PRELIMINARY EXPERIMENTS ON EATING BEHAVIOR IN CHICKENS

The experiments described below are purely exploratory in nature, and are not to be regarded as final in any sense. They have, however, suggested some interesting possibilities for more extensive research.

Open Crop Experiment

The chicken used in this experiment had been on a daily feeding schedule of 80 grams (2 2/3 ounces) of pellet mash and 20 grams (2/3 ounces) of growing grain, fed once a day for 6 months. On the day of the experiment she was fed, at the usual time, 80 grams (2 2/3 ounces) of whole corn. Her crop was then slit at the bottom, and the corn was removed. She ate immediately the corn which fell from her crop; there seemed to be no pain or disturbance of any kind, and very little bleeding. When placed in a wire-bottomed cage with a large pan of corn, she ate about 60 grams (2 ounces), then slowed down and began merely to peck at it and throw it around. Howeven, when supplied with growing grain, she ate a full pound between 3:30 P.M. and dusk (7:00 P.M.), all of which, of course, dropped out of her crop and through the screen floor. The following morning, she consumed another 90 or 100 grams (3 to 4 ounces) between daylight (about 7:30 A.M.) and 8:30 A. M. She then stopped eating, but when presented with pellet mash, she ate 160 grams (5 1/3 ounces) during the course of the day. The chicken was killed at the conclusion of this experiment.

The implication is that the mechanism which leads a chicken to stop eating lies chiefly in the crop; if the crop fails to fill up, the chicken will continue to eat. Eventually, of course, the chicken will stop because of weakness or thirst (at least we know that in an intact animal a strong thirst drive will inhibit eating). There is some indication that some sort of extinction of the eating reflexes may take place--i. e., when the eating responses fail to be reinforced by later members of the chain of reflexes (filling of the stomach, passage of the food to the gizzard, etc.), the eating responses weaken. Here the eating responses connected with growing grain apparently weakened in some such fashion, but those concerned with eating mash had not yet been thoroughly extinguished; hence the chicken consumed some mash. This hypothesis, of course, must be considered tentative until it is tested on other chickens.

Weight of Crop Contents as a Variable in Food Consumption

A chicken weighing 3 7/8 pounds, which had had nothing to eat for 48 hours, was first testedffor strength of eating behavior by presenting pellet mash and corn, both of which she ate avidly (only a few grains of each were given). No. 4 lead shot was then poured into her crop 2 1/2 ounces at a time; after each dose, she was again tested on mash and corn. At each presentation, she ate both types of feed avidly; little, if any, slackening was noticed as her crop became heavier with shot. Later in the experiment it was noticed that corn was preferred to mash, and that this difference was accentuated as the experiment progressed. The injection of shot was