

are all important points. The arrest of the spread of the disease is tantamount to the lessening of the toxine production. Ochsner thinks that he arrests peristalsis by withholding food by the mouth and the substitution of rectal feeding. Possibly this is true; probably it is partially true.

But, if I mistake not, opium has other and quite different effects. Abbe suggests that by relieving pain it permits freer movement of the diaphragm, which is known physiologically to be one of the most potent factors in the causation of the flow of lymph, and hence of the absorption of fluids from the peritoneal cavity. That the peritoneum has great powers of absorption is well known. The observations of von Rocklinghausen concerning the remarkable powers of taking up fluids and solid particles in suspension possessed by the central tendon of the diaphragm, have been confirmed by Ludwig, Schweigger-Seidel and Wegner. Auspitz has observed finely-divided rice meal pass through the central tendon, and an hour later has found it in the blood of the ear, and some hours later in the lung, liver, spleen, and kidney. Muscatello, Maffucci, and Beck have shown experimentally that substances are rapidly taken up from the peritoneal cavity through the central tendon, and that they then pass on through the thoracic duct into the vena innominata. It seems also to be established that other portions of the peritoneum absorb, although less rapidly. In particular may be mentioned the great omentum, the gastro-hepatic and gastro-colic omenta, and the mesorectum. For many of these facts I am indebted to Byron Robinson's work on The Peritoneum.

Abbe, then, has good reason to think that the freer action of the diaphragm stimulates lymphatic absorption in the great lymph sac, the peritoneum. It is quite possible, may I even say probable, that the longer excursion of the diaphragm exercises an equally important influence on the vascular system of the abdominal cavity. Practically the greater bulk of the blood from the abdomen enters the inferior vena cava through the portal system and liver. A freer action of the diaphragm causes greater pressure upon the liver, thus aiding in the propulsion of the blood through its cells. The diaphragm is thus made to do duty alternately as a force and suction pump, and its influence upon the blood and lymph channels must be great. Certainly the respiratory system can no longer claim a monopoly of the diaphragm.

The results of this action of the diaphragm in promoting and accelerating the circulation through the blood and lymph vessels is to lessen congestion in the affected area and to stimulate absorption