

III. We know from experiments on living animals that when a chemical or mechanical stimulus is applied to a point of the intestinal canal, it is succeeded by strong contractions of the part, which continue for some time after the stimulus has been removed. (Muller), and strong spasmodic action of the urethra occurs from irritation of its mucous membrane, giving rise to suppression of urine—paralysis of the bladder from over-distention of its muscular fibres. On the same principle, irritation applied to the mucous membrane of the bowels, by an acid, or indigestible substance passing along the canal, produces strong reflex or spasmodic action of the part. In this manner we are able to account for the different portions of intestine found in a state of great contraction, in the horse after fatal cases of ileus; whilst the other portions of the intestines are distended with flatus or accumulated fæces from the strong peristaltic action pressing forward the contents of the canal, against the obstruction that existed.

IV. Inflammation is not the cause of the dilatation of the intestine that occurs in ileus, for we have seen that the disease may proceed to a fatal termination before inflammation has commenced. Besides, when inflammation attacks muscular fibre, it produces softening and loss of power; the parts easily giving way under pressure or traction—effects diametrically opposed to those of active expansion. “Let the student examine inflamed muscle; he will find the structure weakened, so that it easily gives way under pressure and traction, he will see under the microscope, that the substance tends to fall into irregular fragments, and the natural striation is more or less replaced, first, by an almost homogeneous appearance, and afterwards by an appearance of aggregated granules.”* Now, although there is a difference between the striæ of the muscular fibres of animal and of organic life, yet these observations sufficiently show, that when the muscular tissue of the intestinal canal becomes the seat of inflammation, whatever may be the extent of its progress, the bowel possesses no inherent power to dilate and enlarge its calibre; but on the contrary becomes softened, and liable to break up on little force applied to it.

From these preliminary observations then, it appears, that whatever produces loss of muscular power in the intestinal canal, and arrests the descent of matters along it, is the cause of ileus, and there are two forms under which it appears, distinctly recognised on post mortem examination. 1st. When a large amount of gas is generated, and accumulates within the cavity of the bowels, producing over-distention of the muscular fibre and

* Dublin Quarterly Journal of Medical Science, No. 65—Page 170.