great differences in the rate of absorption of amino-acids from the intestinal tract; leucines, essential amino-acids, for example, were one-third as absorbable as glycine, a non-essential.

Summary. The injection of tryptophane (and methionine) 6 hours after the injection of an incomplete mixture of amino-acids lacking only tryptophane failed to induce positive nitrogen balance, whereas the injection of tryptophane (and methionine) simultaneously succeeded in doing so. It is inferred that retention of nitrogen is facilitated when all of a complete mixture of amino-acids is presented to the tissues at the same time.

10466 P

Inhibitory Effects of Adrenalin on Autonomic Function.

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Hoskins and Rawley[1] and Chu and Hsu[2] showed that adrenalin inhibits reflex sympathetic responses in the vascular system. The present study was undertaken to investigate the applicability of these observations to other autonomic reflexes.

In cats under urethane and chloralosane anesthesia the sympathetic nerve to the pupil and nictitating membrane of one eye was separated from the vagus and severed in the neck. Blood pressure and nictitating membranes were recorded by kymograph, and the 2 pupils and a galvanometer indicating the galvanic (sweating) reactions of the foot pads were photographed. Brachial plexus, sciatic and splanchnic nerves were freed, cut, and arranged for stimulation of their central ends. The autonomic responses of the respective pupils and nictitating membranes with and without sympathetic supply, the galvanic (sweating) reactions and blood pressure changes are compared (1) during secretion of adrenine, (2) under the influence of adrenalin perfusion, and (3) after adrenalectomy.

The kymographic and photographic records show that during infusion of adrenalin (1:100,000 to 1:250,000, 1-3 cc/min) sympathetic reflex responses decrease. This is evident from the decreased reflex responses of the normally innervated pupil and nictitating

1 Hoskins, R. G., and Rowley, W. N., *Am. J. Cliniol.*, 1915, **37**, 471.

2 Chu, L. W., and Hsu, F. Y., *Quart. J. Exp. Physiol.*, 1938, **27**, 307.

membrane and decreased sweating of the foot pads. The blood pressure is generally slightly elevated and the pressor response to afferent stimuli is reduced. The reflex (inhibitory) dilatation of the sympathectomized pupil is increased. The "damping" effects were generally reduced following ligation of both adrenals. They could be overcome by small injections of metrazol which, according to our previous investigations,[3] greatly accentuates sympathetic responses. In like manner hyperreflexia induced by metrazol could be reduced by injecting adrenalin. The action of adrenin liberated under various conditions in the narcotized animal is similar to that of adrenalin perfusion.

10467 P

Control of "Nose-Picking" Form of Cannibalism in Young Closely Confined Quail Fed Raw Meat.*

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When young quail are kept crowded together, in considerable numbers, in very small brooder pens, they soon develop the "nose-picking" form of cannibalism. It may start at any age from about the second up to the sixth or seventh week. It seldom or never starts after the eighth week; or, if it has already started, it usually stops at about that time.

One or more birds (usually the larger and stronger ones) start pecking the upper bills of other birds (usually the smaller and weaker ones). The nostril is the point of injury. The wound is small and superficial at first but it is enlarged and deepened from the repeated picking by the offending bird or birds, until, within 2 or 3 days, it is quite serious. This weeping and bleeding wound invites further injury. The bill at this point may be cut half through. The victim is in pain, droops around, eats and drinks very little and becomes weak. The weaker he grows the more the other birds attack him. Usually he is soon trampled and smothered to death by the other stronger birds. Within a few days a large percent of all the birds in

[3] Gellhorn, E., and Darrow, C. W., in press.

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