

One concentrates the juice whenever one takes a part of the water off. That concentration may be obtained by evaporating the water.

In the evaporating plants the juice is heated and "boiled down" long enough to get a thick syrup.

This concentrate juice does not ferment. Moreover, its weight is less than one-fourth of that of the primitive apple juice.

The concentrate juice is stored in barrels and shipped safely cheaply even to remote parts of the Old Country. There it is used in various ways: jellies, jams, syrups, cider and brandy making.

Let us now consider another method available to concentrate the apple juice.

If some juice is cooled down at a lower temperature than 30° F. (—1° C.) it partly freezes.

The icicles that appear at first are almost pure water. So, if one takes away these icicles as they are formed, the juice becomes more and more concentrated.

On March 3rd a pailful of juice was placed outside at a temperature of about 10 degrees Fahr. below freezing point.

After some hours the ice was separated from the juice and melted. It gave a liquid of which the gravity was 4°·7, Beaumé scale. The juice that remained in the pail showed a density of 14°·7 B., and the original juice 7°·7 B.

So it is possible to concentrate the juice in that way—to a certain extent, at least.

*The peculiar properties of both liquids obtained by freezing are of interest.*

*The concentrate juice (14°·7 B.) is very sweet, very acid, and deep in color. That means it is very rich in sugars, acids and tannins.*

*On the other hand, the liquid from the icicles (4°·7 B.) seems to lack anything but flavor, as if the icicles had included the flavoring essences of the fruit.*

*Moreover this liquid of pleasing taste and flavor ferments very slowly. (That is probably because nearly all the yeast and nitrogenous principles are in the concentrate juice.)*

*Hence the idea of treating the liquid obtained from the icicles in the same way as apple juice in order to make a sparkling unfermented drink.*

---