Packing Vinegar Generators.

Straw is frequently used in the sand, to admit of free passage of the fluid. The decomposition of the straw soon sets in, thereby imparting an unpleasant taste to the vinegar.

And in some instances, shells are mixed with the sand, which prevents it from becoming too densely embedded, which better enables the fluid to filter through it.

Persons preparing to engage in this business, can have a series of generators, one arranged above the other. A two or three story house will be necessary for this. The generators may be made of 120 gallon wine pipes, one resting on the other, and the barrels on each floor can be connected with each other by the aid of pipes; and after the chips have become thoroughly saturated with vinegar, the generators will only be required to be fed with the whiskey or alcoholic solution, which will be converted into vinegar on its first passage through the chips, though it may be necessary to pass the liquid through the generator until it does become sufficiently acetified.

Sulphuric acid is the most economical acid for adulterating vinegar, being from two and a half to three and a half cents per pound. The quantity of this acid to be added, will have to be governed by the palate. Sulphuric acid, diluted to the strength of common vinegar, leaves in the mouth a metallic,
salty taste. This taste is removed by forming a weak solution of sulphuric acid and water, then reducing it to the strength of good vinegar by the addition of pure vinegar.

Analysis will prove that all of the different varieties of vinegar offered at the public auctions, are nothing more than dilute solutions of sulphuric acid; the fine acetic odor and taste being the result of the addition of a small portion of acetic acid or pure vinegar, such as that formed by the generators just described.

The operator will recollect that these "generators" possess no decolorizing properties, and hence, vinegar intended for white wine vinegar, should be made of colorless whiskey. That which is made from colored whiskey, is sold under the names of crab-apple vinegar, clarified cider vinegar, malt vinegar, &c., &c.

Vinegar containing excessive quantities of sulphuric acid, will sometimes leave a metallic taste, which can be corrected by adding a small quantity of the infusion of grains of paradise and pellitory. This metallic taste just alluded to, is sometimes perceptible upon the addition of minute quantities of sulphuric acid, and the taste is difficult of concealment. This is an evidence of impurities in the acid, and accordingly it should be rejected.

The infusions of pellitory and grains of paradise,
PACKING VINEGAR GENERATORS.

are made by adding four ounces of bruised pellitory and one pound of the grains, ground to a powder, to three gallons of whiskey, and infusing for four days and then strain. This is used for giving a body to and for removing unpleasant tastes from vinegar. The manner in which this infusion should be used, will be left entirely to the judgment of the palate. This vinegar may be sufficiently "sharp," and be deficient in body; or a peculiar taste may exist from sulphuric acid. These objections will be removed upon the addition of a glassful of the infusion just mentioned, to every forty gallons of the vinegar.

The clear, or white wine vinegar, should always be sent into market in neat wine or brandy casks, of any kind; each head should be freshly plastered with plaster of Paris. This consists of mixing the plaster of Paris with water to the consistency of common mortar, and applying it to the heads of the barrels immediately.

Vinegar is colored with the same materials that liquors are. Colored vinegar has never acquired any celebrity, and is not much sought after by consumers. The operator will find the most remunerative investment in the manufacture of white wine vinegar. The generators having the sand filtering attachments, as described, will be enabled to produce an article of a fine color. Instances often arise that
the water made use of, is rain water that has flowed from shingle roofs, and is of a dirty, yellowish color. Usually, this color disappears after being passed through the generator the second or third time, but when this fails to remove the color, it is usual to cover the false bottom of the generator to the depth of five inches, with rice, and then packing on this the usual quantities of sand, as before described. The liquid that has been filtered through rice, is beautifully transparent, but when the rice filtration is not practicable or cannot be made available without difficulty, this objectionable color in the vinegar will have to be concealed by coloring it with burned sugar, same as for cider vinegar. The novice will recollect to add the coloring in minute quantities, otherwise the vinegar might become too highly colored.

What has been said about adulterating vinegar, only applies to the cheap vinegar. Pure vinegar can be manufactured by the use of the generators, at such an astonishing low price, that adulteration would appear useless.

Colored and flavored vinegars have but recently appeared in commerce. They are usually made of sulphuric acid diluted with water, and colored to suit the fancy. The aromatizing articles consist of the oils of wintergreen, lemon, orange, almonds, vanilla,
ambergris, oil of roses, &c., &c. Perfumed vinegars are generally colored, and are usually found in five to ten gallon kegs.

Adulterations of Vinegar.—The principal foreign substances which vinegar is liable to contain are sulphuric and sulphurous acids, certain acrid substances, copper and lead derived from improper vessels used in its manufacture; muriatic and nitric acids are but rarely present. Chloride of calcium will detect free sulphuric acid when boiled with the vinegar, without causing the least precipitate with the minute quantity of sulphates always present in the liquid. Chloride of barium is not a suitable test here, as it will cause a precipitate with these sulphates, when no free sulphuric acid is present. Sulphurous acids may be detected and estimated by first precipitating the sulphates and free sulphuric acid, by baryta water, next acting on the vinegar with arsenic acid, which converts sulphurous acid into sulphuric acid; and, finally, precipitating the newly-formed sulphuric acid by chloride of barium from the sulphuric acid in the last precipitate. Its equivalent of sulphurous acid is easily calculated. Muriatic acid may be discovered by adding to a distilled portion of the suspected vinegar a solution of nitrate of silver which will throw down a curdy
white precipitate, if nitric acid be present—an improbable impurity. It may be detected by its producing a yellow color when boiled with indigo. The acrid substances usually introduced into vinegar are red pepper, long pepper, Guinea pepper, pellitory, and mustard. These may be detected by evaporating the vinegar to an extract, which will have an acrid, biting taste, if any one of these substances should be present.

By far the most dangerous impurities in vinegar are copper and lead. The former may be detected by a brownish precipitate on the addition of ferrocyanuret of potassium to the concentrated vinegar. The latter by a blackish precipitate with sulphuret ed barium, and a yellow one with iodide of potassium.

Pure vinegar is not discolored by sulphureted hydrogen.

The essential ingredients of pure vinegar are acetic acid and water; but, besides these, it contains various other substances derived from the particular vinous liquor from which it may have been prepared. Among these may be mentioned coloring matter, gum, starch, gluten, sugar, a small portion of alcohol, and frequently malic and tartaric acids, with a minute proportion of alkaline and earthy salts.
MAKING WINE VINEGAR IN FRANCE.

The method pursued in making Wine Vinegar in France, where it is manufactured in the greatest perfection, is as follows: Casks are employed of about the capacity of eighty-eight wine gallons; those being preferred which have been used for a similar purpose. They are placed upright in three rows, one above the other; each cask having an opening at the top of about two inches in diameter. In summer, no artificial heat is required; but the wine intended to be converted into vinegar is kept in separate casks containing beech shavings, on which the lees are deposited. Twenty-two gallons of good vinegar, boiling hot, are first introduced into each vinegar cask, and at the end of eight days about two gallons of the wine, drawn off clear, are added; and the same quantity is added every eight days until the casks are full. After this the vinegar takes about fifteen days to form. At the end of that time only half the contents of each cask is drawn off; and it is filled up again by the addition of two gallons of wine every eight days as at first. In some cases, however, the quantity of wine added, and the intervals between the successive additions, are greater or less than those here indicated. The variations in this respect depending upon the progress of the fermentation to determine this point, the operator plunges a stave into the cask, and upon withdrawing
MANUFACTURE OF VINEGAR.

if they find it covered with froth, they judge that the fermentation is going on properly, and accordingly add more wine.

When the infusion of malt is employed in the manufacture of vinegar, the process is as follows: The infusion of malt, when properly cooled, is put into large fermenting tuns, and by the addition of yeast the liquid is fermented for four or five days. It is then distributed into smaller vessels, and placed in a room heated by means of a stove, and kept there for about forty days, or until the mass has soured. It is then transferred to common barrels, which are placed in the open air, the bung-holes being covered with a tile to keep out the rain. In this situation they are allowed to remain for several months, or until vinegar is formed.

The process is then completed in the following manner: Large tuns are prepared with false bottoms, on which is put a quantity of the refuse of raisins and other fruits, technically called rape. These tuns are worked in pairs, one being filled with the vinegar from the barrels, and the other tun only three fourths filled. In the latter, the fermentation takes place more rapidly, and the process is rendered more active, alternately, in one or the other tun, by filling up each daily from the other until the process is completed.
TO DISTINGUISH WHITE WINE, &c.

Vinegar is often made from cider. The cider is placed in barrels with their bung-holes open. These barrels are exposed during the summer to the heat of the sun. The acetification is completed in the course of about two years. The progress of the fermentation must be watched, and as soon as perfectly formed it should be drawn off into clean barrels.

Without this precaution the acetous fermentation would pass into the putrefactive, and the whole of the vinegar would be spoiled.

Malt Vinegar has a yellowish-red color. The strongest kind, called "Proof Vinegar," contains from four to five per cent. of acetic acid; that of British manufacture usually contains sulphuric acid. The law allows the addition of the one thousandth part of this acid.

Wine Vinegar is nearly one sixth stronger than pure malt vinegar. It is of two sorts, the white and the red, according as it is prepared from white or red wine.

TO DISTINGUISH WHITE WINE FROM MALT VINEGAR.

Add one ounce of water of ammonia to the same
quantity of the vinegar, which, if it is white wine, will produce a purplish muddiness, and a purplish precipitate; and malt vinegar produces either no effect, or a dirty brownish precipitate.
XVI.

BITTERS.

STOWHTON'S, BOKER'S, BERLIN, GOULEY'S, AND BRANDY.

Stoughton's Bitters.—Water, six gallons; whiskey, two gallons; gentian-root, three pounds; Virginia snakeroot, one pound; orange peel, two pounds; calamus-root, eight ounces; Guinea pepper, twelve ounces. Infuse the whole of the ingredients in the two gallons of whiskey for eight days. All solid substances, viz. roots, plants, &c., &c., should be well bruised or mashed before adding to the spirit. Color the above bitters with eight ounces of bruised alkanet-root.

After the mass has digested for eight days, strain through a filtering or muslin bag.

Boker's Bitters.—Whiskey, one gallon; water, six gallons; rasped quassia, three ounces; powdered
catechu, three ounces; calamus, three ounces; cardamom, two ounces. Macerate the above in the whiskey for one week, and strain. Forty ounces of tincture of cochineal, and five ounces of burnt sugar for coloring.

_Berlin Bitters._—Whiskey, one gallon; water, seven gallons; Guinea pepper, twelve ounces; catechu, two ounces; gentian, two pounds; calamus, eight ounces. Digest for six days, and strain. Color with three ounces of burnt sugar, and four ounces of tincture of cochineal.

_Gouley's Bitters._—Whiskey, one gallon; water, six gallons; Guinea pepper, one pound; orange peel, two pounds; rasped quassia, eight ounces; gentian, one pound; calamus, eight ounces. Digest the solids in the whiskey for eight or ten days, and then strain. Color with tincture of sanders wood, five ounces; and burnt sugar coloring, four ounces.

_Chandler's Aromatic Bitters._—Whiskey, two gallons; water, six gallons; take of bruised ginger one pound; calamus, eight ounces; cloves, six ounces; cinnamon, five ounces; nutmegs, six ounces; grains of paradise, twelve ounces; cardamom, six
ounces; then dissolve in one pint of alcohol the following: oil of cloves, twenty drops; oil of cinnamon, twenty drops; oil of nutmegs, one drachm; oil of bergamot, one drachm; oil of orange, one drachm; then add to infuse with the mass half an ounce of cochineal, digest the whole for one week, and then strain. The essential oils should not be added until the liquid is strained.

**Brandy Bitters.**—Spirit, one gallon; bruised gentian, eight ounces; orange peel, five ounces; cardamom, three ounces; cassia, one ounce; cochineal, a quarter of an ounce; digest for one week, and strain; and then digest the dregs with four pints of water for four days, and then mix the two tinctures together.

**Howard's Spiced Bitters.**—Whiskey, one gallon; nutmegs, three ounces; cloves, five ounces; calamus, two ounces; bruise and digest for six days, and strain; then add sulphuric acid, half an ounce; and oil of cloves, thirty drops; oil of lemon, one drachm; the oils to be dissolved in two ounces of alcohol. Color with four ounces of burnt sugar, and one ounce of tincture of cochineal.

**Stomach Bitters.**—Proof whiskey, five pints; sen-
Bitters.

na, five ounces; guaiacum, red sanders, dried elecampane root, seed of aniseed, coriander, and caraway, and root of liquorice, of each two ounces and a half; raisins, eight ounces; digest in the spirit for eight days, and strain off the liquid for use; half a wine-glassful taken one hour before each meal. These bitters correct a tendency to constipation, and improve the digestion, and increase the appetite.

The preceding formulas will serve to furnish the practical information necessary for the manufacture of the various popular bitters of the day for commerce. To render this class of liquids profitable to the manufacturer, the ingredients made use of should be few and simple, and of an insignificant value.

The value of the spirit used is often of the most important consideration in the manufacture of bitters on a large scale. The object of the spirit is to extract the bitter principles from the ingredients, and to prevent fermentation and putrefaction, which must necessarily ensue, from the watery infusion of the plants made use of.

The fermentation can be prevented by using the alkalized water, which is formed by the addition of two ounces of carbonate of soda to each gallon of water, or one and a half ounces of sulphuric acid to every ten gallons; and in some instances from six to twelve per cent. of spirit is added with the above
quantity of sulphuric acid. When an excessive quantity of water is used in the formation of bitters, ground mustard is largely used, owing to its anti-fermenting qualities; three ounces per gallon is the quantity usually made use of.

The manner in which these fluids are put up controls their commercial success. Neat bottles, labels of artistic patterns, and a perfectly transparent liquid, are the requisites for success; and of these, the two first can be obtained by the skill and ingenuity of the glass-ware manufacturer and lithographer, and the latter by filtration through sand. For this, see Directions for Making an Economical Sand Filter.

The directions for filtering are simple. Pour the fluid into the filter, and if it does not pass off clear, increase the depth of the sand several inches, and continue the filtration.

FOR MAKING FROM ONE TO TWO GALLONS OF BITTERS, FROM THE MOST APPROVED FORMULAS IN USE.

The article of spirit contemplated in denominating proof spirit, is the whiskey usually found in commerce. Some formulas prescribe French brandy. It must be obvious that, aside from the alcoholic stimulus of the brandy, that its weak, and almost inert
medicinal properties, would necessarily become lost in the combination with the powerful aromatics, and hence the use of the brandy would only entail an unnecessary expenditure.

**Stoughton Bitters, for Making One Gallon.**—Gentian, three ounces; Virginia snakeroot, two ounces; dried orange peel, two ounces; calamus root, half an ounce; cochineal, one drachm; cardamom seed, two drachms; whiskey, two pints; bruise or mash the ingredients, and digest in the spirit for five days, and strain; then add six pints of water, and bottle for use.

**Boker Bitters, for Making One Gallon.**—Rasped quassia, two ounces; catechu, half an ounce; snakeroot, half an ounce; calamus, one ounce; cardamom seed, half an ounce; bruise and macerate for one week in two pints of proof whiskey, and strain. Color with two ounces of burnt sugar, and add six pints of water.

**Berlin Bitters, for Making One Gallon.**—Gentian, two ounces; calamus, one ounce; cardamom seeds, one ounce; quassia rasped, one ounce; bruise, and digest the above for five days, in three pints of whiskey, then strain, and add five pints of water.
CHANDLER’S STOMACH BITTERS.

Gouley’s Bitters.—Orange peel, three ounces; cinna-
namon, one ounce; gentian, two ounces; cochineal
one drachm; cardamom seed, one ounce; bruise and
digest for one week in two pints of whiskey, and
then strain; then add three ounces of burnt sugar,
and six pints of clear water.

Chandler’s Aromatic Bitters.—Cinnamon, one ounce;
cloves, two ounces; rhubarb root, one ounce; senna
leaves, three ounces; cardamom seed, one ounce;
ginger, two ounces; cochineal, one drachm; cala-
mus, one ounce; infuse the mass, after bruising, in
two pints of whiskey for five days, and then strain;
then add, dissolved in four ounces of alcohol, five
drops of oil of rosemary, and ten drops oil of lemon
peel. This is a fine dyspeptic bitter.

Howard’s Spiced Bitters.—One gallon.—Nutmegs;
three ounces; cloves, one ounce; cardamom seed,
one ounce; ginger, two ounces; orange-peel, two
ounces. Bruise and macerate in three pints of spirit
for one week; then strain and color with three
ounces of burnt sugar coloring; then add fifty drops
of sulphuric acid, and five pints of clean clear water.

Chandler’s Stomach Bitters.—Ginger, fresh, two
ounces; cardamom, one ounce; rhubarb root, half
ounce; Virginia snakeroot, two ounces; rasped quassia, one ounce; senna leaves, three ounces; calamus, one ounce; English saffron, two drachms. Bruise and digest in clear or colorless whiskey, two quarts, for one week; then strain and add of the oils of sassafras and of lemon each, twenty drops, dissolved in half a glass of alcohol; then add two quarts of water.

These are fine bitters for weak stomachs, and have effected many cures of dyspepsia; the dose is the same as the aromatic bitters—one teaspoonful before each meal.

*Wilson’s Bitters.*—Senna, five ounces; guaiacum shavings, three ounces; red sanders wood, three ounces; dried elecampane root, two ounces; anise seed, two ounces; coriander, one ounce; caraway, one ounce; liquorice root, two ounces. Bruise and infuse, for one week, in one quart of whiskey; then strain and bottle for use.

*Brown’s Horseradish Bitters.*—Fresh sliced horseradish, six ounces; calamus, one ounce; ginger, one ounce. Bruise and digest for five days, in three pints of whiskey, and then add five pints of water and color to fancy.
FRENCH MEDICATED GIN BITTERS.

The above bitters are prepared on a large scale thus—

Bruised or ground Guinea pepper, one pound; ground mustard, eight ounces; bruised ginger, two pounds. Digest the above in two gallons of colorless whiskey for five days and strain, and digest the strained refuse in a gallon of water for twenty-four hours and strain, and mix the whole; then add five gallons of clear water. These bitters are colorless. Flavor with twenty drops wintergreen.

*Gin Bitters.*—Oil of cubebs, three ounces; oil of juniper, one ounce; alcohol, four ounces; common gin, two pints. Dissolve the oils in the alcohol, and then add the gin. These bitters are uncolored, and they are known under the name of MEDICATED GIN BITTERS. They are used by gin drinkers in the same manner that other bitters are used, and by *persons who need the curative properties of gin.*

The action of these bitters is directed to the urinary organs.

The following is extensively used in the cafés and saloons of Paris:

*French Medicated Gin Bitters.*—Of powdered cubebs, one ounce; common gin, two pints; oil of juniper, half an ounce; oil of sassafras, one drachm;
oil of peppermint, ten drops; nitric ether, two ounces. Digest the cubebs in the gin for four days, and strain; dissolve the oils in nitric ether for twenty minutes, and mix together the gin and ether. Used in the same manner as other bitters.

French Medicated Gin Bitters, prepared for commerce.
—Powdered cubebs, eight ounces; oil of juniper, three ounces; powdered pellitory, two ounces; oil of peppermint, two drachms; alcohol, two gallons. Digest for five days, the cubebs in one gallon of the alcohol, along with the pellitory, and then dissolve the essential oils in the other gallon of alcohol; then mix the two gallons, with five of clear, clean water. Usually these bitters are uncolored.

In the manufacture of the French medicated bitters, strong inducements are offered to the enterprising manufacturer; for the first who introduces them must certainly reap a rich reward; for in commerce, medicated bitters of this particular class are entirely unknown. We find any quantity of medicated bitters for the digestive, but none for the generative organs. Why these have been neglected, is somewhat singular. Of the decided utility of this class of medicated bitters, certainly none will question. The market has become overstocked with bitters. Bitters of every imaginable name and conceivable color
—old friends with new names. Your bitters manufacturers possess no originality, unless it consists in giving half a dozen new names to that time-honored recipe for Stoughton bitters.
In the manufacture of syrups, the quality and quantity of the sugar employed are points of importance. Refined sugar should always be employed, as it often saves the necessity of clarification, and makes a clearer and better flavored syrup than the impure kinds. In relation to the quantity of sugar, if in too small proportion fermentation is apt to occur; if too abundant crystallization will ensue. The proper proportion is about two parts to one of the liquid. A somewhat smaller quantity will answer, where an acid such as lemon juice, &c., is used.

Syrup is apt to become scorched, or brown, by a continued application of heat; therefore, syrups should boil briskly over a lively fire, so as to accomplish the object as quickly as possible. It is important to be able to ascertain positively when they have attained the due consistence. An operator skilled
in their preparation, can judge with sufficient accuracy by various signs, such as the slowness with which the parts of a drop of syrup part or break; for instance, if a stick is plunged in the syrup and withdrawn and waved around in the air a couple of times, then, if upon studying it, the particles of syrup should hang in large, round, heavy tears, and fall from the stick in long, *ropy* threads, this is an evidence of its having been boiled sufficiently. A pellicle forming upon the surface of the syrup when it cools, indicates that it has been too much boiled.

The easiest method of ascertaining the proper point of concentration is by the use of Baume's hydrometer—called a *saccharometer*. This should stand at $30^\circ$ in boiling syrup ($30\frac{1}{2}$ in hot weather), and at $35^\circ$ when the syrup is cool.

When carefully prepared with the best double refined sugar, syrups usually require no other clarification than to remove any scum which may rise to the surface upon standing, and to pour them off from any dregs which may subside; but as the sugar employed is not always free from impurities, it would, as a general rule, be best to remove the scum as it rises, during the heating process, and, if required, to strain them while hot through muslin or flannel. Should they at any time want the due degree of clearness, they may be warmed and filtered through flannel,
raw cotton, &c., or clarified by the whites of eggs.

Syrups are liable to undergo various alterations, according to their nature and mode of preparation. The acid syrups, when too much boiled, often let fall a copious white precipitate, which is said to be a saccharine matter, analogous to the sugar of grapes, produced by the reaction of the acid upon the sugar. At an ordinary temperature, acids slowly convert common sugar into grape sugar, which being less soluble than the former is gradually deposited in the form of crystalline grains. Syrups which contain too little sugar are apt to pass into the vinous fermentation, in consequence of the presence of matters which act as a ferment. Those which contain too much deposit a portion in the crystalline state, and the crystals, attracting the sugar remaining in solution, gradually weaken the syrup and render it liable to the same change as when originally made with too little sugar. The want of a due proportion of sugar frequently gives rise to mouldiness, when air has access to the syrup.

Syrups bottled while hot are apt to ferment, owing to the watery vapor or steam rising to the surface and condensing, which diminishes the proportion of sugar so as to produce a commencement of chemical action, which gradually extends throughout the whole
mass. If the bottles are well shaken, the result is
obviated, and the syrup will generally keep better
when thus treated. When syrups undergo the vinous
fermentation, their surface becomes covered with
froth, produced by the disengagement of carbonic
acid, and acquire a vinous odor from the presence of
alcohol, while their consistence is diminished by a
loss of a portion of the sugar which has been con-
verted into that liquid. When the alcohol has been
increased to a certain point, the fermentation ceases
or goes on more slowly, owing to the preservative
influence of that principle, and as the active ingredi-
ent of the syrup may have undergone no material
change, the preparation may be recovered by boiling
so as to drive off the alcohol and carbonic acid, and
sufficiently concentrate the liquid.

A syrup thus revived, is less liable afterwards to
undergo fermentation, because the principles which
acted as ferments have been diminished. It is obvi-
ous that syrups which depend for their virtues upon
a volatile ingredient, or one readily changed by
heat, cannot be restored to their original condition.

At best, syrups are apt to change, and various
measures have been proposed for their preservation.
A small portion of sulphate of potassa or chlorate of
potassa, which is tasteless, prevents their fermenta-
tion, and sugar of milk has been effectual to the same

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end. The proportion employed, is thirty parts of sugar of milk, one thousand of syrup; but the best plan for the preservation of syrup, is to keep it excluded from the air, in well closed vessels, and packed in a cold place.

SYRUP OF ALMONDS OR ORGEAT.

Take of sweet almonds, sixteen ounces; bitter almonds, four ounces; water, three pints; refined sugar, six pounds. Having blanched the almonds or removed the husks by soaking them in warm water for a few moments, and rubbing them through the hands until the husk comes off; having blanched the almonds, rub them in a mortar to a very fine paste, adding during the trituration, three fluid ounces of water and a pound of sugar. Mix the paste thoroughly with the remainder of the water, and then strain the mass through a common coarse linen cloth. Add the remainder of the sugar to the strained liquor, and dissolve it by the application of a gentle heat. Having become perfectly cool, bottle it, which must be well stopped and kept in a cool place; half a pint of orange flower water greatly improves the above. This syrup will not keep long, as it is liable either to ferment or become rancid. This syrup is prepared in a cheap manner, for auctions, &c., by adding any convenient quantity of the mucilage of slippery elm.
bark. This is prepared by boiling ten ounces of the bark, in a gallon of water, for one hour; if allowed to cool when the mucilage is deposited, any given quantity of the syrup is increased in quantity by the addition of any desired quantity of the mucilage. Orgeat can be colored any desired color, but owing to its heavy consistency, its natural color is preferable. When it is to be colored, the water is first colored the desired color.

ADULTERATING SYRUPS.

Syrups, like every other commodity in commerce, should be manufactured to suit the views of all grades of purchasers.

The adulterations consist of mucilage of slippery elm bark and gelatine, as the finest "book isinglass," and pure bone glue, known as "Cooper's gelatine;" these to be used should be tasteless and odorless, otherwise they are unsuited. One hundred grains of book isinglass dissolve in ten ounces of water, forming a tremulous jelly when cold. The mucilage of the elm bark is obtained upon boiling from six to ten ounces of the bark, to one or one and a half gallons of water for one hour. The bark will answer for subsequent boilings, as it does not always yield its mucilage upon the first boiling. The adulterated
syrup will soon sour; this can be delayed to a great length of time by the use of sugar of milk; one part of sugar of milk to thirty-one of the syrup, to prevent fermentation in all kinds of syrups. This is the only reliable article that we have.

*Sugar of Milk* is a hard, somewhat gritty substance, crystallized in four-sided prisms, and possessing a slightly sweet taste; it is prepared from milk. When intended for use, it should be dissolved in the water intended for the syrup, in the above-mentioned proportion. This will be found highly useful in the preservation of light-bodied syrups, and also for syrups that are to be kept for any length of time.

*Aromatic Syrups.*—Take refined sugar, five pounds; clean clear water, two pints; boil for two hours in the two pints of water; one ounce of bruised ginger; one half ounce cloves; one half ounce calamus root, bruised; nutmegs, one ounce. Dissolve the sugar in the water by the aid of a gentle heat. The amount of sugar can be lowered to two and a half pounds to two pints, if desired. The water, after boiling as above mentioned, should be strained. When this syrup is near cool, add four drops oil of bitter almonds, fifteen drops essence of cinnamon, one tablespoonful of essence of nutmegs, twenty drops essence
of lemon. Stir the syrup well, to enable the essence to combine; this can be colored to taste.

Syrup may be known when it has been sufficiently boiled, by the stirrer being withdrawn from the hot syrup with rapidity, and holding it on a horizontal line and observing if the syrup flows on the side of the stirrer with a thick body, and if it falls from it in the form of shot; and when these round particles of the syrup are ropy, viscid, falling from the stirrer in threads, or suspended by thread or hairy-like attachments, are evidences of its having been boiled sufficiently. The use of the saccharometer will indicate the proper density; this should stand at $30^\circ$ in boiling syrup, and $30\frac{1}{2}^\circ$ in hot weather, and at $35^\circ$ in the syrup when it is cool. Syrup boiled to this density is very heavy, and weighs about twelve and a half to thirteen pounds to the gallon. It has a fine body, and is the heaviest that is made.

*Blackberry Syrup.*—Expressed juice of blackberries, one pint; clarified sugar, two and a half pounds; whiskey or brandy, half a glass. Dissolve the sugar by the aid of heat, in the juice, in the same manner as for other syrup. When the syrup is cool, add the spirit.

The juice is expressed from fruit by placing it in a bag of suitable size, and submitting it to pressure.
MANUFACTURE OF SYRUPS.

When the juice is too thick, dilute it with water. It is customary to make a pint of syrup from a pint measure of the fruit.

Pineapple Syrup.—This can be made in the same manner as blackberry, or by slicing the fruit, alternating the slices with layers of powdered sugar, permitting them to stand twenty-four hours, and then expressing the syrup formed. Each pound of the pared fruit, with thirty ounces of sugar, should yield, with the requisite quantity of water, two pints of syrup.

These syrups will have their aromatic aroma greatly impaired by heat.

SYRUPS PREPARED FROM FRUITS.

Those syrups that are prepared from fruits, should be made with great care. The fruit should be fully ripe, and freed from all its natural attachments, as stems, leaves, &c., and from all other impurities, without being previously crushed. It should be put into canvas or woollen bags, which should be about two thirds full when placed under the press; the expressing force should be gradually increased so as to effectually remove the juice with as little of the fibre