

oxygen. The mechanism involved in this diminution in urine secretion is not fully understood, but in view of the work of Adolph³ it is felt that the increased secretion of epinephrine may play a part. This, however, may not explain the fact that the depression in secretion was obtained almost immediately upon administering the anoxemia. It is possible that this sudden depression is due to vasoconstriction produced by a reflex nervous mechanism. The reflexes involving the kidney of the dog may well be different from those described by Adolph³ in the frog, an amphibian. Of course, such a reflex nervous action could be followed and enhanced by the epinephrine action.

The supernormal phase which occurred in many instances may be due to a vasodilation, following the vasoconstriction in the kidneys. Such a reversal phenomenon is characteristic of epinephrine action.

It must also be pointed out that the hyperventilation produced by anoxemia causes changes in the reaction of the blood. It is possible that this is another factor which must be considered in the mechanism of the depression of urinary secretion by anoxemia.

Summary. Breathing of oxygen tensions of 5.0% to 12.0% caused a marked diminution in the urine secretion in 45 of 50 experiments upon 12 barbitalized dogs.

8418 P

A Comparison of Effects of Stimulation of Right and Left Peripheral Vagus with Action of Acetylcholine on Electrocardiogram of the Cat.

OTIS M. COPE AND HELEN C. COOMBS.

From the Department of Physiology and Biochemistry, New York Homeopathic Medical College and Flower Hospital.

Electrocardiograms were taken in a series of experiments on 40 cats, in which nembutal was the anesthetic employed. The procedures were as follows:

1. Stimulation of the right and left peripheral vagus only; (20 cats.)
2. Jugular injection of acetylcholine (2 to 6 mg./kg.). (20 cats.)

³ Adolph, E. F., *Am. J. Physiol.*, 1934, **108**, 177, and personal communication.

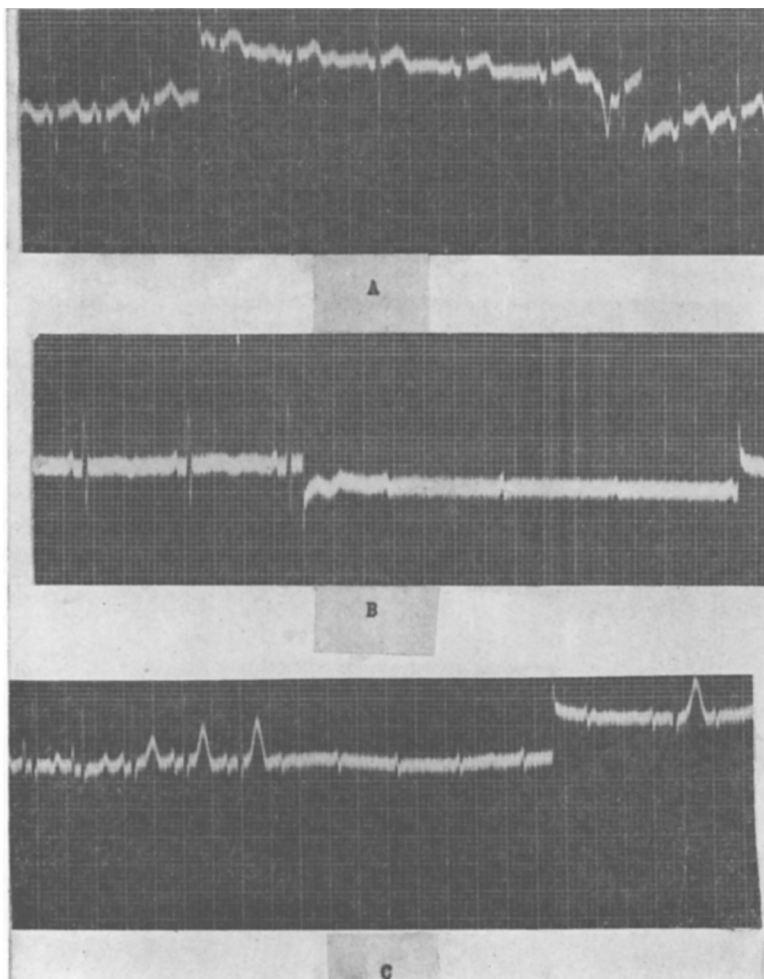


FIG. 1.

Electrocardiogram, lead II only. (a) Effect of stimulation of right vagus; (b) effect of stimulation of left vagus; (c) administration of acetylcholine. Note in (b) and (c) the persistence of P-waves and the dropping out of the QRS complex.

Typical electrocardiograms illustrate the following results:

1. Stimulation of the right vagus brings about a decrease in the rate of both P and QRS complexes, *i. e.*, a sinus bradycardia.
2. Stimulation of the left vagus brings about the dropping out of some QRS complexes, *i. e.*, a partial block.
3. Acetylcholine brings about (a) a decrease or temporary cessation, of QRS complexes; (b) a heavier dosage (sub-

lethal, about 6 mg./kg.) may result in temporary elimination of P-waves also.

Dale¹ has stated that "vagus impulses produce their effect by liberating acetylcholine among the fibers of the muscular wall of the heart." From these results it would seem that the action of acetylcholine on the heart more closely approximates that of the left, than of the right, vagus. The question is, therefore, raised as to whether some vagus fibers to the heart may not be more "cholinergic" than others, and a further differentiation of their activity on such a basis ultimately attempted.

¹ Dale, H. H., *Science*, 1934, **80**, 1.