Acetic acid is possibly a commoner result of the fermentation in the mouth than Miller would admit, but there is no doubt that lactic acid is the most common. In one experiment of my own with mixed culture in bread solution, the odor of acetic acid in the mixture was most marked.

There can be no question then as to the presence of free organic acids in the mouth cavity as the result of the fermentation of carbohydrate food, and if we have a lime salt freely exposed to these acids we must have a solution of that lime salt by the acids formed. Now, in the teeth themselves we have a lime salt (chiefly phosphate with a little carbonate) which must necessarily be acted upon if exposed for any length of time to the acids.

There are several objections which might be raised to the possible solution of the calcium salts of teeth by organic acids. One very important one is, if, as is evident, fermentation in the mouth cavity usually gives rise to organic acids, why are the teeth able to resist at all?

There are several conditions which explain this. First of all, for the formation of acids a certain amount of time is required; consequently, it is only where carbohydrates become lodged between teeth or in imperfections of the calcification that the fermenting mass remains long enough to produce sufficient free acid to cause decalcification. Secondly, the normal reaction of the saliva is alkaline, and this must necessarily neutralize a certain amount of the acid formed. Thirdly, in that form of fermentation to which we have given the name of putrefaction, *i.e.*, the decomposition of proteid material, we frequently find free alkali produced instead of free acid, and in a mixture of food material lodged between teeth or in a cavity the carbohydrates will need to be in excess of the proteid before we can be certain that free acid would be produced. All these factors, of course, have a retarding effect upon the process of decalcification.

It may be objected by some that the acids produced during fermentation are not sufficiently active to cause solution of such a substance as the enamel. This is very readily answered by allowing a solution of lactic acid to act for some time upon calcium phosphate, calcium carbonate or on powdered enamel. It will be found that although the solution does not occur with the rapidity that it would if a strong mineral acid were used, still it is possible very soon to show by the ordinary qualitative tests that lime has been dissolved. I have here two flasks, one of which contained calcium carbonate in addition to the mass of fermenting bread, and it will be very easy to show that in the one in which the carbonate of lime was present a certain amount of it has been dissolved.

I think I have made it clear that in the fermentation of carbohydrates in the mouth cavity we have a sufficient explanation of