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MANUFACTURE AND USE OF UNFERMENTED GRAPE JUICE.[1]

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INTRODUCTION.

It is the purpose of this publication to state briefly the way in which unfermented grape juice is made and preserved, both for commercial and domestic use, as well as the fundamental processes and principles involved, and to offer practical suggestions for the aid of housewives and those who have large business interests.

Much of the fruit which is lost each year on the farm through inability to preserve it in a fresh state might be utilized in making a pleasant, wholesome drink either for home use or for sale as one of those by-products which increase the earnings of the farm and sometimes constitute the difference between profit and loss.

HISTORICAL NOTES.

Galen, the Greek physician and writer, who lived in the second century after Christ, says that "a good many Asiatic wines were stored in bottles which were hung in the corner of fireplaces, where, by evaporation, they became dry. This process was called fumarium." The Greeks had two kinds of wine, "protoplon," or first juice of the grape before pressing, and "deuterion," or pressed juice. The Romans called them "vinum primarium" and "vinum secundarium," respectively. The juice before fermentation had started was called "mustum." After this must,[2] or juice, had been through a heating

[1] This bulletin is a revision of Bureau of Plant Industry Bulletin 24 and of Farmers' Bulletin 175, issued in 1902 and 1903, respectively.

[2] The word "must," as used in wine making, invariably refers to the unfermented juice of the grape and is so used in this publication.

NOTE.—This bulletin gives instructions for making grape juice for home use and in commercial quantities. The bulletin is suitable for distribution throughout the country.

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process (now termed reduction) it was known as "frutum," and when, after long heating, it was reduced to one-half or one-third its original volume it was called "sapa." This was equivalent to grape sirup and was used by the Romans on their bread.

Physicians in Europe often send their patients to the wine-growing districts during vintage time to drink the fresh juice as it comes from the crusher. This practice, however, restricts its use to a brief season of the year and to the immediate vicinity of the vineyards. Of late years repeated efforts have been made to prevent the juice from fermenting and to preserve it in vessels of such size and shape as can be easily transported, thus widening its distribution and extending its use throughout the year. Until recently, however, grape juice has been used almost exclusively for medical or sacramental purposes. Unrestricted or general utilization has been retarded through ignorance of the principles underlying the process of manufacture.

COMPOSITION OF THE GRAPE.

The grape contains from 12 to 38 per cent of sugar, about 2 to 3 per cent of nitrogenous substances, and some tartaric and malic acids. The skin contains tannin, cream of tartar, and coloring matter; the seeds contain tannin, starchy matters, and fat; and the stem contains tannin, diverse acids, and mucilaginous matter. The value of juice made from any particular variety of grapes is determined by the relative proportion of these various ingredients.

ANALYSES OF GRAPE MUST.

The analyses of a California grape must, as published in Bulletin 130 of the California Agricultural Experiment Station, and of a Concord grape must analyzed by Mr. L. S. Munson, of the Bureau of Chemistry, U. S. Department of Agriculture, are given in Table I.

The comparison is of interest, because at present the commercial supply of grape juice in the United States comes from California, where the Vinifera or European varieties are used, and from the Eastern States, where the native American Euvitis varieties, principally the Concord, are used.

TABLE I.—*Analyses of must made from Concord grapes and that made from California Vinifera varieties.*

Constituents.	Concord.	Vinifera.
	Per cent.	*Per cent.*
Solid contents	20.37	20.60
Alcohol	0	0
Total acids (as tartaric)	.663	.53
Volatile acid	.023	.03
Grape sugar	18.54	19.15
Free tartaric acid	.025	.07
Ash	.255	.19
Phosphoric acid	.027	.04
Cream of tartar	.55	.59

CAUSES OF FERMENTATION.

Fermentation is caused by the spores of various fungi, yeasts (ferments), and bacteria, which adhere in great abundance to the skins and stems of the grapes. Heat and moisture are essential to the growth of such organisms. They are inert when dry, but when immersed in the juice of the crushed grapes they become active and begin to multiply. If the juice is warm, the change takes place rapidly; if it is cool, the development is slower, but in either case, if left alone, the number of organisms increases until the juice ferments. The most favorable temperature for fermentation is between 65° and 88° F. Cold checks but does not stop the process. This ferment, now commonly known as the elliptic yeast, changes the sugar in the grape to alcohol and carbonic-acid gas and is the leading factor in converting must into wine. The importance of preventing fermentation if the juice is to be kept sweet is apparent.

METHODS OF PREVENTING FERMENTATION.

Fermentation can be prevented in either of two ways: (1) By chemical methods, that is, the addition of germ poisons or antiseptics which either kill the germs or prevent their growth. The use of such substances is detrimental, therefore disapproved, and for this reason they are not mentioned. (2) By mechanical means, of which heat has so far proved to be the most satisfactory and most practical method.

When a liquid is heated to a sufficiently high temperature all organisms are killed. The degree of heat required, however, varies with the nature of the liquid in which they are held, as well as with the particular kind of organism. Time is also a factor, and in order to destroy all germ life it may be necessary not only to heat the liquid to a high temperature, but also to maintain this temperature for some time. Fungi, including yeasts, exist in two distinct states, either growing or resting, the latter form being much more tenacious of life. One of the characteristics of fungi and their spores is their great resistance to heat when dry, for in this state they can be heated to 212° F. without being killed. The spores of the common mold are even more resistant. This fact should be borne in mind when sterilizing bottles, which should be steamed at 240° F. for at least 15 minutes.

Practical tests indicate that grape juice can be satisfactorily pasteurized without appreciable change of flavor when heated to from 165° to 176° F., while a temperature much above 200° F. impairs the flavor. This is an important point to remember, as upon it depends the quality of the finished product.

FLAVOR AND QUALITY OF GRAPE JUICE.

Much judgment can be exercised in the preparation of unfermented grape juice and in the selection of varieties to suit every taste. From fully ripe Delaware grapes a juice of delicate aroma, delicious taste, and mild but attractive color can be obtained; the Concord juice has a sprightly, foxy taste, dark color, and well-known aroma; the juices of the Catawba and Isabella grapes have a fragrance which is peculiar to these varieties; and that of the Salem has a mild and pleasing aroma and delicate flavor. From the California varieties, as, for instance, the Mission, when fully ripe and manufactured without color (i. e., pressed before heating), a very sweet juice with little or no characteristic flavor can be obtained; the Burger, which is a white grape, yields when not too ripe a delicious, sprightly juice with no characteristic aroma. The juice of the Muscat possesses the rich musky flavor found in the leading raisins of commerce, and that of the Zinfandel has a fine color and a refreshing flavor, reminding one of blackcap raspberries. Light-colored juices may be given any desired depth of color by blending with them the juices of such dark-colored varieties as Lenoir, Norton, and Cynthiana.

Experiments and observations show that for commercial purposes the most desirable unfermented juices have a lively, fruity flavor and aroma, are rather high in natural acid, and are not too rich in sugar. The composition of some of the American Euvitis varieties makes them especially well adapted for this purpose. The great majority of the Vinifera varieties, however, especially those with a lively, fruity flavor and aroma, are too rich in sugar and too deficient in natural acid to be satisfactory. Very palatable unfermented juice for home use can be made from Muscadine grapes. It has been found, however, in experiments conducted by the Department of Agriculture that the juices from Muscadine varieties, although quite pleasant as they run from the crusher, seem devoid of fruity flavor and aroma after pasteurization. The addition of sugar accentuates the fruity flavor of the juice. Table II gives the comparative sugar and acid content of the juices of different varieties of Muscadine, American Euvitis, and Vinifera grapes.

The figures given are averages of the sugar and acid determinations made in successive years from the fruit of the same respective vines of such varieties grown in the United States Department of Agriculture Experiment Vineyards, the vines of the respective species having been grown in localities and under environments suited to them.

TABLE II.—*Comparison of the sugar and acid content of the juices of grape varieties grown in the experiment vineyards of the Department of Agriculture.*

[Sugar: Balling saccharometer, corrected to 17.5 C. Acid: As tartaric (grams per 100 c. c.)]

Varieties.	Muscadine regions: Muscadine varieties.		American native-grape regions: American Euvitis varieties.		Vinifera regions: Foreign Euvitis varieties.	
	Sugar.	Acid.	Sugar.	Acid.	Sugar.	Acid.
	Per cent.	*Grams.*	*Per cent.*	*Grams.*	*Per cent.*	*Grams.*
Agawam			17.93	0.84		
Alexandria					26.7	0.58
Burger					20.1	.96
Cabernet Sauvignon					23.4	.80
Campbell			17.41	.79		
Catawba			19.20	.91		
Concord			17.86	.95		
Delaware			22.15	.70		
Diana			19.4	.79		
Duchess			18.57	.61		
Eden	11.78	1.07				
Eumelan			21.70	.89		
Flowers	14.42	.65				
Folle Blanche					21.7	.82
Goolable					23.8	.583
Ives			18.43	.80		
James	13.88	.625				
Memory	15.30	.65				
Mish	16.77	.48				
Mourestel					21.8	.91
Muscat Hamburg					25.1	.63
Nectar			21.76	1.00		
Salem			18.69	.88		
Scuppernong	15.88	.691				
Semillon					24.4	.69
Sylvaner					25.7	.684
Thomas	16.58	.486				
Veltliner					25.1	.683
West Prolific					21.5	.92
Zinfandel					23.2	.967

HOME MANUFACTURE OF GRAPE JUICE.

Only clean, sound, well ripened, but not overripe, grapes should be used. These may be crushed and pressed either by hand or in an ordinary cider mill. If a light-colored juice is desired, the crushed grapes are put in a clean, well-washed cloth sack and either hung up and twisted or grasped by two persons, one at either end, as shown in figure 1, and twisted until the greater part of the juice is expressed.

FIG. 1.—Cloth and press.

Then, in a double boiler or its equivalent, such as a large stone jar placed in a pan of hot water, so that the juice does not come in direct contact with the fire, the juice is gradually heated to a temperature of 180° to 200° F. The temperature should never be allowed to go above 200° F. It is best to use a thermometer; if none is available, however, the juice may be heated until it steams, but it should not be allowed to boil. It should be poured immediately into a glass or enameled vessel and allowed to settle for 24 hours;

then the juice should be drained from the sediment and run through several thicknesses of clean flannel or through a conic filter made from woolen cloth or felt and fixed to a hoop of iron, so that it can be suspended wherever necessary (fig. 2). The juice is then poured into clean bottles, space being left at the top for the liquid to expand when heated. A good home substitute for the commercial pasteurizer illustrated in figure 3 is an ordinary wash boiler with a thin board fitted over the bottom on which the filled bottles are set. Ordinary glass fruit jars serve the same purpose equally well. The tub should be filled with water to within an inch or so of the tops of the bottles and heated until the water begins to simmer. The bottles should then be taken out and sealed or corked immediately. Only new corks that have just been soaked for about 30 minutes in warm water at a temperature of about 140° F. should be used. It is well to take the further precaution of sealing the corks with paraffin or sealing wax to prevent the entrance of mold germs.

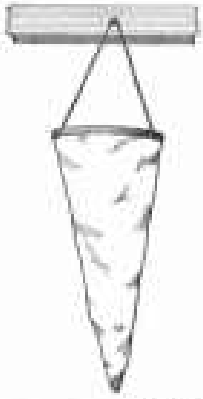

FIG. 2.—Cloth or felt filter.

When red juice is desired, the crushed grapes should first be heated to a temperature of not more than 200° F., then strained through a clean cloth or drip bag, such as is illustrated in figure 4, no pressure being used, and set away to cool and settle. The remaining procedure is the same for the red as for the light-colored juice. Many people do not even take the trouble to let the juice settle after it is

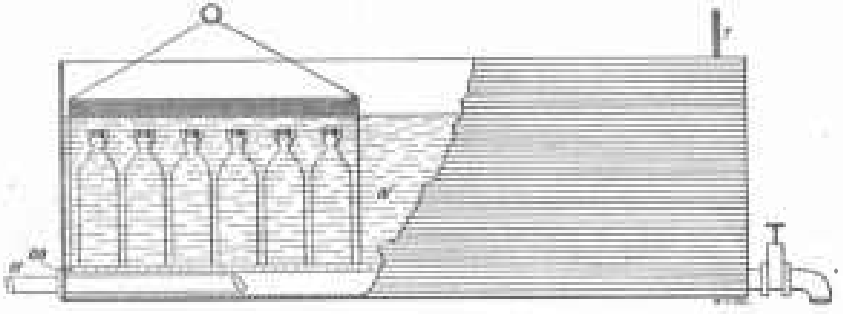

FIG. 3.—Pasteurizer for must in bottles: *DB*, Double bottom; *ST*, steam pipe; *W*, water bath; *T*, thermometer.

strained, simply reheating and sealing the vessels and setting them away in an upright position in a cool place where they will be undisturbed. If bottles are used, the corks should be sterilized and the necks of the bottles sealed with sealing wax. The juice settles, and when desired for use the clear liquid is poured off the sediment.

Any person familiar with the process of canning fruit can put up grape juice, for the principles involved are the same. Care should be taken not to sterilize the juice at a temperature higher than 195° F., or the finished product will have a scorched taste. The bottles or jars should not be so large that when they are opened the juice will spoil before it can be used. Unfermented grape juice, properly made and bottled, will keep indefinitely if not exposed to the atmosphere or to infection from mold germs; when a bottle is once opened, however, the contents, like canned goods generally, should be used as soon as possible. Unfermented juice may be made not only from all varieties of grapes, but also from some other fruits, such as apples, pears, and cherries. Some berries also yield excellent juices.

FIG. 4.—Drip bag.

VALUABLE APPLIANCES FOR HOME USE.

Figure 5 shows a very practical and inexpensive corking machine, with the cork in place ready to be driven through the tapering hole of the machine into the neck of the bottle underneath. The corks should be soaked in hot water for a few minutes before they are used, in order to soften them and make them pliable. By this means corks large enough to seal the bottles securely can be used. The bottles should be set on a flat piece of rubber or on a piece of cloth folded several times, as shown in figure 5, in order to avoid jarring when the cork is driven in. It is also a wise precaution to place a pan underneath, for bottles having blemishes frequently break when the cork is forced in.

FIG. 5.—Corking machine.

An ordinary cider press is not expensive, yet many farms do not have one, and frequently a farm is located so far from any establishment dealing in such implements that the fruit spoils before one can be secured, or perhaps the juice to be obtained is not sufficiently valuable to justify the time required and expense incurred in getting one.

Figure 6 illustrates a very efficient lever press which any farmer who is handy with tools can make for himself from material which can be found on almost any farm at any time. The press consists of the following parts: Two upright posts (*F*) are set deeply and firmly in the ground about 12 inches apart. It is well to attach cross-pieces (ordinarily known as "anchors" or "deadmen") to the ends

in the ground to prevent the posts from pulling out too easily. The lever (*E*) may be hung either between these posts by means of a bolt (*T*) or to the side of a building, or a hole large enough to admit the lever may be notched in a tree and the lever fastened by a bolt. At the other end are two posts, between which the lever can be raised by means of block and tackle. The press itself consists of two timbers (*D*) on which rests the press bottom (*B*). On this bottom is set the press basket (*A*), consisting of two sides and two ends held together by means of rods (*L*) and so constructed that it can be easily taken apart and put together again. The sides and ends are bored full of small holes, from three-eighths to one-half inch in diameter, through which the juice is pressed. When the press is filled with fruit, the top, which fits inside the basket, and the cross blocks (*I*) are put on and the lever caused to press down on them. A large tub (*C*) is placed under the press to catch the juice.

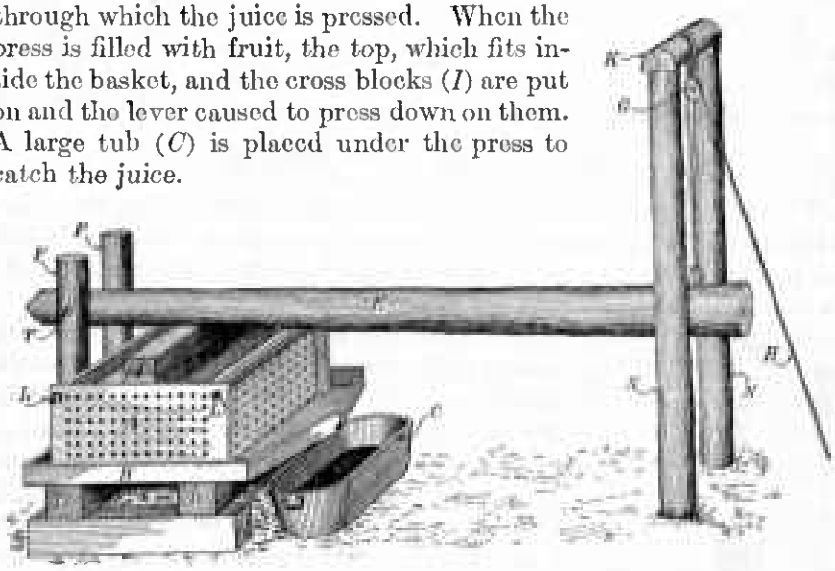

FIG. 6.—Homemade lever press: *A*, Press basket; *B*, press bottom; *C*, tub; *D*, skids; *E*, lever; *F*, upright posts; *G*, block and tackle; *T*, lever bolt; *I*, press block.

For ordinary purposes a press basket 3 feet square and 2 feet high, holding a ton of crushed grapes, will be found to be a very convenient size. It is perhaps well to state that the longer and heavier the lever, the greater the pressure exerted on the fruit. When it is not convenient to make the lever very long, weights are placed or hung on the outer extremity, in order to increase the pressure. With a little ingenuity any farmer can adapt this press to suit his individual requirements.

COMMERCIAL METHODS OF MAKING MUST.

The commercial manufacture of unfermented grape juice, although a flourishing and rapidly growing industry, is still in the infancy of its development, as is evidenced by the diversity of apparatus used in the

various establishments throughout the country and by the many improvements which must still be made. Each manufacturer seems to have constructed his machinery in accordance with his own ideas, with a resulting deplorable lack of uniformity and an occasional loss of efficiency.

Sound, ripe, but not overripe, grapes are used. These are first crushed or, in case the stems are to be removed, are run through a combined stemmer and crusher. If the machinery is stationed high enough, the crushed fruit can be run through chutes (fig. 7) directly into the presses or kettles; otherwise, it must be pumped into them by means of a pomace or must pump or carried in pomace carts or

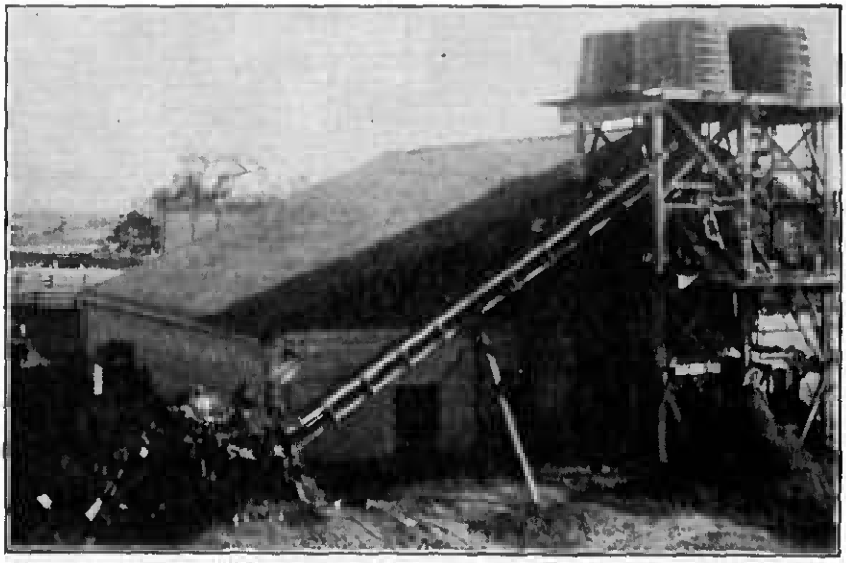

FIG. 7.—Combined stemmer and crusher, elevated so that the crushed grapes may be run through chutes to whatever point is desired.

tubs. Figures 8 and 9 illustrate two types of presses and figure 10 shows a combined crusher, stemmer, and must pump.

If a white or light-colored juice is desired, the crushed grapes are first pressed, the juice which comes from the press being heated to about 165° F., skimmed, run through a pasteurizer at a temperature of between 175° and 200° F. into well-sterilized containers, and then placed in storage. Figure 11 shows a diagram of a continuous pasteurizer, while figure 12 illustrates a type of receptacle in which the juice is stored.

If a colored juice is desired, the crushed grapes are heated immediately, usually in aluminum kettles having double bottoms, which prevent the steam from coming in contact with the contents. (Fig. 13.) These kettles usually contain revolving cylinders, the arms of which

keep the crushed grapes thoroughly stirred while they are being heated to about 140° F. The simultaneous heating and stirring help to extract the coloring matter from the skins, tear the cells of the berries, increase the quantity of juice obtained per ton of fruit, and give to the must many of the ingredients of red wine, with the substitution of grape sugar for the alcohol of the wine.

The aluminum kettles are filled and emptied in rotation, thereby making continuous manipulation possible. The presses should be situated below the kettles, so that the hot juice can be drained directly into them. The expressed juice is then reheated to about 165° F., skimmed, and run through the pasteurizer in the same manner

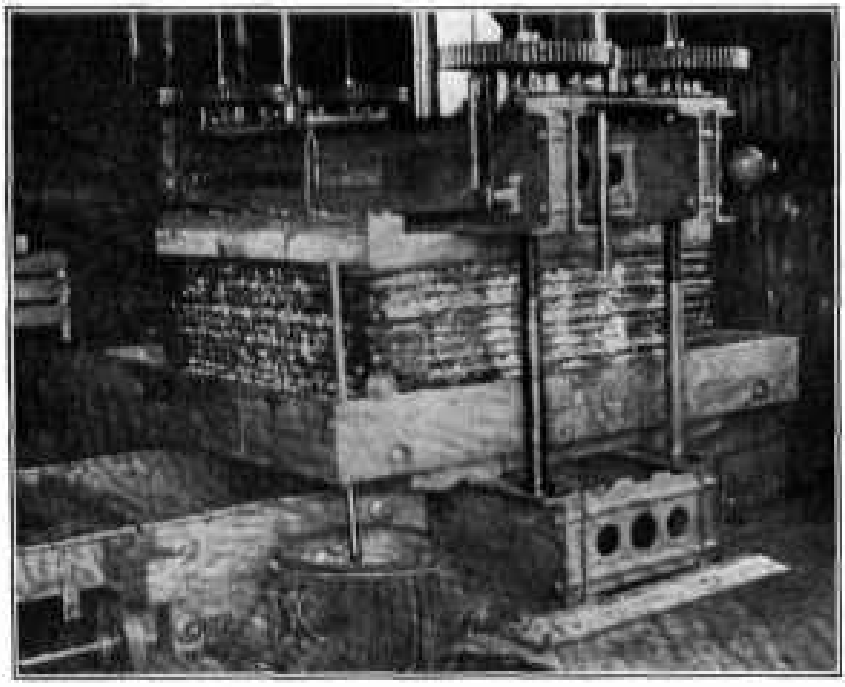

FIG. 8.—Grape press with pomace containers made of burlap cloths.

in which the white juice is handled. The juice passes from the pasteurizer while still hot (about 160° F.) into the container, which should be sealed immediately. The lower the temperature (above the freezing point) at which these containers are then stored, the less is the danger of fermentation and the more rapidly the juice will clear and deposit its sediment.

The ordinary receptacles in which the juice is stored are 5-gallon demijohns, 20-gallon carboys, or clean new barrels or puncheons, well washed and drained. All containers should be thoroughly sterilized before they are filled, and the covers, corks, bungs, cloths, etc., used in sealing them should be scrupulously clean and carefully

sterilized. If barrels or puncheons are used as containers, they are placed on skids and firmly wedged to prevent movement. As the juice cools, air laden with fermentation germs is apt to be drawn into the barrels by the decrease in the volume of the liquid. In order to prevent this, tight air-filtering plugs of sterilized cotton are sometimes used instead of the ordinary bungs of solid wood.

The type of pasteurizer differs in almost every establishment. As the industry is of comparatively recent development commercially, there are few models on the market and each manufacturer has constructed the model best suited to his particular ideas or requirements. There are two general types, however, (1) open, double-bottomed

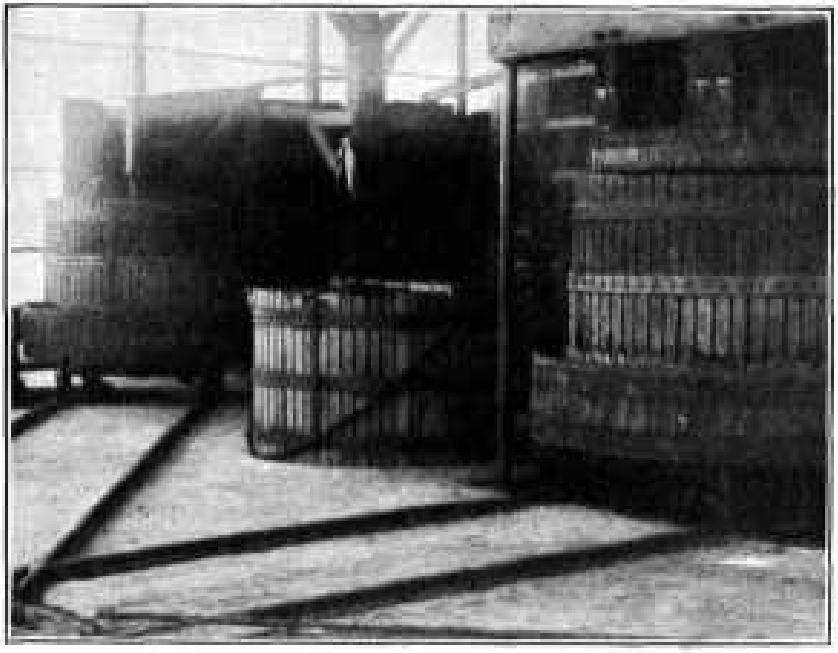

FIG. 9.—Grape press in which baskets are used to hold the crushed fruit.

kettles (see fig. 13), in which the juice is heated to the required temperature and then drawn off, and (2) continuous pasteurizers (see fig. 11), in which the juice is heated to the required temperature as it passes through the water bath.

The presses also show great variation in different establishments, either hydraulic, screw, or lever power being used, and there is a marked difference between the types of pomace containers. Sometimes the crushed grapes are heaped on burlap cloths the sides of which are folded in, and these burlaps are placed one on top of the other in the press (see fig. 8); sometimes press baskets take the place of these burlaps (see fig. 9).

The manufacturers in California and those in the grape-growing regions east of the Rocky Mountains seem to have adopted entirely different methods of handling the juice after it is first pasteurized and stored. Most of the eastern juices are red and are obtained from the Labrusca varieties, generally the Concord. When the juice comes from the presses, some manufacturers strain it to remove the coarse particles and then pour it directly into well-sterilized bottles; others siphon it off the sediment in the containers in which it is stored after the first pasteurization and pour it into pasteurized bottles. In

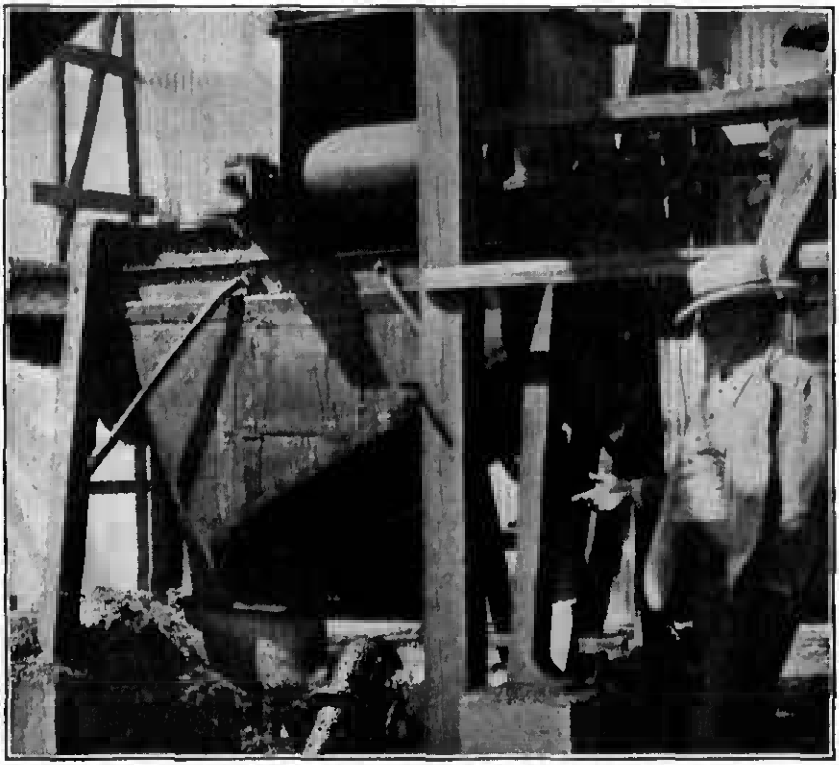

FIG. 10.—Combined stemmer, crusher, and must pump.

either case, the bottles are securely corked and then repasteurized in the manner shown in figure 11. The California juices, however, both red and white, are made exclusively from Vinifera varieties. They are allowed to settle in the original containers and are siphoned out of these and carefully filtered to make them clear and bright.

The clearing of the juice is sometimes facilitated by fining, or adding a small quantity of a substance which coagulates and when settling carries down with it the solid matters causing cloudiness in the liquid. Such finings may be applied at the time of the first pasteurization or

just before the final filtration and bottling. In the latter case the juice is drawn off the settlings in the containers, the finings are added, and the juice again pasteurized into other receptacles. When it clears, it is either bottled directly or first passed through a filter (fig. 14), drawn into carefully sterilized bottles, securely corked, and then repasteurized, as shown in figure 11. Care must be taken that the final sterilization is not at a higher temperature than the previous one; otherwise, solid matter may be precipitated and the must clouded again.

A simple and efficient form of sterilizer is shown in diagram form in figure 3. It consists of a wooden trough provided with a wooden grating which is raised 2 inches from the bottom and on which rest the filled bottles in wire baskets. The trough contains enough water

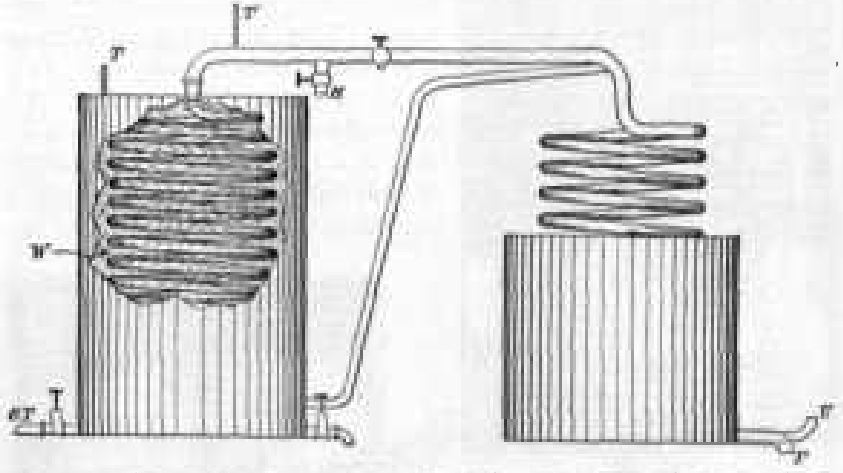

FIG. 11.—Continuous pasteurizer: *TS*, Steam pipe; *H*, outlet for hot pasteurized must; *U*, inlet for unpasteurized must; *W*, water bath; *P*, outlet for cooled pasteurized must; *T*, *T*, thermometers.

to submerge the bottles and is kept at a temperature of 185° F. by means of a steam coil beneath the grating. It requires about 15 minutes for the must at the bottom of the bottles to reach that temperature; for packages of other sizes it is necessary to make a test with a thermometer in order to determine how long it takes for the entire contents to reach 185° F.

To prevent the corks from being expelled during sterilization, they are either tied down with a strong twine or with some contrivance such as the cork holder shown on the bottles in figure 3. In order that mold germs may not enter the must through the corks, especially if a poor quality of cork is used, the necks of the corked bottles are dipped in heated paraffin before putting on the caps, or the corks are sealed down with sealing wax. It is also well to keep the bottles lying on their sides to prevent the corks from drying out.

THE USE AND FOOD VALUE OF UNFERMENTED GRAPE JUICE.

Unfermented grape juice can be used in many ways—in sickness, convalescence, and health. It is used in churches for sacramental purposes, at soda fountains as a cool, refreshing drink, and in homes, hotels, and restaurants either as a beverage or combined with other food in many ways. When properly prepared it pleases the eye by its attractive appearance, the sense of smell by its fragrant aroma, and the palate by its agreeable flavor.

FIG. 12.—Carboys used in storing the sterilized juice.

The effect of unfermented grape juice on the human system has been studied at the so-called "grape cures" long in vogue in Europe, and has been investigated to a slight extent in laboratories. It is generally claimed that the consumption of a reasonably large quantity of unfermented grape juice improves digestion, diminishes intestinal fermentation, and results in an increase in body weight. It should not be forgotten, however, that the abundant diet and hygienic methods of living practiced at the grape resorts are largely responsible for the cures effected; but even taking these into consideration, it seems fair to conclude that some of the good results may be attributed to the fresh juice.

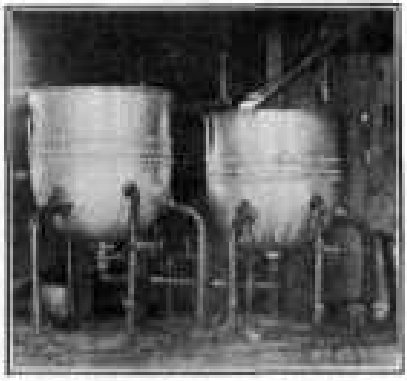

FIG. 13.—Aluminum kettles for heating crushed grapes.

The nutrients in grape juice are the same as in other foods, and as the percentage of water is high, it resembles liquid foods more closely than solids. It contains less water, however, than does milk, the most common form of liquid nourishment; it has more carbohydrates, largely present in the form of sugar, and has less protein, fat, and ash than milk. Carbohydrates are the principal nutritive ingre-

dients. Grape juice as a food is essentially a source of energy, therefore, and may help to make the body fatter, though it is of slight assistance in building nitrogenous tissue. Sugars in moderate quantities are wholesome foods, and grape juice offers them in a diluted and palatable form. Moreover, the agreeable flavor increases the appetite, which is a consideration by no means unworthy of attention.

A FEW GOOD RECIPES.

The following recipes prepared with unfermented grape juice in various ways have been thoroughly tested and found to please the taste of many people:

Grape Nectar.

To 1 pint of grape juice add the juice of 2 lemons and 1 orange, 1 pint of water, and 1 small cup of sugar. Serve ice cold. If served from a punch bowl, small slices of lemon and orange add to the appearance of the beverage.

Drink for Invalids.

To 2 tablespoonfuls of grape juice in a wineglass add the beaten white of one egg and a little chopped ice, and sprinkle sugar over the top. This is often served in sanitariums.

Grape Punch.

Boil together 1 pound of sugar and half a pint of water until it spins a thread; remove from the fire and when cool add the juice of 6 lemons and 1 quart of grape juice. Let this stand over night. Serve with plain water, Apollinaris water, or soda water.

FIG. 14.—Filter for clarifying must.

Grape Sherbet.

Mix 1 pint of grape juice, the juice of 1 lemon, and 1 heaping teaspoonful of gelatin dissolved in boiling water; freeze quickly; add the beaten white of 1 egg when almost frozen. This quantity is sufficient for eight persons.

Grape Ice Cream.

Mix 1 quart of grape juice, 1 quart of cream, 1 pound of sugar, and the juice of 1 lemon. Freeze.

Syllabub.

Mix 1 quart of fresh cream, the whites of 4 eggs, 1 glass of grape juice, and 2 small cups of powdered sugar. Whip half the sugar with the cream, the balance with the eggs; mix well; add the grape juice; pour over sweetened strawberries and pineapples or oranges and bananas. Serve cool.

Bohemian Cream.

Mix 1 pint of thick cream and 1 pint of grape-juice jelly; pour into small cups and set on ice. Serve with lady fingers.

MISCELLANEOUS USES.

Besides the dishes whose recipes are given here, there are many others in use, only a few of which can be enumerated: Grape ice, grape lemonade, grape water ice, grape juice and egg, grape gelatin, junket and grape jelly, tutti-frutti, grape float, and grape soda water.

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