diseased parts of cauliflower and turnip plants, and were stained by various methods. The most satisfactory results were obtained by staining over night in carbol fuchsin, washing out the surplus stain first with water, and then with 97 per cent. alcohol, clearing in oil of cloves and mounting in Canada balsam. A number of sections were also stained with anilin blue. The latter method gave fair results; but the former method was the more satisfactory.

Completely rotten cauliflower or turnip was difficult—in fact it was almost impossible—to imbed in paraffin, as the whole mass fell to pieces when thrown into alcohol. Portions of petiole, stem, or flower of cauliflower, where the disease was just starting and pieces of tissue in a more advanced stage from which most of the soft parts had been cut away, furnished the best material for study.

Cross sections showed the bacteria in the intercellular spaces, where they increased rapidly and as soon as sufficient enzyme was elaborated, it softened the middle lamella and permitted the bacteria to penetrate between the cells. These enzymes had a marked action on the cell-wall, which gradually swelled up and lost all trace of its striated character. The cell wall at this stage also lost very largely its faculty of taking up the stain, and sections stained with carbol fuchsin showed the enormously thickened cell-wall, faintly stained a pale pink, while adjacent healthy cell-walls were deep red in color and showed very plainly the middle lamella and striations.

The figures 9-10 show the different stages in the destruction of the cells by this bacillus. Fig. 9 shows the bacteria in some numbers in the intercellular spaces, some are just beginning to penetrate along the middle lamella. At this period, the cell-wall is stained deeply. The last stage, just before the absolute collapse of the tissues, may be seen in Fig. 10, in which the lumen of the cells is very small due to the enlarging and softening of the cell-walls which now stain even more faintly than before. The bacteria have also enormously increased.

Sections of pieces of turnips affected with the rot, showed slightly different features; although the action of the bacillus was the same.

Turnips cells have much thinner walls than the cauliflower petiole, or stem; consequently, when attacked with rot they collapse