

# **IMPRINTING**

(An Overview)

By Don Corrington

In the late 1800's Douglas Spalding while observing the behaviors of newly hatched chickens and turkeys postulated his theories of instinct vs. acquired knowledge. He also noticed the existence, in these hatchlings, of the quick recognition and attraction to, members of their own species or to surrogates.

Spalding's research focused mainly the relationship, and categorization of innate knowledge, rapidly learned knowledge and acquisition of knowledge. British born, he died of tuberculosis at the relative early age of 37 in France.

Austrian born Konrad Lorenz, along with his colleague Nikolaas Tinbergen, in the early 1900s studied geese and ducks. It was through these experiments they observed, that under certain conditions, newly hatched goslings and ducklings followed and socially bonded to the first moving object they encountered. They additionally noted that the bond seemed to be formed immediately, that it seemed to be irreversible and that it seemed to only develop during a brief "critical period" in the first day or so after hatching.

Lorenz employed the term "Imprinting" to describe the process by which the social bond was formed. In doing so he implied that during a gosling or duckling's first encounter with a moving object the image of the object is somehow stamped irreversibly on the nervous system.

Lorenz and Spalding, performed research largely by observation, and when experiments were executed, they were conducted in a natural setting. Lorenz's research sometimes resulted in unexpected long-term effects such as geese, which had been imprinted on baby buggies as goslings, later displayed a propensity for attempting to mate with baby buggies or similar objects.

More recently, research has been conducted in controlled laboratory experiments. Such experiments conducted by Eckhard Hess, Howard S Hoffman and others suggest that Imprinting may not actually be rapid nor irreversible. Instead their findings seem to propose that Imprinting occurs in many species, including man, and it is a much more flexible process than previously thought.

Today, it is hypothesized by some, that the imprinting stimuli provide a comforting feedback by the release of endorphins, thus fixing the association. Also it would appear that the critical period might result from the freedom of interference by the onset of the fear of novelty. Therefore, when there is no competition with fear responses, the environmental stimulus becomes a target for Imprinting.