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ONTOGENY OF SOCIAL BEHAVIOR IN CHICKENS (GALLUS DOMESTICUS)

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ABSTRACT

Most behavior studies of chickens have been done with adult birds, so the present experiments were an investigation from the time the chicks were hatched until a social organization was formed in the flocks. Since androgen increases the relative aggressiveness in adult chickens, and estrogen tends to work in the opposite direction in adult hens, some effects of these hormones on the development of aggressive behavior of an individual and on the formation of a peck-order were observed.

A series of five experiments was conducted with baby chicks to study the development of social behavior. Two heterosexual flocks were used in the first series and each of the remaining series consisted of control birds, androgen or estrogen treated birds, and birds raised in isolation. Injections were begun when the chicks were 1-2 days old and continued past the age when a peck-order was formed. The birds raised in isolation were assembled simultaneously after they were past the age at which a peck-order had formed in the control flock.

Male chicks pecked 2-4 weeks earlier than females and heterosexual dominance was established by the males by the end of the fifth week of age. In normal unisexual flocks, males pecked when four weeks of age and females pecked when six weeks of age. The peck-order was formed in normal male flocks by the end of the eighth week, and in normal female flocks by the end of the tenth week. Androgen augmented the development of pecking, and the formation of a peck-order. Estrogen did not retard, nor definitely enhance, the development of pecking, and the formation of a peck-order.

Not all chicks were equally aggressive and the level of aggressiveness in individuals tended to remain constant. The position in the ontogenetic peck-order was an index of the relative aggressiveness of flock members.

There was no significant correlation between gross body weight and position in the ontogenetic peck-order, although the heaviest bird was dominant in four of six flocks so tested.

It was found that initial pecking was more dependent on maturation processes than on learning, and that the presence of androgen is not the only factor required to induce pecking.