

be as *dry and clean* as straw can be. Dry absolutely, necessarily fresh, clean and straight.

If the weather is cold, and, anyway, as a general rule, bear in mind that while eggs may be injured in transit from getting no ventilation, it is safer and necessary to keep them snug. Lay therefore in each case at the bottom and up the sides and ends moderately stout paper and when nailing down the tops, cover over the top layer also with paper. Eggs are likely to arrive sound and fresh if kept reasonably warm. And, it will not be at all undesirable to make it plain to the consignee here when eggs are fresh nearly as possible what the age is. Thus, for example, had you been shipping eggs laid in December (the first half) 1 D last half 2 D. The latter could be sold for quite 25 per cent better prices.

Payment. If necessary, an advance upon account of each shipment could be arranged by shippers drawing against each for 70 or even 75 per cent. Draft to be made at 30 days. Bills of lading given up on acceptance. But, we should require exactly what we should give—this is—full security. Shippers would be required to furnish satisfactory guarantee that if any unsound parcels arrived here, we should be covered against risk. We can give bankers guarantee for correspondents protection.

We commend this letter to your kind attention, and if you do not see it personally advantageous to you, will you kindly hand it on to some of your friends it may benefit and with our best respects, we are, dear Sir,

ROGERS, GERDS, & Co.

Wine-Making at Home.

Eds. Country Gentleman—I have an acre of Catawba grapes, and owing to mildew shall have to make them into wine. I have a St. Louis Whitman press (Americus), and wish a cheap and simple receipt for wine from them. On page 705 of vol. 49 of your paper are several receipts, but I find them too expensive, and they make too sweet a wine from Delaware, and Concord. I wish you would explain more fully the process of fermentation.

J. M. B.

Seneca County N. Y.

Mr. Alex W. Pearson, superintendent of the Vineland (N. J.) Wine Company, and writer of the principal article on the page referred to, kindly favours us with the following reply to the above requests:

Eds Country Gentleman—I have read the directions referred to and find nothing so correct, except it be in the process of fermentation.

A smoother and more generally acceptable wine will result from fermenting the juice on the pomace for about three days; then draw the liquid from the cask into another *clean* cask to complete its fermentation.

I have discarded the "fermenting tubes," formerly deemed essential to protect the wine from contact with the air. In active fermentation the gas escaping through the bung-hole excludes air. (1) During the after fermentation the cask may be bunged nearly tight, having care to start the bungs every few days to permit escape of any accumulated gas.

There is little danger of acetification in wine thus treated. Pasteur has shown that the *acetous* germ must be present to cause souring of wine. In casks cleaned and disinfected any fruit juice, without addition of sugar, may be fermented into wine, and kept as sound wine, in full casks, free from any taint of vinegar acid.

It was formerly taught that the oxygen of the atmosphere

caused acetification in wine. This is not so. To convert wine into 'vinaigre' there must intervene the germ of *mycoderma aceti*,—"vinegar mother," as we sometimes see it when developed in growth.

If grape juice be fermented in a cask the wood of which is infected by this acetous germ, the product will surely be vinegar.

Some wine makers suppose that their wine casks are cleaned when well rinsed with clear water, through the bung-hole.

The head should be taken out of the cask, and the inside scrubbed with strong solution of lime and potash until the wood shows no sign of acid reaction from chemical test. A cask which has contained vinegar cannot be cleansed fit to hold wine.

By fermenting the juice for some days with the pomace we get an infusion of tannin from stems and seeds. This serves to purify and clarify the wine, and to make it durable. When new it may taste rough, but becomes better the longer it is kept, and is finally superior to wine made of grape juice alone.

Claret made of the natural grape, without addition of sugar, will not be in any degree sweet. All of the sugar of the grape will be decomposed by successive fermentations, which will be renewed each spring, at time of blooming of the grape, for several years.

Possibly your correspondent makes wine from the juice of the pressed grapes, Concord and Delaware, adding syrup as described—5 lbs. sugar per gallon water, one gallon of this to each gallon of must. This will make a sweet wine, as Delaware grapes have naturally a high per cent. of saccharine.

Or he may have tried the process I describe in the last paragraph of the article you republish—fermenting on the pomace for some days, and then adding to the pressed must a syrup made of eight pounds sugar per gallon water, and one gallon of this to two of grape must; this will be 2½ pounds of sugar to each gallon of liquid. Such wine will be sweet when new, but after fermenting for several years, will lose most of its sweetness and become strong in spirit. Two pounds sugar make one pound of alcohol; therefore there will be one and one third pounds spirit from the sugar added, besides that from the sugar of the grapes—possibly 20 per cent of spirit, taken altogether. This is about as much as may be produced in wine by fermentation, and this only under exceptionally favorable conditions. When the ferment has made thus much spirit, this suffocates the ferment. Stronger wines must be made so by the addition of distilled spirit, called the 'fortification of wine.' Sweet wines are generally thus made, in the "trade." Soon after the wine has gone through its first fermentation and clarified, it is brought up to 25 per cent spirit by adding alcohol, preferably brandy, but generally "cologne spirits," or "deodorized alcohol." Such wine may be relied on to "keep;" it will not ferment again, and is chemically simply a mixture of grape juice and spirits. I have known grape juice to be thus preserved, and called "unfermented wine!"

There are various books on wine-making which may be profitably studied by any one who purposes to engage in the occupation. Lists of such may be found in catalogues of books on applied science. "Études sur le Vin," by the chemist Pasteur, 'Schutzenberger on Fermentation,' &c.,—these give the general principles. After one has applied these principles for years in practice he will begin to learn how much there is about the business yet to be learned.

Ordinarily wine will make itself. The juice of sound, ripe fruit, in clean casks, fermented at 70° Fahrenheit, will usually develop into a good, sound, "dry" wine—the only sort fit to drink. But some time it does not thus develop, and then we have a puzzle hard to solve.

(1) Which we brewers knew a hundred years ago. A. B. J. F.