

separated, or it may be directly due to the extension of a necrosis through all the coats. In only a few cases is the perforation at the bottom of a clean thin-walled ulcer. In one instance the perforation occurred two weeks after the temperature had become normal. The sloughs were, as a rule, adherent about the site of perforation. A majority of the cases were in small deep ulcers. There may be two or even three perforations. The orifice is usually within the last foot of the ileum. In only one of my cases was it distant eighteen inches. Peritonitis was present in every instance.

*Hemorrhage* from the bowels occurred in ninety-nine of the Munich cases, and in nine of my series. The bleeding seems to result directly from the separation of the sloughs. I was not able in any instance to find the bleeding vessel. In one case only a single patch had sloughed, and a firm clot was adherent to it. The bleeding may also come from the soft swollen edges of the patch.

The *mesenteric glands* at first show intense hyperæmia and subsequently become greatly swollen. Spots of necrosis are common. In several of my cases suppuration had occurred. The bunch of glands in the mesentery, at the lower end of the ileum, is especially involved. The retroperitoneal glands are also swollen.

The *spleen* is invariably enlarged in the early stages of the disease. In only one of my cases did it exceed (600 grammes) 20 ounces in weight. The tissue is soft, even diffuent. Infarction is not infrequent. Rupture may occur spontaneously or as a result of injury. In the Munich autopsies there were five instances of rupture of the spleen, one of which resulted from a gangrenous abscess.

The *liver* shows signs of parenchymatous degeneration. Early in the disease it is hyperæmic, and in a majority of instances it is swollen, somewhat pale, on section turbid, and microscopically the cells are very granular and loaded with fat. Necrotic areas occur in many cases, as described by Handford. They have been studied recently by Reed in Welch's laboratory. No definite association could be determined between the groups of bacilli and the necrotic areas. In twelve of the Munich autopsies liver abscess was found, and in three, acute yellow atrophy. Diphtheritic inflammation of the gall-bladder is occasionally met with. This may lead to perforation and fatal peritonitis.

The *kidneys* show cloudy swelling, with granular degeneration of the cells of the convoluted tubules; less commonly an acute nephritis. A rare condition described by Rayer, Wagner, and others is the occurrence of numerous small areas infiltrated with round cells, which may have the appearance of lymphomata (Wagner), or may pass on to softening and suppuration, producing the so-called *miliary abscesses*. It is usually a late change. The bacilli have been found by some observers in these areas. The bacilli can be obtained by culture from the kidneys, and have been found in many instances in sections. They have also been found in