5650

Afferent Impulses in the Carotid Sinus and Aortic Nerves.

D. W. BRONK.

From the Eldridge Reeves Johnson Foundation for Medical Physics, University of Pennsylvania.

Afferent impulses in the carotid sinus nerve of the rabbit have been recorded by means of a vacuum tube amplifier and either a string galvanometer or Matthews oscillograph and the arterial pulse curve registered simultaneously with a Wiggers manometer. The experiments show that there is a burst of impulses accompanying each heart cycle followed by comparative inactivity. This discharge is coincident with the rapid rise in arterial pressure revealed by the carotid pulse curve. The duration of the nerve activity extends usually to about the incisura although frequently there are scattered impulses continuing throughout diastole. In some cases there is a second smaller outburst which coincides with the rise in pressure following the incisura. At high blood pressures the discharge becomes continuous, an effect which is likewise produced as a result of asphyxia.

The general character of the discharge in the carotid sinus nerve agrees closely with that found in the aortic (cardiac depressor) nerve. The impulses in this nerve have been recorded by Adrian[1] and several other workers and simultaneous records of the impulses and pulse curves have recently been reported by the author.[2] Here, too, there is a large outburst of impulses synchronous with the rapid rise in pressure the major part of the discharge usually continuing to the incisura. The activity of the sensory nerve endings in both the aorta and the carotid sinus appears, on the basis of these experiments, to be a function of both the absolute level of pressure and the rate of change of pressure.

[1] Adrian, E. D., *J. Physiol.*, 1926, **61**, 49.

[2] Bronk, D. W., and Kaltreider, N. L., Montreal Meetings, Am. Physiol. Soc., 1931.