changes which occur in the digestive processes of the higher animals by means of the organic as distinguished from the organized ferments.

Some bacteria are capable of still further acting on the acids produced in the first-named fermentations; thus the bacillus butyricus can transform lactic acid into butyric acid with the formation of carbonic acid and hydrogen. These are again not the changes which are of the greatest importance in considering pathogenic bacteria. Although some pathogenic bacteria act on starches and sugars with the formation of acid bodies and gases, yet the products so formed play but a small part in the production of disease. Fats, which are largely present in the body and are taken in with food, are also broken up by bacteria of one kind or another. The products, however, from a pathological point of view, are of minor importance. From the albuminous substances, however, the third great class of organic substances that serve as food and act as important chemical constituents of the body, the pathogenic bacteria produce substances possessing important physiological actions. The albuminous molecule containing carbon, hydrogen, nitrogen, sulphur, and frequently phosphorus, is unknown as regards its chemical constitution. It is no doubt highly complex, and is capable of being broken up both by organic ferments and by bacteria into numerous bodies of the most complex nature. Although the actual constitution of the albuminous molecule is at present undetermined, it is capable of being transformed only in certain directions. Thus, by the action of mineral acids and alkalies with the aid of heat, white of egg or the serum proteids are transformed into acid and alkali albumin, which differ from the original proteid mainly in their solubilities in acid or alkaline solution. The acid form is precipitated by an alkali and *vice versa,* the precipitate being still capable of coagulation.

Like the original proteid, however, these bodies are capable of digestion. The digestive transformation which takes place in the stomach and small intestines consists in the change of these slightly soluble and coagulable proteids into more soluble and diffusible ones, the formation of the so-called albumoses and peptone. The important members of this class are soluble in water, are not precipitated by heat, and are capable of some amount of diffusion. They all give a bright pink color with a trace of copper sulphate solution and an excess of potash. True peptone differs from some of the albumoses in the fact that it is not precipitated by nitric acid. One of the characteristic albumose reactions, for example, of proto-albumose, is that the precipitate by nitric acid is soluble on heating the solution, comes down again on cooling.

Peptic digestion probably does not go farther than the formation of peptone, and results chiefly in the transformation of the proteids into albumoses. Pancreatic digestion, however, can split up the proteid molecule, or part of it, into crystalline bodies containing nitrogen, such, for example, as leucin and tyrosin.

This digestive action on proteids produced by organic ferments is also a feature of the action of some of the organized or bacterial ferments, except that the effect is more pronounced, and results in the breaking up of proteid molecule into many different non-proteid substances, which may be considered the final products of the digestive action.

This digestive action of pathogenic bacteria is, however, only a part of the question we shall have to consider. The chief cell of the peptic gland secretes pepsin, which is discharged in the gastric juice into the stomach cavity; the pancreatic cell secretes trypsin and other ferments, which are discharged into the small intestine with the pancreatic juice; and, therefore, in any digestive mixture obtained from the stomach or intestine