

13 (830)

The effects of protein starvation and feeding on the amino-acid content of the tissues.By **DONALD D. VAN SLYKE** and **GUSTAVE M. MEYER.**

[*From the Laboratories of the Rockefeller Institute for Medical Research.*]

Starvation for periods up to twelve days does not reduce the amino-acid content of the tissues of dogs, nor does high protein feeding (500 grams of beef daily added to the regular diet for 1 to 7 days) increase it. The results indicate that:

1. Nitrogen retained as the result of high protein feeding is not in the form of stored digestion products, but rather as body protein.

2. The free amino-acids of the tissues can originate not only from the food, but also from autolysing tissues, as the latter are the only apparent source from which the amino-acid supply can be maintained during starvation.

14 (831)

Hibernation and the pituitary body.By **HARVEY CUSHING** and **EMIL GOETSCH.**

[*From the Department of Surgery, Harvard Medical School, Boston, Mass.*]

A train of symptoms, coupled with retardation of tissue metabolism and with inactivity of the reproductive glands, not only accompanies experimental states of hypophysial deficiency but is equally characteristic of clinical states of hypopituitarism. The more notable of these symptoms are a lowering of body temperature, slowing of pulse and respiration, fall in blood pressure, and somnolence, together with a tendency, in the chronic cases, toward an unusual deposition of fat.

These symptoms are comparable to those accompanying the state of hibernation.

In a series of hibernating animals (woodchucks) it has been found that during the dormant period the pituitary gland not only diminishes in size but undergoes extreme histological alterations, chiefly evident in the cells of the pars anterior, which completely lose their characteristic differential reactions to acid and basic stains. At the end of the dormant period the gland enlarges and the cells regain their characteristic staining reactions.

On the basis of this observation hibernation may be ascribed to a period of physiological inactivity, possibly of the entire ductless gland series, but certainly more especially of the pituitary body, not only for the reason that the changes in this structure are particularly apparent but because deprivation of the secretion of this gland alone of the entire series produces a train of symptoms comparable to those of hibernation.

15 (832)

The pars anterior and its relation to the reproductive glands.

By **EMIL GOETSCH** and **HARVEY CUSHING**.

[From the Department of Surgery, Harvard Medical School, Boston, Mass.]

We wish to report briefly some of the results obtained thus far by the feeding of dried extract of bovine hypophysis to young rats of pure breed and known pedigree. The animals were taken as soon as weaned at the age of three or four weeks. In each instance the experiments were controlled by observations on other rats of the same litter, kept under similar conditions without glandular administration. A known weight of dried extract (.1-0.5 gm.) was given daily in a bread and milk pill, and over varying lengths of time, after which the animals were sacrificed and the reproductive glands examined. Both anterior and posterior lobe extracts were used and in several instances ovarian or corpus luteum extract was given in equal dosage to the control animals, to rule out the effect of administration of glandular extracts in general.

In a limited number of instances pairs of young rats of the same