indeed we may regard this as well-nigh proved to the enzyme of tetanus.

But their action is limited either by their conversion into zymogens or their localization to the cells or tissues where their action is required. This is more readily seen in plants than in animals, and one of the best examples of it is that in germinating wheat.

In the ordinary state of the grain the diastatic ferment is kept apart from the starch by a small layer of cellulose, through which the diastase cannot pass, but during germination another ferment appears which has the power of dissolving cellulose, and by breaking down this dividing membrane it allows the diastatic ferment to act upon the starch, and renders it available for the needs of the growing plant.

Enzymes appear to differ among themselves nearly as much as albumin, albumoses and peptones. Some are easily separated from the cells in which they exist, while others are so closely united to the protoplasm that their separate existence apart from it has been denied. The yeast plant, for example, yields an invert enzyme which can be extracted with comparative ease, but the enzyme which splits up sugar into alcohol and carbonic acid is so firmly attached to the protoplasm of the cell that it is only within the last few months that it has been isolated by Buchner by the application of enormous pressure. It is probable that the enzymes contained in the cells of animal tissues differ in like manner, and that by the use of similar methods we may obtain a number of enzymes with which we are at present unacquainted.

But it is not merely the products formed in the digestive canal, or in the organs of animals during life, nor even the alkaloids that are formed by the higher plants, that act as poisons. The processes of life are much the same in the lowest microbes as in animals, or in the higher plants, and these microbes, by forming ferments and poisons give rise to disturbance of function or death in animals. When grown in suitable media outside the body they produce enzymes and poisons, albumoses and alkaloids, and many of them continue to do so after their introduction into the body.

One of the most curious points, in the chemistry of both the higher plants and of microbes, is that they tend to form at the same time a poison and its antidote. In Calabar bean, for example, we find there are two poisons—physostigmine and calabarine, the former tending to paralyze the spinal cord and the latter to stimulate it, so that each poison to a certain extent antagonizes the other. The same condition is found even more markedly in jaborandi, of which the two alkaloids, pilocarpine and jaborine, antagonize one another's action, so that,