sies, and occurred in only eleven of the two thousand Munich cases. The anatomical lesion upon which the aphasia—seen not infrequently in children—depends, is not known. Possibly, as Leyden states, it may be due to slight encephalitis. Parenchymatous changes have been met with in the peripheral nerves, and appear to be not very uncommon, even when there have been no symptoms of neuritis.

The voluntary muscles show, in certain instances, the peculiar changes described by Zenker which occur in all long-standing febrile affections and are not peculiar to typhoid fever. The muscle substance within the sarcolemma undergoes either a granular degeneration or a hyaline transformation. The abdominal muscles, the adductors of the thighs, and the pectorals are most commonly involved.

Symptoms.—In a disease so complex as typhoid fever it will be well first to give a general description and then to study more fully the sypmtoms, complications, and sequelæ according to the individual organs.

General Description.—The period of incubation lasts from a week to ten days, during which there are feelings of lassitude and inaptitude for work. The onset is rarely abrupt. There may be prodromal symptoms, either a rigor, which is rare, or chilly feelings, headache, nausea, loss of appetite, pains in the back and legs, and nose-bleeding. These symptoms increase in severity and the patient at last takes to his bed. From this event, in a majority of cases, the definite onset of the disease may be dated. During the *first week* there is, in some cases (but by no means in all, as has long been taught), a steady rise in the fever, the evening record rising a degree or a degree and a half higher each day, reaching 103° or 104°. The pulse is rapid, from 100 to 110, full in volume, but of low tension and often dicrotic; the tongue is coated and white; the abdomen is slightly distended and tender. Unless the fever is high there is no delirium, but the patient complains of headache, and there is mental confusion and wandering at night. The bowels may be constipated, or there may be two or three loose movements daily. Toward the end of the week the spleen becomes enlarged and the rash appears in the form of rose-colored spots, seen first on the skin of the abdomen. Cough and bronchitic symptoms are not uncommon at the outset.

In the *second week*, in cases of moderate severity, the symptoms become aggravated; the fever remains high and the morning remission is slight. The pulse is rapid and has lost its dicrotic character. There is no longer headache, but there is mental torpor and dulness. The face looks heavy; the lips are dry; the tongue, in severe cases, becomes dry also. The abdominal symptoms are more marked—diarrhœa, tympanites, and tenderness. Death may occur during this week, with pronounced nervous symptoms, or, toward the end of it, from hæmorrhage or perforation. In mild cases the fever declines, and by the fourteenth day may be normal.

In the *third week*, in cases of moderate severity, the pulse ranges from