

# Babies Recognize Early

The possibility of prenatal imprinting was demonstrated with chickens

► THE POPULAR belief that infants can recognize their mothers shortly after birth has gained some scientific support from a trio of Northern Illinois University researchers.

They recently completed an experiment in prenatal auditory imprinting which showed that young chickens could learn to identify and respond to sounds that they heard while still in the egg.

Conducting the study were Dr. J. Brown Grier, Dr. William M. Shearer, and graduate student S. Allen Counter.

They believe they are the first to demonstrate experimentally the effect of prenatal auditory stimulation on postnatal behavior.

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## PERSONALS

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In the experiment, two groups of ordinary White Rock eggs were incubated and the experimental group received a continuous auditory signal (resembling a "beep-beep" sound) from the twelfth to the seventeenth day of incubation. The second or control group was exposed only to normal incubator noises.

Immediately after breaking free of the shell on the twenty-first day, the young chicks were placed in the center of a circular table which had two speakers emitting the sound was measured by concentric circles painted on the table.

Chicks in the group which had been exposed to the "beep-beep" sound went to the source of the sound. Those in the control group showed no preference for any sound and responded equally well to all noises.

Dr. Grier observed that conclusions drawn from the study offer some support for the notion a human infant can recognize his mother shortly after birth.

"Certainly the voice heard most frequently by the prenatal infant is that of his own mother and he might become acquainted with the characteristics of her speech patterns, and recognized these after birth.

He pointed out that the phenomenon of imprinting has been known for over 60 years but it is only recently that auditory aspects of the process have received attention.

Naturalistic observation of wood ducks has indicated that certain species are able to recognize the call of the mother and respond to it even though she left the nest before the eggs hatched.

"A possible mechanism," Dr. Grier said, "is the typical cluck-clucking sound made by the brood mother during the later stages of nesting."

Shearer, whose speciality is clinical audiology, commented that the usual explanation offered to account for a newly-hatched chick following the mother hen is that it is attracted by her movement.

To check this idea, one of the sound-emitting horns was attached to a toy chicken. Experimenters moved the toy along and found that when the sound was turned on, the chicks followed more readily.

Dr. Shearer commented: "A newborn bird or other animal has already learned a lot through listening that we never realized before. It is probably listening much earlier in life than previously believed.

"Researchers already have been able to make rough estimates of the child's

hearing ability before he's born—so we know there is an observable link from one to the other. It's still speculation as to whether a human infant is actually learning from his listening during the pre-natal stage."

PSYCHOLOGY

## Fire Freed Man From Dictatorial Clock

► THE DISCOVERY of fire freed man not only from the darkness, but also from a built-in dictatorial 24-hour clock, proposed an eminent psychologist.

Lower primates and some other animals are ruled by alternating 12-hour periods of activity and inactivity, said Dr. Curt P. Richter of the Johns Hopkins University Medical School in Baltimore.

But once man found fire, his clock became "submerged" and he gradually inherited a capacity to function more evenly for longer periods of time, said the psychologist.

Dr. Richter told the autumn meeting of the National Academy of Sciences that he believes this emancipation to be a fundamental element in mankind's advances over other animals.

From years of research, Dr. Richter has found that the clock will reappear in humans only under abnormal conditions—mental illness, head trauma, severe shock, high fever and stress from constant light.

The clock affects not only activity, but changes in mood and behavior as well, said Dr. Richter. A manic-depressive patient, for instance, will often be manic for 12 hours, then shift sharply into depression, he said. Schizophrenics may show severe pathology for 12 hours, followed by a slight letup for the next 12.

Dr. Richter believes the 24-hour cycle is based in a group of brain cells in the hypothalamus. Through evolution, these cells have developed an inborn rhythm of their own and are now independent of everything on the outside, including light and darkness. Animals blinded from birth still possess an extraordinarily accurate clock even though they cannot see light, he said.

Dr. Richter's theory is that in man, the cells became desynchronized and only regain their rhythm as a result of some kind of shock.

That the clock is based in the hypothalamus is borne out by animals experiments, he said. Lesions in that part of the brain will destroy the cycle.

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