and appeared pregnant on palpation, did not have a normal embryo, although there was an increased vascularity and size of one uterine horn. It seems, therefore, that the heifer might have been pregnant, but embryonic death occurred. A case of estrus without ovulation three days after breeding was observed in one yearling heifer of group III which was bred at three different estrous periods. She had a 14 mm follicle covered with a thick connective tissue-like material on the right ovary. This ovary also had a 16 mm yellowish-orange corpus luteum.

The average weight of the ovaries of the yearling heifers was heavier in groups I and II than in groups III and IV, due to the presence of the active corpus luteum (Table 6). The ovarian activity, as measured by the follicular index, indicated that the stimulus for follicular growth was approximately the same for all yearling heifers. There was, however, a large difference in size of the follicles present in the ovaries. Groups I and II had larger follicles, whereas groups III and IV had a larger number of small follicles as well as a large number of atretic follicles. The absence of a corpus luteum and the presence of only small follicles in the yearling heifers showing no estrus in groups III and IV confirmed data obtained by rectal palpation throughout the experiment.

The variations in weight and measurement of embryos among the two-year-old heifer groups did not follow any particular pattern (Table 6). The combined ovarian weight of the two-year-old heifers in groups II and III was slightly heavier than that of groups I and IV. In the two-year-old heifers there were no significant differences that could be attributed to the various dietary protein levels in the histology of the non-pregnant uterine horns, the various zones of the adrenal glands, and the ovaries. Likewise, the variation in number and size of follicles in the thyroid gland was not statistically significant among the four dietary groups.

Anterior Pituitary Assay.—The anterior pituitary assay for gonadotrophin activity showed no statistically significant differences in the weight of testes and combs of chicks injected with anterior pituitary material from either yearling or two-year-old heifers on the various levels of dietary protein (Table 7). However, the pituitary powder from the pregnant yearling heifers (groups I and II) gave heavier ($P<0.01$) chick comb weights than powder from the non-pregnant yearling heifers (groups