

*Further analysis of the conditioned reflex method in relation to the experimental neurosis.* H. S. LIDDELL, GEORGE F. SUTHERLAND (by invitation), RICHARD PARMENTER (by invitation), QUIN F. CURTIS (by invitation) and O. D. ANDERSON (by invitation). Department of Physiology, Cornell University Medical College, Ithaca, N. Y.

Our experiments have proceeded upon the hypothesis that the experimental neurosis so frequently develops in the course of conditioned reflex experiments because the conditioned animal cannot, through procrastination or evasion, avoid making difficult decisions. Systematic variations in the amount of neuromuscular freedom permitted the sheep and pig during conditioning to food and shock have been related to the nature and predictability of the animal's conditioned responses as well as to features of behavior indicative of "tension states" before the onset of the experimental neurosis. As motor outlets (such as are employed in locomotion, opening of the food box, etc.) are blocked signs of nervous tension appear while the conditioned responses become stereotyped and predictable.

*Gastric motility of a fish during hunger and digestion.* EARL R. LOEW (by invitation) and T. L. PATTERSON. Departments of Physiology, Wayne University College of Medicine, Detroit, Mich., and Hopkins Marine Station, Stanford University, Pacific Grove, Calif.

Comparative studies of the gastric motility of various vertebrate and invertebrate animals have been extended to include the bullhead or cabezone (*Scorpaenichthys marmoratus*).

All the fish were stomostomized and kept in a vivarium containing fresh, aerated, sea water while the gastric motility was recorded by the balloon-manometer method. The manometric pressure varied as the fish changed its depth in the water and the locomotor activity was also recorded. Records of digestive and hunger activity were obtained from six fish.

During periods of fasting (72 to 479 hours) the stomach exhibited rhythmical contractions at an average rate of approximately one per minute. The contractions varied in intensity usually ranging from 50 to 70 mm. of bromoform. The active contractions were completed in twenty seconds and were separated by a period of quiescence lasting forty seconds. No tonal variations were recorded.

Food material remained in the stomach until the third to fifth day of fast. The rate and duration of the rhythmical contractions and the duration of the quiescent intervals were nearly identical during digestion and prolonged fasting. The intensity of the contractions was greater during digestion, the force often being equal to 100 to 160 mm. of bromoform.

The gastric activity during hunger and digestion was continuous, although in several cases during hunger the rate and amplitude of the contractions were diminished for two to three hours. These alterations in activity could not be correlated with any external influence, and may possibly be similar to the alterations or modified periodicity exhibited by the turtle.

The gastric motility exhibited during hunger or digestion was inhibited when small quantities of sea water or weak acid and alkali were introduced directly into the stomach.

The general characteristics of the gastric activity of the fish are similar in nature to those exhibited by the turtle and the bullfrog.