negative peroxidase reactions are found for pre-diapause eggs. Positive reactions are given for diapause and post-diapause eggs, Embryos after hatching give negative reactions. 3. Exposure of pre-diapause eggs to low temperatures (0-5°C.) apparently destroys a naturally occurring inhibitor so that eggs thus treated always give positive peroxidase reactions. 4. Ideas are expressed as to possible manner in which peroxidase inhibitors function. 5. No correlation between cellular and peroxidase activity seems apparent.

7861 P

Action Potentials of the "Respiratory Center."

ROBERT GESELL, JOHN BRICKER, AND CONWAY MAGEE.

From the Department of Physiology, University of Michigan, Ann Arbor.

A systematic study of localized potentials lends itself well to the localization of the respiratory center and to an analysis of its still unknown mode of function. After removing the skull cap and the cerebral and cerebellar hemispheres in the dog, we explored the depths of the brain stem from the thalamus through the upper portion of the cervical cord with needle electrodes. A variety of potentials were encountered but in the medulla and upper cervical cord discrete potentials, of orderly sequence, associated with the respiratory act, have been definitely established. These potentials are readily counted and appear to arise from individual nerve cells or neuraxones.

Inspiratory potentials commonly accelerate and deaccelerate with the waxing and waning of inspiration. These potentials cease during the phase of expiration, or continue at a lowered rate during this period. As a rule, the amplitude of discrete potentials remains moderately constant, but instances of gross change of intensity associated with little change in rate have been encountered.

Expiratory potentials during active expiration may accelerate and deaccelerate with waxing and waning of the expiratory act. Usually discrete potentials progress at a uniform rate throughout expiration regardless of its duration indicating a tonic nature of discharge. They are inhibited in rate or number, only during the phase of inspiration. These results fit in with classification of types of breathing previously recorded by the potential method in respiratory muscles of the dog (Gesell).

Central expiratory potentials, of the tonic type, were commonly of a much higher frequency than those previously recorded in respiratory muscles (Gesell), suggesting the existence of a step-down mechanism. There is also some evidence that certain potential frequencies may be a multiple of a lower rate of discharge.

Continuously occurring discrete potentials of a uniform frequency have been encountered. These potentials have been changed by inspiratory and expiratory mechanical asphyxia to either the inspiratory or expiratory type.

Electrodes inserted into silent regions may from time to time register respiratory potentials as resting cells come into activity. Frequently these silent regions yielded respiratory potentials during mechanical asphyxias. Potentials emanating from a previously silent region, if from a true respiratory center, indicate that the completeness of participation of the center varies with the magnitude of breathing.

The exact cellular or fiber source of central potentials is being sought by placement of minute lesions at the site of the lead-off electrodes immediately following photographic registration of potentials. The fact that both expiratory and inspiratory potentials can be recorded from one placement of the electrodes, or that one type may give way to the other with a minute displacement of the electrodes, indicates a close anatomical association between the so-called inspiratory and expiratory centers.

7862 C

A New Method of Determining Plasma Fibrin.

SAMUEL ROSENFELD AND ALEXANDER S. WIENER. (Introduced by B. Kramer.)

From the Division of Hematology of the Department of Pathology, Jewish Hospital, Brooklyn, N. Y.

The usual method of estimating the fibrinogen content of the blood is by recalcifying the oxalated plasma in order to convert the fibrinogen into fibrin.[1] The quantity of fibrin precipitated is then determined by the Kjeldahl, the gravimetric, the colorimetric, or the refractometric methods.

[1] Peters, J. P., and Van Slyke, D. D., *Quantitative Clinical Chemistry*, Williams and Wilkins, Baltimore, 1932. This method of precipitating the fibrin was developed by Cullen and Van Slyke, *J. Biol. Chem.*, 1920, **41**, 587.