59 (668)

Demonstration of vomiting movements in an eviscerated animal under the influence of digitalis.

By **C. EGGLESTON** and **R. A. HATCHER.**

[*Laboratory of Pharmacology of Cornell University Medical College.*]

It is commonly accepted that apomorphine produces emesis through its action on the center in the medulla concerned in emesis, but that digitalis produces emesis through its irritant action on the stomach.

We had some evidence that digitalis produced vomiting through its central action and decided to carry out as many experiments as possible of those which had been made in establishing the seat of action of apomorphine, but substituting digitalis, and in the course of the investigation we utilized a method which has not been described hitherto, and which consists in the removal of the gastro-intestinal tract from the esophagus to the anus, after tying the vessels which supply the tract, and injecting digitalis intravenously after an appropriate interval of time, varying from a few minutes to an hour and a half.

We have produced vomiting movements in about fifty per cent. of the experiments so made, and nausea in all but one of the others, and barring those experiments where the depression from the operation seemed to indicate that nausea could not be induced, the percentage of successful experiments is still higher.

Using apomorphine intramuscularly, we have been able to produce vomiting movements in nine out of ten such experiments on the dog.

60 (669)

The variations of pressure in the pulmonary artery.

By **CARL J. WIGGERS.**

[*From the Physiological Laboratory, Cornell University Medical College, New York City.*]

The systolic and diastolic pressures existing in the pulmonary artery of naturally breathing dogs have not been heretofore investigated. By means of a sensitive pulse pressure instrument

capable of standardization against maximal and minimal valves,[1] it has been possible to fill this gap in the physiology of the circulation. The operative technic was so adapted that (1) normal intrathoracic pressure relations during inspiration and expiration were obtained when the records were taken, (2) artificial pressure changes in the intrathoracic cannula and manometer tubes were obviated, (3) clot formation was minimized and recognized when present, (4) only a small portion of the pulmonary circuit was occluded, and (5) the systemic and right auricle pressures corresponded to that habitually found in animals.

The results of 13 such experiments showed that, during quiet normal breathing the systolic and diastolic pressures fell during inspiration and rose during expiration. The systolic pressure averaged 43.3 mm. in expiration and 31.7 mm. in inspiration, the diastolic pressure 20 mm. in inspiration and 11.9 mm. in expiration. In experiments where the heart rate ranged from 180 to 25 per minute, it was found that the diastolic pressure *decreases* as the heart rate is reduced. The same holds true for the systolic pressure between heart rates ranging from from 180 to 100 or 80 (the latter figure varying in different animals). When the heart becomes still slower the systolic pressure again increases.

During temporary apnea vagi, the maximal pressure dropped 40 to 32 per cent., the minimal pressure increased 10–25 per cent. over that occurring during natural breathing, showing that respiratory movements determine to a pronounced extent the extreme pressures in the pulmonary artery.

61 (670)

The results of ligation of the pulmonary and cutaneous arteries in the frog.

By **T. S. GITHENS.**

[*From the Department of Physiology and Pharmacology of the Rockefeller Institute for Medical Research.*]

The frog possesses, in the lungs and the skin, two organs for the purpose of respiratory exchange, and it has long been estab-

[1] Wiggers, *Journ. Exp. Med.*, XV, 1912, p. 174.