lation, which is prone to occur after frequent injection of saline solution into the myocardium.

Gold[1] has found that the fatal dose of ouabain is not lessened by ligating the coronary arteries in the cat, and therefore there is no experimental evidence that an increase in the predisposition to ventricular fibrillation by the administration of the drug in the human exists when coronary artery closure has occurred. The effect reported here suggests an explanation for this fact and indicates that the action of digitalis in therapeutic doses is one which tends to prevent the onset of ventricular fibrillation when conditions predisposing to it are present, and that the administration of the drug is advisable where the onset of ventricular fibrillation is feared.

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Effect of Altering Venous Inflow to the Heart on the Voltage of the Electrocardiogram.

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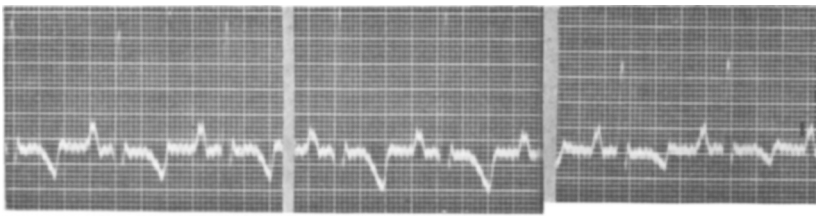
It is known that great alteration in the heart rate tends to alter the form of the electrocardiogram; it becomes smaller with rapid rates of beating and larger when the rate is decreased. This relation between heart rate and voltage is independent of the extracardial nerves; it occurs in the denervated heart.

In the heart of the dog, exposed by removing the sternum after narcosis with chloretone, section of the vagi and the institution of artificial respiration, clamping the *vena cavae* is associated with a

FIG. 1.



a b c

Axial electrocardiogram. Time in 50th seconds. *a*—normal; *b*—effect of the rapid infusion of saline solution into the superior *vena cava; c*—effect of clamping the *vena cavae.*

decrease in the voltage of the electrocardiogram which appears immediately after the interruption of the venous inflow. When the clamps are removed the curve as rapidly returns to the original voltage, providing they have not been left on too long. This change occurs before there is any change in the rate or rhythm. Conversely, the rapid infusion of saline at body temperature into the superior *vena cava* causes some increase in the voltage of the electrocardiogram during the period in which it is flowing (Fig. 1).

These effects suggest that the volume of the venous inflow to the heart may govern the alteration in the voltage of the electrocardiogram which is associated with the following conditions: (1) that which follows changes in the heart rate, (2) that associated with hydropericardium, and (3) the phasic changes in the voltage of the electrocardiogram which are associated with the movements of respiration. The latter are known to cause rhythmic alterations in the venous inflow to the heart.