

FURTHER OBSERVATIONS ON TONUS RHYTHMS IN DIAPHRAGM MUSCLE

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Abstract.

Oscillations in diaphragm muscle have been observed by a number of workers in dogs and rabbits during normal sleep and under anaesthesia. (1) The cause for these oscillations is considered to be of central origin (2).

We have noted these oscillations in urethanized dogs, rabbits, cats and decerebrate cats. They may appear from one to seven hours after the urethane, 2 grams per kilo of body weight, is administered by stomach. In an attempt to find whether they may not be due in part to changes in the irritability of the muscle itself the following experiments were performed. Cats and dogs aneshetised with urethane, 2 grams per kilo, were fastened back down on the animal board and simultaneous records of the respiration and blood pressure made. The former was recorded by attaching an S-shaped hook into the diaphragm about midway between the lateral chest wall and the central tendon of the diaphragm and a thread passed from it over a pully to a writing lever as employed by Nice in former work. (3) The blood pressure was recorded from a femeral artery by means of a mercury manometer. The brain of the animal was quickly pithed the phrenic nerves cut and the peripheral end of one stimulated with make induction shocks at the rate of 120 per minute. Then artificial respiration was administered for about five minutes, after which a second series of stimuli were applied to the Phrenic nerve and so on. Under our experimental procedure the diaphragm gave tonus rhythms similar in form to the oscillations that appear when the nerves are intact. This indicates that these oscillations may in part be due to peripheral origin.

BIBLIOGRAPHY

(1) Mosse; *Arciv. ital. de biol.* 1886, VII, 48; *ibid* 1903, XL, 43. also McLeod:

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(2) McLeod *loc. cit.*

(3) Nice, *This Journal*, XXXIII, 204; 1914 XXXIV, 326; XXXV, 194.

(4) *Loc. cit.*