water, and proceed as directed under CANNED CORN.

**CANNED EGGPLANT.** Pare the eggplant, cut it into thin slices, and boil it fifteen or twenty minutes. Then drain off the water, pack the eggplant into BALL Jars, fill them to overflowing with cold water, and proceed as directed under CANNED CORN.

**CANNED CARROTS.** Scald five minutes in boiling water. Plunge in cold water. Remove skins. Pack whole or sliced into BALL Jars. Add boiling water and one teaspoonful of salt to each jar. Place rubber and top on jar and partially tighten. Steam for one and one-half hours in a hot-water bath.

**PARSNIPS.** Treat same as carrots.

**CANNED GREENS.** One of the necessary and most

*Sell your surplus canned fruit; there is always a demand.*

[47]
important food products for our daily rations is greens. They not only supply the food constituent needed, but serve as a necessary laxative in the human diet. All kinds of greens can be canned successfully in glass jars by following the directions.

Spinach, Dandelion, Beet Tops, Mustard: Blanch in boiling water five minutes; plunge in cold water. Cut ready for table use. Boil in open kettle for twenty minutes to shrink. Pack in glass jars; fill with boiling water, add a little salt to each pint; put rubbers and tops in place and steam in hot-water bath for one hour. Tighten covers and put away to cool. A slice of bacon may be placed in each jar for seasoning, if desired.

Miscellaneous

CANNED HUCKLEBERRIES. Put the huckleberries into a BALL Jar, shaking them down well. Fill the jar with molasses, letting all bubbles of air escape. Seal the jar and set it in a cool dark place. When the huckleberries are needed, pour the contents of the jar into a strainer and let the molasses drain off; wash the berries and use them as fresh huckleberries. The molasses may be used again.

PICKLED BARBERRIES. Soak nice, large bunches of barberries in salt and water for a few hours. Remove from the water and pour scalding vinegar over them. Spice them if preferred. Place in BALL Jars and cover with hot vinegar. These will keep their color and are handsome for garnish.

PRESERVED BARBERRIES. Place any quantity of berries in a double boiler and cook until thoroughly heated through. Remove and weigh. Add equal parts of sugar and cook together until the juice begins to "jell." Seal in hot BALL Jars, or BALL Ideal Family Jelly Glasses.

MULBERRIES. Mulberries may be used in as many ways as raspberries or blackberries, but are considered superior to them for making jelly. This berry is seldom appreciated. It is most wholesome, containing much potash; is one of the largest and purest sugar manufactory among fruits, the quantity of grape sugar outranked only by the grape and cherry.

MULBERRY JELLY. To each five quarts of berries add two quarts of cold water. Let cook together slowly for half an hour. Then add two more quarts of cold water. Cook again for half an hour. Mash any berries that don't break easily. Drain through a bag. Measure the juice. Put back over the fire and add sugar, a pint for each pint of juice. When the mixture has boiled three minutes begin testing it. When ready to jell pour into BALL Ideal Family Jelly Glasses. Let stand in the sun until firm.

JUICY LEMONS. Store the lemons in sealed BALL Jars. When they are needed, place them in boiling water a few minutes before squeezing them, and double the usual amount of juice will be obtained.

ELDERBERRY JELLY. Use elderberries alone or with an equal amount of lemon juice or green grapes or gooseberries or currants. Follow the directions given under APPLE JELLY; see page 20.
CANNED CRANBERRIES. Follow the directions given under CANNED RHUBARB, any method; see page 36.

CRANBERRY MARMALADE. Follow directions given under BLACK RASPBERRY MARMALADE; see page 31.

CITRON PRESERVES. Pare off the rind, remove the seeds, and cut the citron into thin slices. Measure the fruit, put it into a preserving kettle with enough water to cover it, and boil it for an hour. Remove the citron and to the water add as much sugar as there was fruit. Boil the syrup until it is thick, replace the citron, add one sliced lemon for each quart of fruit, boil the preserves twenty minutes longer, and seal them in BALL Pint Jars. Some prefer after slicing to let soak over night in a weak brine.

CANNED BLUEBERRIES. Follow directions given under CANNED BLACKBERRIES; see page 32.

WATERMELON PICKLES. Select a good, ripe watermelon, cut off the green rind, and cut the fleshy rind remaining into slices. Soak the slices in weak salt water or lime water, over night, and in the morning drain off the water. Make a liquid by boiling together sugar, weak vinegar and spices, using one and a quarter pounds of sugar and two sliced lemons for each pound of rind. Boil the sliced watermelon in this water until it is tender; this usually takes about an hour. Seal the pickles in BALL Jars.

WATERMELON PRESERVES. Peel and cut into slices the rind of one watermelon, soak the slices in weak salt water over night, and drain off the water in the morning. Parboil the slices for a few minutes in water containing a pinch of dissolved alum. Drain the slices again. Make a heavy syrup of sugar and water, slice into it two lemons, and add whatever spices are desired. Drop in the parboiled watermelon and boil it until it is tender. Seal the preserves in BALL Jars.

MUSKMELON PRESERVES. Follow the directions given for watermelon preserves. Partially green melons make delicious preserves, but they should be soaked in stronger salt water than that used for watermelons.

MUSKMELON BUTTER. Select ripe muskmelons. Slice them and remove the rinds, seeds, and soft parts. Place the melon in a preserving kettle with a little water and boil it until it is tender. Press it through a colander and measure the pulp. Add one-half cupful of sugar, the juice of one-half lemon, and a very little cinnamon to each quart of pulp. Continue to boil it until it is the consistency of apple butter. Four into BALL Jars and seal while hot.

ORANGE MARMALADE. Remove the seeds and slice thin six oranges and three lemons. Add three pints of water for each pint of fruit. Let the mixture stand twenty-four hours; then boil it an hour. When it cools add an equal amount of sugar and boil it an hour longer. Seal the marmalade in BALL Jars, or pour it into BALL Ideal Family Jelly Glasses and cover it with melted paraffine.

Note. This makes about twenty glasses of marmalade. A little more sugar may be added if desired.

WINDSOR MARMALADE. Slice very thin a dozen

Never use a tin pan for cooking fruit.

[ 49 ]
oranges and four lemons, and soak the fruit in six quarts of water for forty-eight hours. Then boil the mixture down to nine quarts and add six quarts of sugar. Continue the boiling until the juice jellies, and seal the marmalade in BALL Jars or pour into BALL Ideal Family Jelly Glasses and cover it with melted paraffine.

CANNED PERSIMMONS. Select well-frosted persimmons, peel them, and put them into BALL Jars. Put the covers in place loosely without the rubbers, stand the jars in a wash boiler on a false bottom, surround them with a few inches of warm water, and steam them until the fruit is thoroughly heated. Remove the jars one at a time, fill them to overflowing with a heavy boiling syrup, and seal them at once.

PERSIMMON MARMALADE AND JELLY. Cook in a double boiler thoroughly ripe persimmons. To every two quarts of pulp add half a pint of orange juice. When cooked down thick, measure and add three-quarters as much sugar as pulp. Cook as stiff as desired. Put into BALL Pint Jars and seal. Jelly may be made in the usual way, combining the persimmon pulp with orange pulp, and add equal weight of sugar after the juice has been drained.

PRESERVED GINGER. Scald the young roots until they become tender. Then soak them in cold water, changing the water very frequently. Make a thin syrup. Pour over the ginger roots and let stand for five days. Place the ginger in BALL Jars and boil down the syrup until very thick. Spices may be added if desired. Pour the thick syrup over the ginger and seal.

HONEY VINEGAR. Mix together in a jar one quart of strained honey and eight quarts of warm water. Allow the mixture to stand in a warm place until fermentation ceases. The resulting vinegar is white and of excellent quality. Seal it in BALL Jars.

CLOVER BLOSSOM VINEGAR. Pick the clover blossoms without stems or leaves attached. Place a peck of the blossoms in a stone jar; add two quarts of brown sugar, one quart of molasses, and four and a half gallons of boiling water. When this cools add one and a half pints of hop yeast. Mix the ingredients well. Place a white cloth over the top of the jar and let it stand in a cool place fourteen days. Strain the vinegar off and seal it in BALL Jars.

TARRAGON VINEGAR. Add a handful of fresh tarragon leaves to a quart of vinegar and let the mixture stand for two weeks, shaking it frequently. Then strain the vinegar and seal it in a BALL Jar.

SASSAFRAS SHRUB. Boil a pound of sassafras root in two gallons of water fifteen minutes. Add a pint of New Orleans molasses, the rind of four lemons, a fourth of a pound of coves, and a fourth of a pound of stick cinnamon; place the mixture in a stone jar, cover it with a cloth, and let it stand in a cool place for five days. Strain it, add a fourth of a pound of tartaric acid, and seal the shrub in BALL Pint Jars.

ELDERBERRY WINE. Mix together a quart of elderberry juice, a quart of warm water, and one and a half pints of brown sugar. Fill BALL Pint Jars with the liquid and stand them in a jar. Each morning and evening refill the jars level full with some of the liquid reserved for the purpose. After about a week fermentation ceases and foaming begins. After a few days more, seal the wine in the jars.

Vegetables may be safely canned by continuous steaming. See Eating plenty of fruit helps to prevent stomach troubles.

[ 50 ]
DANDELION WINE. Use only fresh blossoms and carefully remove all stems, as otherwise the wine will be extremely bitter. To every quart of blossoms, well packed but not crushed, add two sliced lemons, two sliced oranges, and a quart of boiling water. Allow this mixture to stand for twenty-four hours; then drain off all the juice. For every quart of juice obtained add a cupful of granulated sugar. Pour the sweetened juice into BALL Jars and stand them in granite pans or similar receptacles. Allow the jars to stand until all fermentation ceases. Each morning it will be found that fermentation has caused the jars to run over, but that the liquid does not stand at the top. With the contents of one jar fill the others level full each morning. After all fermentation ceases, empty the wine out, wash the jars in hot water, put the rubbers in place, refill the jars to overflowing, and seal them. This makes a very mild wine.

RED HAW BUTTER. Select well-ripened haws. Remove the blossom ends and wash them. Place them in a preserving kettle with enough water to cover them. Cook them very slowly until they are tender. Press them through a colander and remove the skins, seeds and stems. Place the strained pulp in a clean preserving kettle. Add enough boiled down vinegar to make the pulp very thin. Continue the boiling until the pulp is the consistency of cider apple butter. When about half done, add about one-half teaspoonful of cinnamon and one-half cupful of sugar to each quart of pulp. Pour into jars and seal them at once.

PICKLED WALNUTS. Pick young walnuts while they are soft enough to be pierced with a needle. Soak them in a strong brine for three days, drain them, soak them in cold water for six hours, drain them, and place them in a stone crock. To a gallon of vinegar add a cupful of sugar, two tablespoonfuls each of whole peppers and cloves, a tablespoonful of allspice, and eight blades of mace; boil the mixture for ten minutes, pour it over the walnuts while it is scalding hot, and let them stand for three days. Then drain off the vinegar, put the nuts into BALL Jars, bring the vinegar to a boil, pour it over the nuts, seal the jars, and store them in a cool place. The nuts must stand at least six weeks before they are ready for use.

SPICED WALNUTS. Select walnuts soft enough to pierce with a needle and soak them in strong brine for a week, changing the brine each day. Drain and wash the walnuts, cover them with vinegar, and boil them ten minutes. Add a bag of spices containing four tablespoonfuls of whole cloves, peppercorns, mace, celery seed, and mustard seed. Cover the walnuts closely and let them stand for three weeks; then seal them in BALL Jars.

The Green Jar helps to preserve the natural color and flavor of the fruit.
During the past few years there has been a rapid increase in destructive insects. This condition has been brought about partly by the importation of insect pests from other parts of the world, pests which have thrived in their new home unhampered by the inroads of the parasites that kept them in control in their original haunts. Then we have our native insects, which since the tremendous decrease in forest area have turned their attention to orchard and garden. These infested orchards and gardens have passed the infection along into new territory so that at the present time destructive insects in injurious numbers are found in nearly every home and commercial orchard and garden.

These insects multiply so rapidly that unless they are checked and brought under control they will in time either entirely destroy or seriously handicap the development of all fruit and shade trees. There is only one possible remedy, and that is to spray. It is therefore now no longer a question of the advisability of spraying, but it is an absolute necessity to spray all fruit trees and bushes.

By the use of the proper insecticide or fungicide at the right time, practically all of the insects and fungus diseases which affect fruits and vegetables, as well as shade trees and flowers, can be controlled. It is now simply a question of how to do this spraying most efficiently, thoroughly and economically.

To help our friends in looking after the fruits on their home place we give here in concise form information regarding these various plant troubles and the various kinds of spraying material and the time in which the work should be done.

Spraying, if done carefully and thoroughly, will assure one perfect fruit and in much larger quantities, instead of inferior and insect-infected fruit and with only occasional crops, so that all the work and expense created will be amply repaid.

Insecticides and fungicides are primarily to prevent injury. This is especially true of fungicides. Thoroughness is more than half the battle, and in applying poisons aim to cover all parts of the plant liable to attack, and when using contact insecticides hit as many insects as possible. It is necessary to know whether a pest chews its food; for if it does not, contact insecticides or other means must be employed.

Biting or chewing insects devour or eat away portions of a plant, and the poison, in order to be effective, should be applied where it must be eaten, or the insect go hungry. This, if thoroughly done on the appearance of a pest, should give most excellent results, since young caterpillars usually succumb to poisons much more quickly than older ones.

Sucking insects, as a rule, produce a wilting or discoloration of small areas and sometimes considerable curling of the leaves; for example, certain plant lice. Such attacks should be checked at their inception by the use of contact insecticides. Some plant lice are so well protected by a woolly secretion that it is exceedingly difficult to hit them with a spray.

Certain scale insects are very resistant to treatment and, as a rule, sprays for the destruction of these latter must either be used very strong (in winter) while plants are leafless and therefore not subject to harm; or the ap-
plication may be more dilute and applied at the time the young scale insects are crawling actively and before the woolly secretion appears, mats down, and forms a protective covering or scale.

Leaf miners and borers in fruit, stems and roots, feed within the plant tissues and ordinarily can not be controlled by poisonous or other applications. There is usually some time in the life history of these pests when they are more easily attacked, and knowledge of this often renders it possible to keep them within bounds. Underground feeding kinds, though hidden from view, may sometimes be reached with a contact insecticide.

I. INSECTICIDES

Arsenate of lead is one of the best poisons which can be used for the destruction of insects. There are a number of excellent brands on the market. A standard paste arsenate of lead should contain 15% of arsenic oxide, not over 3% being water soluble. This preparation is valuable in proportion to its poison content.

This and other poisons are to be put where they must be eaten if the plant is attacked by insects, and on nothing soon to be eaten for human food.

Paris green and London purple are two of the oldest and most widely used insecticides. Paris green may be employed at the rate of one pound, with an equal amount of recently slaked lime, to 100 gallons of water. London purple may be used in the same way. Repeated applications of either of these poisons will injure most foliage unless lime is employed. Both Paris green and London purple can be added to Bordeaux mixture and used with safety. This preparation is a combined insecticide and fungicide.

Poisoned bait can frequently be employed to good advantage in destroying such pests as cutworms, army worms, and grasshoppers. It is prepared by dipping fresh clover or other attractive leaves in poisoned water and distributing in infested localities. Some have used 20 pounds of dry middlings and 1 pound of Paris green well mixed, with excellent success. A mash composed of 1 pound of Paris green, 50 pounds of bran, and sweetened with cheap sugar or molasses has been found very attractive to grasshoppers. These poisoned baits should not be placed where domestic animals, such as rabbits and chickens, can gain access thereto.

Contact Insecticides.

Contact insecticides are employed almost exclusively against sucking insects; that is, those forms which draw their nourishment from the underlying plant tissues and are, therefore, not injured by inert poisons lying on the leaf surface.

Kerosene emulsion is one of the most widely employed of these. It may be prepared by dissolving one-half pound of hard soap in a gallon of boiling water and adding thereto 2 gallons of kerosene. Mix vigorously by passing it through a spray pump for five to ten minutes. This preparation may be diluted four to twenty-five times before applying. Better results can probably be obtained in sections where lime or hard water occurs, by using 1 gallon of sour milk in place of soap. A very satisfactory emulsion is made by taking 1 part of this stock mixture to 9 of water. The strong emulsion is employed mostly for scale insects, while the weaker dilutions may be used against such insects as plant lice, cabbage worms, currant worms, and other forms having soft bodies. Some very good oil emulsions, in a form ready for use, have been placed on the market under various trade names.

Try canning grape juice; it is delicious.

[53]
Whale oil soap solution can be employed in much the same manner as kerosene emulsion. The maximum strength for summer use on foliage is 1 pound to 4 gallons of water. An extremely satisfactory dilution for many of the more common pests is 1 pound to 6 or 7 gallons of water.

Ivory soap used at the rate of a five-cent cake to 8 gallons of water is a very convenient solution and has been employed with great success in controlling insects, plant lice, etc., on house plants.

White hellebore (fresh) used at the rate of 1 ounce to 3 gallons of water is a valuable internal poison as well as an efficient contact insecticide. It may, therefore, be employed against both classes of insects, and is frequently used where the application of an arsenical poison is inadvisable.

Pyrethrum or insect powder (fresh) may be used at the rate of 1 ounce to 3 gallons of water. It may be applied dry, diluted with flour, and should then be mixed several hours before it is used. It is a contact insecticide only.

Tobacco dust and tobacco water are other valuable insecticides. The dry dust has been used most successfully in destroying the woolly aphis infesting the roots of apple trees. Tobacco water may be prepared by steeping tobacco stems in hot water for several hours and diluting the liquid from three to five times. One pound of the stems should produce 2 gallons of excellent tobacco water.

A concentrated, standardized tobacco solution such as a 40% nicotine sulphate is a very efficient insecticide and one with much promise, so far as convenience for the user and safety to the plant is concerned.

Lime-sulphur washes are among the cheapest and most effective insecticides as well as exceedingly valuable fungicides.

There are a number of good commercial lime-sulphur washes on the market. They usually test 33° Baume and are valuable in proportion to their density, that is the amount of material in solution. The usual strength for the winter wash is 4.5° Baume, while for the summer spraying of apple foliage it should read about 1° Baume.

### Table of Dilutions*

<table>
<thead>
<tr>
<th>Baume Reading</th>
<th>For San Jose Scale</th>
<th>For Summer Spray on Apples</th>
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<tbody>
<tr>
<td>35°</td>
<td>9 Gallons</td>
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<tr>
<td>30°</td>
<td>7 1/4</td>
<td>36</td>
</tr>
<tr>
<td>29°</td>
<td>6 1/4</td>
<td>34 1/4</td>
</tr>
<tr>
<td>28°</td>
<td>6 1/4</td>
<td>32 1/4</td>
</tr>
<tr>
<td>27°</td>
<td>6</td>
<td>31</td>
</tr>
<tr>
<td>26°</td>
<td>5 1/4</td>
<td>29 1/4</td>
</tr>
<tr>
<td>25°</td>
<td>5 1/4</td>
<td>27 1/4</td>
</tr>
<tr>
<td>24°</td>
<td>5</td>
<td>26</td>
</tr>
</tbody>
</table>

*Modified from Bulletin 330, New York Agricultural Experimental Station.

### Formulas

1. 40 lbs. of lime, 80 lbs. of sulphur.*
2. 60 lbs. of lime, 125 lbs. of sulphur.
3. 32 lbs. of lime, 32 lbs. of sulphur.

* Try the steaming method of canning strawberries and cherries.

[54]
the latter preferably first well mixed or moistened with warm water, and then keep the lime and sulphur well stirred. Add the remainder of the water when the lime has slaked and boil with fire or steam for about one hour, stirring as long as there is any sediment, the latter should practically disappear before the end of the operation. Allow extra capacity for the vigorous boiling, e.g., a 50-gallon barrel or kettle is only large enough for a half batch. This wash should test about 26° Baume and, ordinarily, may be diluted at the rate of 1 gallon to 5 3/4 gallons of water.

2. Slake the lime in a cooking vessel in a small quantity of water and stir in the sulphur previously made into a paste; add water to make 45 gallons and boil rapidly with either fire or steam one or two hours. After standing, draw off the clear liquid and dilute to 50 gallons. This will keep indefinitely if protected from the air and freezing and should test about 33° Baume. The ordinary dilution is 1 gallon of spray to 9 of water. The uncombined sulphur, if any remains, may be used in preparing the next lot. Formula 1 is considered more economical.

3. This self-boiled lime-sulphur wash is prepared as follows: Place the lime in a barrel with about 6 gallons of water (enough to almost cover it) and as soon as the lime begins to slake, the sulphur, previously finely sifted, should be added and the mixture constantly stirred, more water (3 to 4 gallons) being added as needed to form at first a thick paste and then gradually a thin paste. As soon as the lime has well slaked, water should be added to cool the mixture and prevent further cooking. It may then be strained and diluted to form 200 gallons or more. A combination particularly adapted to use on the foliage of trees because of the small amount of caustic sulphides present.

Potassium sulphide, 3 pounds to 100 gallons of water has been very successfully used as a spray against certain leaf mites.

This material is particularly serviceable in controlling certain scale insects, pear psylla, and some fungous diseases. It is a specific for peach-leaf curl.

Hydrocyanic acid gas fumigation is extensively employed in the South and West for the control of scale insects and white fly on citrus trees. This work can be safely done only by experienced men possessing a somewhat expensive outfit. The amateur is advised to be extremely careful in undertaking any such operations.

Soft soap wash is an excellent protective against borers. It is made by thinning 1 gallon of soft soap with an equal amount of hot water, then stirring in 1 pint of crude carbolic acid or one-half pint of the refined article; allow it to set over night, then add 8 gallons of water. This is applied to portions of trees liable to attack by borers, for the purpose of preventing the parent insects from depositing eggs.

II. FUNGICIDES

These are employed in all cases for the purpose of keeping out disease spores. Do not spray fruit trees and berry plants while in bloom. The concentrated lime-sulphur wash mentioned above is a valuable fungicide, and there are indications that we may soon have a dilute lime-sulphur wash which can be employed with safety on more hardy foliage at least.

The standard fungicide at the present time is the Bordeaux mixture, which may be prepared by putting 6 pounds of copper sulphate in a bag of coarse cloth and hanging this in an earthen or wooden vessel containing 4 to 6 gallons of water. Then slake 4 pounds of quick-lime and add thereto 25 gallons of water. After the copper sulphate is dissolved, dilute with 25 gallons of water and mix the two by pouring the solutions together in a

Read general instructions thoroughly before canning.

[ 55 ]
third vessel; stir and keep stirred while spraying. For peaches and Japanese plums the amount of copper sulphate should be reduced to 4 pounds, and some growers have used but 2 pounds each of blue vitriol and lime to 50 gallons of water with excellent results. The weaker solutions should be employed wherever the normal proves too strong. A plain solution of copper sulphate, 1 pound in 15 to 25 gallons of water, may be employed before the buds break, the weaker solution being used on peach and nectarine. Ready-to-use Bordeaux can be had in cans.

Lime-sulphur washes, both the commercial and the self-boiled are important fungicides as well as insecticides. The usual dilution of a 33° Baumé wash for apple foliage is 1—40. The self-boiled wash is particularly adapted for use on peach, plum and cherry foliage. Both may be used in combination with arsenate of lead and are generally so employed.

Ammoniacal copper carbonate may be prepared by making a paste of 5 ounces of copper carbonate with a little water and dilute 3 pints of ammonia (26° Baumé) with 7 or 8 volumes of water. Add the paste to the diluted ammonia and stir till dissolved. Then add enough water to make 45 gallons. Allow the mixture to settle and use only the clear blue liquid. This preparation loses strength on standing. It may be used instead of Bordeaux mixture in late spraying and thus avoid the risk of injuring the appearance of the fruit.

Potassium sulphide (liver of sulphur) is used at the rate of ½ to 1 ounce to a gallon of water. This preparation loses its strength on standing and should, therefore, be used immediately. It is particularly valuable for surface mildews.

Iron sulphate, a saturated solution, with one part of commercial sulphuric acid to every 100 parts of water, is valuable for grape anthracnose, the dormant vines being treated by means of sponges or brushes. This solution should be prepared just before using.

Formalin. One pound (1 pint) to 30 gallons of water is frequently used for the prevention of potato scab. Soak the seed in this solution for about two hours before planting.

HOW TO PRESERVE A HUSBAND

Be careful in your selection. Do not choose too young. When once selected, give your entire thoughts to preparation for domestic use. Some insist upon keeping them in a pickle, others are constantly getting them into hot water. This may make them sour, hard and sometimes bitter; even poor varieties may be made sweet, tender and good, by garnishing them with patience, well sweetened with love and seasoned with kisses. Wrap them in a mantle of charity. Keep warm with steady fire of domestic devotion and serve with peaches and cream. Thus prepared, they will keep for years.

Use a granite colander when making marmalade.
## Remedies and Preventives for Plant Enemies and Diseases

By E. Porter Felt, State Entomologist, New York

The amateur should have little difficulty in recognizing the trouble and deciding upon the most efficient means of checking it. The directions must necessarily be very brief. Be sure and heed the remarks and cautions.

### Serious Pests of Orchard Trees

<table>
<thead>
<tr>
<th>PLANT</th>
<th>INJURY</th>
<th>TIME</th>
<th>CAUSE</th>
<th>NAME</th>
<th>REMEDY OR PREVENTIVE</th>
<th>REMARKS AND CAUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Apple</em> (1)</td>
<td>Wormy fruit</td>
<td>Late summer and fall</td>
<td>Whitish caterpillar</td>
<td>Codling moth</td>
<td>Poison, preferably arsenate of lead</td>
<td>Put in blossom end of apples within a week after bloom falls.</td>
</tr>
<tr>
<td>Apple</td>
<td>Irregular, hard or rotted trails in fruit</td>
<td>Summer and early fall</td>
<td>Small maggot</td>
<td>Railroad worm</td>
<td>Spray as for codling moth, possibly effective</td>
<td>Destroy early infested fruit every three days.</td>
</tr>
<tr>
<td>Apple</td>
<td>Young fruit deformed</td>
<td>Spring</td>
<td>Red bugs, plant lice</td>
<td>Red bugs, aphids</td>
<td>Spray before and after blossoming with tobacco solution</td>
<td>The red bug is becoming locally abundant.</td>
</tr>
<tr>
<td>Apple</td>
<td>Young leaves and blossoms destroyed</td>
<td>Early spring</td>
<td>Caterpillars in cases</td>
<td>Casebearers</td>
<td>Poison young leaves</td>
<td>Spray tips of young leaves in badly infested orchards.</td>
</tr>
<tr>
<td>Apple</td>
<td>Young leaves and blossoms destroyed</td>
<td>Early spring</td>
<td>Brown caterpillar</td>
<td>Bud moth</td>
<td>Poison</td>
<td>Treatment as above.</td>
</tr>
<tr>
<td>Apple</td>
<td>Stripped branches with large tents</td>
<td>Early spring</td>
<td>Bluish caterpillar</td>
<td>Tent caterpillar</td>
<td>Poison</td>
<td>Remove and crush caterpillars when in nest.</td>
</tr>
<tr>
<td>Apple</td>
<td>Young leaves eaten or browned</td>
<td>Early spring</td>
<td>Looping caterpillars</td>
<td>Canker worms</td>
<td>Poison</td>
<td>Poison is preferable to the use of sticky bands.</td>
</tr>
<tr>
<td>Apple</td>
<td>Terminal leaves eaten, twigs with small, firm webs</td>
<td>Spring and fall</td>
<td>Hairy caterpillars</td>
<td>Brown-tail moth</td>
<td>Poison in spring and late summer</td>
<td>Collect and burn winter nests.</td>
</tr>
</tbody>
</table>

(1) Apple: This tree is very badly injured by gipsy moth (see shade tree insects).

*General treatment for orchard fruits: Apply lime-sulphur wash just before buds swell (for fungus, scale insects and blister mite); poisoned lime-sulphur wash or Bordeaux when young leaves appear (for bad infestations of case bearers, bud moth and early leaf feeders); repeat the latter within a week or ten days after the bloom falls (for codling moth, leaf feeders and fungus); give another application a week or ten days later to insure thorough work if necessary. The same general directions apply to peach, pear, plum, and quince, the curculio affecting the latter being controlled in the same way as the plum curculio. Peach and plum are very sensitive to arsenic.
<table>
<thead>
<tr>
<th>PLANT</th>
<th>INJURY</th>
<th>TIME</th>
<th>CAUSE</th>
<th>REMEDY OR PREVENTIVE</th>
<th>REMARKS AND CAUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>Leaves brown, and loosely curled</td>
<td>Summer and early fall</td>
<td>Hairy, yellowish caterpillars</td>
<td>Poison in summer</td>
<td>Spray before buds open in spring.</td>
</tr>
<tr>
<td></td>
<td>Leaves stripped from branches</td>
<td>Summer and fall</td>
<td>Yellow or red marked caterpillars</td>
<td>Poison in summer or tobacco solution or kerosene emulsion</td>
<td>Spray as above.</td>
</tr>
<tr>
<td></td>
<td>Curled, sticky leaves</td>
<td>Early spring and summer</td>
<td>Gray and black bark lice</td>
<td>Tar paper bands</td>
<td>Cut well below infection to avoid carrying disease.</td>
</tr>
<tr>
<td></td>
<td>Dead limbs, red-spotted</td>
<td>Spring to fall</td>
<td>Brown scale insect</td>
<td>Lime-sulphur wash or bordelax</td>
<td>Keep pear blight out.</td>
</tr>
<tr>
<td></td>
<td>Poor growth, limb-scab</td>
<td>Spring to fall</td>
<td>White legless grub</td>
<td>Lime-sulphur wash or bordelax</td>
<td>Self-budded lime sulphur wash.</td>
</tr>
<tr>
<td></td>
<td>Poor growth, sticky foliage</td>
<td>Spring and fall</td>
<td>Minute mite</td>
<td>Fungus</td>
<td>Not very injurious to apple; self-limiting.</td>
</tr>
<tr>
<td></td>
<td>Leaves with thickened brown spots</td>
<td>Spring and fall</td>
<td>Minute mite</td>
<td>Fungus</td>
<td>First application when shoots are 10-day intervals.</td>
</tr>
<tr>
<td></td>
<td>Boring at base of tree</td>
<td>Summer</td>
<td>White leafy grubs</td>
<td>Fungus</td>
<td>Pear blight.</td>
</tr>
<tr>
<td></td>
<td>Brown spots on leaf</td>
<td>Summer</td>
<td>Minute mite</td>
<td>Fungus</td>
<td>Pear blight.</td>
</tr>
<tr>
<td></td>
<td>Dead spots on branch</td>
<td>Spring and summer</td>
<td>Growing season</td>
<td>Fungus</td>
<td>Fire blight.</td>
</tr>
<tr>
<td></td>
<td>Fruit rotten, covered with brown, powdery mold</td>
<td>Summer</td>
<td>Spring and summer</td>
<td>Fungus</td>
<td>Fire blight.</td>
</tr>
<tr>
<td>TIME</td>
<td>INJURY</td>
<td>CAUSE</td>
<td>REMEDY OR PREVENTIVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
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<td>-------</td>
<td>----------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer</td>
<td>Black knot on limbs</td>
<td>Fungus</td>
<td>Cut out and burn in winter.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Summer | Fruit rotting with brown powder on leaves | Fungus | Same as for spotted | Black knot, also affected.
| Summer | Reddish brown spots on leaves | Fungus | Cut and burn witches brooms. |
| Summer | Leaves curl, a white mold | Fungus | Lime-sulphur wash or potassium sulphide. |
| Early summer | Curled, sticky leaves | Fungus | Lime-sulphur wash or potassium sulphide. |
| Growing season | Scaly fruit and limbs | Fungus | Lime-sulphur wash or potassium sulphide. |
| Growing season | Scale on leaves and twigs | Fungus | Lime-sulphur wash or potassium sulphide. |
| Growing season | Blackened, sticky foliage | Fungus | Lime-sulphur wash or potassium sulphide. |
| Growing season | Yellow streaks on leaves | Fungus | Lime-sulphur wash or potassium sulphide. |
| Fall and spring | Bored trunks | Fungus | Lime-sulphur wash or potassium sulphide. |
| Early spring | Shot holes in bark | Fungus | Lime-sulphur wash or potassium sulphide. |
| Curled leaves | Curled leaves | Fungus | Lime-sulphur wash or potassium sulphide. |

**Plants:**
- **Cherry**
- **Citrus Fruits**
- **Peach**

**Causes:**
- **Black knot:**
- **Fruit rot:**
- **Reddish brown spots:**
- **Leaves curl, white mold:**
- **Curled, sticky leaves:**
- **Scaly fruit and limbs:**
- **Scale on leaves and twigs:**
- **Blackened, sticky foliage:**
- **Yellow streaks on leaves:**
- **Bored trunks:**
- **Shot holes in bark:**
- **Curled leaves:**

**Remarks and Cautions:**
- Keep black knot out of nearby plum and cherry trees.
- Peach, sprout, also affected.
- Four applications, first as shocks fall, second as witches brooms swell.
- Make 2 applications, first as shocks, second as witches brooms.
- Often serious on nursery stock, more effective than fresh wash.
- Spray at 2 or 3 day intervals if necessary.
- Treat as above.
- Treat as above.
- Treat as above.
- More injurious in dry seasons.
- Mound or sand base of trees from June to September.
- Do this in winter or early spring.
- Apply before buds burst.
<table>
<thead>
<tr>
<th>INJURY</th>
<th>REMEDY OR PREVENTIVE</th>
<th>CAUSE</th>
<th>TIME</th>
<th>NAME</th>
<th>REMARKS AND CAUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sticky yellowish trees</td>
<td>Keep infected trees from contact with healthy trees.</td>
<td>Plant disease</td>
<td>Summer</td>
<td>Peach yellows</td>
<td>Keep infected trees from contact with healthy trees.</td>
</tr>
<tr>
<td>Rotting fruit</td>
<td>Cut and burn</td>
<td>Plant disease</td>
<td>Summer</td>
<td>Brown rot</td>
<td>Apply before buds open.</td>
</tr>
<tr>
<td>Skeletonized leaves</td>
<td>Limesulph. wash or cop. sulph. solution</td>
<td>Plant disease</td>
<td>Summer</td>
<td>Peach rotting fruit</td>
<td>Apply before buds open.</td>
</tr>
<tr>
<td>Leaves sticky, black</td>
<td>Lime-sulph. wash as buds swell</td>
<td>Plant disease</td>
<td>Spring and summer</td>
<td>Pear leaves sticky, black</td>
<td>Apply before buds open.</td>
</tr>
<tr>
<td>Buds sticky, blossoms blasted</td>
<td>Lime-sulph. wash as buds swell</td>
<td>Plant disease</td>
<td>Spring and summer</td>
<td>Pear prepped, blossoms blasted</td>
<td>Apply before buds open.</td>
</tr>
<tr>
<td>Brown foliage on dying branches</td>
<td>Lime-sulph. wash as buds swell</td>
<td>Plant disease</td>
<td>Spring and summer</td>
<td>Brown rot</td>
<td>Apply before buds open.</td>
</tr>
<tr>
<td>Leaves curl, a white</td>
<td>Limesulph. wash as buds swell</td>
<td>Plant disease</td>
<td>Summer and winter</td>
<td>Plum mealy mold</td>
<td>Apply before buds open.</td>
</tr>
<tr>
<td>Gnarly growths on limb</td>
<td>Lime-sulph. wash as buds swell</td>
<td>Plant disease</td>
<td>Summer and winter</td>
<td>Black knot</td>
<td>Apply before buds open.</td>
</tr>
</tbody>
</table>

*Plum*
<table>
<thead>
<tr>
<th>PLANT</th>
<th>INJURY</th>
<th>TIME</th>
<th>CAUSE</th>
<th>NAME</th>
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<th>REMARKS AND CAUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quince</td>
<td>Blighted, wilting tips</td>
<td>Spring and summer</td>
<td>Pear blight</td>
<td>Fire blight</td>
<td>Cut and burn affected tips</td>
<td>More serious on quince than apple.</td>
</tr>
<tr>
<td>Quince</td>
<td>Reddish brown spots on leaves and fruit</td>
<td>Summer and fall</td>
<td>Fungus</td>
<td>Leaf and fruit spot</td>
<td>Lime-sulphur wash or Bordeaux</td>
<td>Spray as for apple scab.</td>
</tr>
<tr>
<td>Quince</td>
<td>Rotting fruit with minute pimplies, cankers on limb</td>
<td>Summer and fall</td>
<td>Fungus</td>
<td>Black rot</td>
<td>Lime-sulphur wash before buds open</td>
<td>Prune, cut out and disinfect cankers.</td>
</tr>
<tr>
<td>Quince</td>
<td>Yellow spots on leaves and a mealy rust on fruit</td>
<td>Summer and fall</td>
<td>Fungus</td>
<td>Rust</td>
<td>Destroy nearby cedar trees</td>
<td></td>
</tr>
</tbody>
</table>

**Small Fruit Troubles**

<table>
<thead>
<tr>
<th>PLANT</th>
<th>INJURY</th>
<th>TIME</th>
<th>CAUSE</th>
<th>NAME</th>
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<th>REMARKS AND CAUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currant (1)</td>
<td>Fruit reddens and drops</td>
<td>Summer</td>
<td>Small maggot</td>
<td>Currant fly</td>
<td>Pick up and destroy infested fruit</td>
<td>Allow fowls to run among the bushes.</td>
</tr>
<tr>
<td>Currant</td>
<td>Leaves discolored</td>
<td>Spring and fall</td>
<td>Plant louse</td>
<td>Currant aphis</td>
<td>Tobacco solution or kerosene emulsion</td>
<td>Apply early before leaves curl.</td>
</tr>
<tr>
<td>Currant</td>
<td>Leaves irregularly brown spotted</td>
<td>Spring</td>
<td>Reddish or yellow and black bug</td>
<td>4-lined plant bug</td>
<td>Tobacco solution or kerosene emulsion for young</td>
<td>Burn egg-bearing currant tips.</td>
</tr>
<tr>
<td>Currant</td>
<td>Leaves stripped</td>
<td>Spring and summer</td>
<td>Spotted caterpillars</td>
<td>Currant worm</td>
<td>Poison or hellebore</td>
<td>Use hellebore after fruit is half grown.</td>
</tr>
<tr>
<td>Currant</td>
<td>Wilting tips</td>
<td>June</td>
<td>White borers</td>
<td>Currant stem borers</td>
<td>Burn infested tips</td>
<td>Cut well below affected part of cane.</td>
</tr>
</tbody>
</table>

(1) Currant is badly injured by San Jose scale (see fruit trees).  
(2) Black leaf 40 is very good.
<table>
<thead>
<tr>
<th>PLANT</th>
<th>INJURY</th>
<th>TIME</th>
<th>CAUSE</th>
<th>NAME</th>
<th>REMEDY OR PREVENTIVE</th>
<th>REMARKS AND CAUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currant</td>
<td>Leaves brown spotted</td>
<td>Spring and summer</td>
<td>Fungus</td>
<td>Leaf blight</td>
<td>Ammoniacal copper carbonate</td>
<td>Bordeaux after fruit is picked.</td>
</tr>
<tr>
<td>Grape</td>
<td>Tips of shoots webbed</td>
<td>Summer</td>
<td>Whitish caterpillar</td>
<td>Grape plume moth</td>
<td>Crush caterpillars</td>
<td>Apply poison if pest is abundant.</td>
</tr>
<tr>
<td>Grape</td>
<td>Buds destroyed</td>
<td>Early spring</td>
<td>Green beetle</td>
<td>Steely flea beetle</td>
<td>Paint buds with poison</td>
<td>Spray with poison 10 to 14 days later.</td>
</tr>
<tr>
<td>Grape</td>
<td>Clusters wormy</td>
<td>Summer and fall</td>
<td>Small caterpillars</td>
<td>Grape berry moth</td>
<td>Spray with poison in June</td>
<td>Keep surroundings clear of brush and weeds.</td>
</tr>
<tr>
<td>Grape</td>
<td>Vines sickly, roots badly scored</td>
<td>Summer</td>
<td>Brown beetle and white grubs</td>
<td>Grape root worm</td>
<td>Spray foliage with sweetened poison in June</td>
<td>Serious enemy of European vines.</td>
</tr>
<tr>
<td>Grape</td>
<td>Light specked leaves</td>
<td>Summer</td>
<td>Whitish hoppers</td>
<td>Leaf hopper</td>
<td>Spray young with tobacco solution</td>
<td>Destroy pupae by cultivation.</td>
</tr>
<tr>
<td>Grape</td>
<td>Galled leaves</td>
<td>Summer</td>
<td>Small plant louse</td>
<td>Grape phylloxera</td>
<td>Plant resistant vines, flood for 10 days</td>
<td>Destroy winter shelters.</td>
</tr>
<tr>
<td>Grape</td>
<td>Dark spotted shoots</td>
<td>Summer</td>
<td>Fungus</td>
<td>Anthracnose</td>
<td>Copper sulph. solution and Bordeaux</td>
<td>1st before buds open, 2nd 3 to 4 days later; burn diseased wood.</td>
</tr>
<tr>
<td>Grape</td>
<td>Whitish growth on leaves</td>
<td>Summer</td>
<td>Fungus</td>
<td>Downy mildew</td>
<td>Bordeaux</td>
<td>Spray when leaves are fully expanded.</td>
</tr>
<tr>
<td>Grape</td>
<td>Dark spotted fruit</td>
<td>Summer</td>
<td>Fungus</td>
<td>Black rot</td>
<td>Bordeaux ammoniacal cop. carb'te.</td>
<td>1st to fully expanded leaves; after fruit sets in 2 to 3 wk. intervals till ¾ grown. Then 2d every 7 to 14 days.</td>
</tr>
<tr>
<td>Raspberry</td>
<td>Wilting tips</td>
<td>Spring</td>
<td>White maggot</td>
<td>Raspberry cane maggot</td>
<td>Poison ineffective</td>
<td>Cut and burn infested shoots.</td>
</tr>
<tr>
<td>Raspberry</td>
<td>Leaves riddled</td>
<td>Spring</td>
<td>Greenish larvæ</td>
<td>Blackberry sawfly</td>
<td>Poison or hellebore</td>
<td>Apply to expanded leaves and again 2 to 3 weeks later.</td>
</tr>
<tr>
<td>Raspberry</td>
<td>Stems gray, cracked</td>
<td>Summer</td>
<td>Plant disease</td>
<td>Anthracnose</td>
<td>Fungicides ineffective</td>
<td>Cut and burn badly infested canes.</td>
</tr>
<tr>
<td>PLANT</td>
<td>INJURY</td>
<td>TIME</td>
<td>CAUSE</td>
<td>NAME</td>
<td>REMEDY OR PREVENTIVE</td>
<td>REMARKS AND CAUTIONS</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------------</td>
<td>--------------------</td>
<td>-----------</td>
<td>--------------</td>
<td>----------------------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>Raspberry and</td>
<td>Orange-colored spots on</td>
<td>Summer</td>
<td>Fungus</td>
<td>Red rust</td>
<td>Burn infested plants</td>
<td>Affection not amenable to treatment.</td>
</tr>
<tr>
<td>Blackberry</td>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raspberry</td>
<td>Newly set plants dying</td>
<td>Spring</td>
<td>Grub at</td>
<td>White grub</td>
<td>Dig out and destroy</td>
<td>Set plants on new ground.</td>
</tr>
<tr>
<td>Blackberry</td>
<td></td>
<td></td>
<td>roots</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strawberry</td>
<td>Dead patches in bed</td>
<td>Spring and summer</td>
<td>Grub in</td>
<td>Crown borer</td>
<td>Destroy infested</td>
<td>It is unsafe to reset an old strawberry</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>crown</td>
<td></td>
<td>plants</td>
<td>bed.</td>
</tr>
<tr>
<td>Strawberry</td>
<td>Bare spots in bed</td>
<td>Spring and summer</td>
<td>Plant lice</td>
<td>Strawberry</td>
<td>Set only uninfested</td>
<td>Burn over old beds in early spring.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>louse</td>
<td>root louse</td>
<td>plants</td>
<td></td>
</tr>
<tr>
<td>Strawberry</td>
<td>Leaves blighted</td>
<td>Spring and summer</td>
<td>Fungus</td>
<td>Leaf blight</td>
<td>Bordeaux</td>
<td>Apply when growth begins, when fruit sets,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>and after fruiting.</td>
</tr>
</tbody>
</table>
Why Use the Ball Jar?

It hardly pays to risk the results of your preserving to just "any" jar.
Much fine fruit has been spoiled through some little imperfection in the sealing, or some weakness of the jar.
If when buying your JARS you will always insist on having the BALL brand, you will secure the best results in your canning and preserving. WHY?

Because these jars are now made by recently invented and patented machinery, which produces more perfect jars than it is possible to make by any other process.

Because this machinery makes the glass of even thickness, and that evenness of distribution makes it possible to anneal or temper or toughen the glass perfectly, which is not possible if the jar is thick or thin in spots.

Because they are made of GREEN glass, which color keeps contents better than clear glass.

Because every jar produced passes through close inspection and if the slightest imperfection is found, the jar is discarded and broken up. No "seconds" in BALL brand are ever packed.

Because with the BALL brand are packed rubbers of very superior quality—better than those generally furnished and of higher cost, made carefully and of the right ingredients to adapt them for this use. Only the immense output of the BALL factories allows them to furnish this high quality of rubbers.

Because in the BALL factories every part of the jar is made complete—the metal cap, the porcelain lining for the cap, the wire levers and the boxes in which the goods are packed. This insures more perfect-fitting jars and trimmings than can be had or expected where the glass is produced by one maker and the metal cap by another, neither being able to "keep track of" just what is necessary to make his part fit the product of the other.

Because even the zinc metal for the caps is rolled in the BALL factories' own rolling mills, from superior raw materials, producing softer, more pliable metal, expressly adapted for the requirements of a Fruit Jar.

Insist on having the BALL brand in either the Screw Top or Wire Top styles.