

would be too slow a process, and I find the "Combination Fruit-press" an excellent assistant in this part of the work. I used it last year to great advantage. See French Journal for July 1883.

The must.—The grape-juice, with the crushed berries, is called, in technical language, the *must*. In our province, the principal defect of the must is want of sugar. It is on the richness in sugar that the quantity of alcohol in the wine depends. Without alcohol the wine would not keep; it would want *body*, and we should be far from having that generous, strengthening beverage we seek for. A cheap little instrument, called the *saccharometer* or *must-weigher*, tells us exactly how much sugar the must contains. That a wine should contain enough alcohol when finished, the must should show ten degrees on the instrument. Thus, by adding sugar to bring the must up to the desired point, the wine-maker who possesses this saccharometer will be working with a certainty that he is in the right road. The added sugar must be *white crystallised sugar of the best quality*; any other sort will probably injure the wine. Those who have no instrument had better be satisfied with adding half a pound of sugar to each gallon of must. It is better to wait until the fermentation has begun before adding the sugar, which should previously have been mixed with a little of the must.

Fermentation.—In order that the fermentation may start rapidly, the must should be at a temperature of 68° F. or 20° centigrade. A short time after the fermentation begins the *chapeau*, in English distilleries called *the cap*, forms; that is, the crushed grapes are raised to the surface, where they form a high mound just like a hat. Three inconveniences arise from this: first, the cap thus exposed absorbs ferments which tends to sour the must. Then, if well coloured red wine is desired, the position of the berries at the surface prevents their imparting their colour to the must. Lastly, the must being in danger of souring if it is left too long exposed to the air, it becomes necessary to *rack* it too soon—another cause of want of colour. To obviate these inconveniences, the following plan has been found to answer. (1)

On a tub or barrel place a cover, made of groove-and-tongued boards, fitted so tight that no air can enter, and cover it with a layer of moistened plaster (burnt, I presume; commonly called P. of Paris. A. R. J. F.), half an inch thick: this, hardening immediately, will prevent any introduction of air. A hole, eight or ten inches in diameter, is made in the cover for the admission of the must, which is to be closed hermetically when the must is all in. Then, the end of a lead pipe—half an inch in inside diameter—is introduced into the cover, which (the pipe) is so curved as to admit of its other extremity being plunged into a vessel of water placed on the bench on which the tub rests, to allow the carbonic acid gas, which is developed during the fermentation, to escape, and at the same time to prevent the slightest introduction of atmospheric air. A tap-hole must of course be made to admit the tap used in racking. If the fermentation be sluggish, a small quantity of the must heated to about 150° F. will quicken it. In following out this system, the must may be allowed to work for fifteen days.

Racking.—At the end of fifteen days—at all events when the first tumultuous fermentation is done, the must should be racked. The best way is to draw it off by a syphon reaching to within four inches of the vat's bottom. (2)

I may as well mention here that a wine of the second quality may be made by throwing over the must as much water

as the wine withdrawn represents, and adding a pound and a half of sugar to each gallon of water. The sugar should be added *at twice*, half in the water, and the rest when the fermentation declares itself. The wine should be racked into a perfectly clean cask, and a bung should be inserted in the bung-hole, though not driven in. In this vessel, the wine undergoes its last visible fermentation, and at the end of three or four months it is finally racked, by means, again, of a syphon, into a cask, which is then tightly bunged down. If the quantity is small, it may be bottled from the *cleansing-cask*.

If *white wine* is wanted, it is only necessary to remove the skins after crushing, putting the juice alone into the vat. The other operations are the same.

Wine takes at least a year to finish its work, and improves by age up to a certain point. My own wine has been made of a mixture of equal parts of Isabella and Concord grapes. I have also tried our native wild grape (*vitis riparia*), and the result has been a deep-coloured, strong wine, of excellent quality.

There are five points which, in conclusion, I may say are absolutely necessary to successful wine-making in our province: First, ripe grapes; second, stripping the bunches and rejecting all unripe berries; third, the exclusion of atmospheric air in the fermentation; fourth, the addition of sugar to supply the amount of alcohol necessary to the preservation of the wine; fifth, don't be in a hurry to taste the wine before it is at least a year old. (1)

It must be understood that I do not pretend to lay down hard and fast rules for wine-making in this article. Doubtless, wines can be made in other ways. But it has been my wish to show how I have succeeded in this province, where the vine is subjected to a climate much more rigorous than the climate of France or of the United States, and is, in consequence, less amply provided with sugar. (2)

From the French.

J. C. CHAPAIS.

De Omnibus Rebus.

Some very funny things appear in our U. S. exchanges; for instance: N. J. S. is in doubt whether in drilling wheat in the fall the rows should run N. and S., or E. and W. Last fall he drilled several pieces, some one way and some another. Two plots were taken as an experiment and treated with great care; and seemed well able to withstand the winter. The constant thawing and freezing weather which we so often have in the latter part of winter and early spring came on, and I examined the plants frequently. I found they were fast freezing out, the ground seeming to throw the roots out and thus killing them. The crops on both plots, when I came to harvest, were light. But that on the plot where the drill rows ran north and south was fully one-third heavier than the other, and yielded five bushels to the acre, while the other yielded a fraction over three bushels. Neither plot came up to the remainder of the crop on the farm, although given the best care."

Fancy half a column of print occupied by an experiment such as this, where the whole crop of the wheat-field was little more than five bushels to the acre!

Again, A. P. S. says that he has never seen a soil that will sink manure: I suppose he means "in which manure

(1) If any wine-maker can resist the temptation to see how his wine is getting on at least once a week, he must have much more self-control than I.

(2) Want of sugar is, of course, want of alcohol: no other substance but sugar forming alcohol. But whence the want of flavour? A. R. J. F.

(1) Pasteur's great work on *fermentation* is well worth the study of any one intending to make wine on even a small scale.

A. R. J. F.

(2) A bent lead tube answers perfectly. A. R. J. F.