

tion of other elements with sugar, during the process, when the sugar disappears and carbonic acid is more or less evolved.

Fermentation in its full acceptation is that putrefaction and decay through which organic substances are destroyed or disappear, to be separated into the various atoms of their primal formation, to be again converted into the same or other forms.

The juice of the grape called "must," when exposed in open vessels to a temperature of about 70°, becomes turbid and frothy, hence the word fermentation from the Latin "*ferveo*, I boil." After a time carbonic acid gas escapes into the air, scum collects upon the surface and a sediment is deposited.

The liquid which had grown warm gradually cools and clears, loses its sweet taste and is changed into wine, containing throughout an admixture of alcohol from 2 to 17 p.c., according to the richness of the grape. If not arrested here by the hand of man, fermentation would go on till the wine became vinegar, the vinegar mould, finishing in complete putrefaction and disappearance.

During the first process of fermentation, the carbonic acid, scum and sediment being separated, there remains only water and alcohol, with some colouring and flavouring matter, contained in the original substance. This is called wine, if produced from grapes, or cider if from apples.

Beer and ale brewing, through which alcohol is