

varying the environment after separation, Suomi has found that some depressed animals show signs of rehabilitation. Very active and playful peers are sometimes able to pull the disturbed animals out of their depression.

What seems to be a fairly complete model for one form of abnormal behavior should offer some helpful hints for studies of human behavior. Why else study monkeys? But Harlow has always been cautious about making the obvious human analogies. Suomi, likewise, cautions that monkeys are not furry little people with tails.

Robert A. Hinde of Cambridge University is even more emphatic on this point. Superficial comparisons between animals and humans, he warns, may be false and misleading. Biology can make use of the similarities between animals

and humans, but behavior has multiple influences. Adaptation and constant variation, Hinde says, casts doubt that psychology can use animal models.

With some of his own animal experiments on mother-infant separation, Hinde has shown just how misleading behavior can be. In one set of experiments monkey mothers were taken out of the home cage while the infants were left with the other monkeys in the group. The aim was to separate the mothers and infants without adding to the shock by placing the infants in a strange new environment. In another set of experiments the mothers were left in the home cage and the infants were temporarily removed.

Hinde expected that the infants who had suffered the separation and the new environment would have had the more

traumatic experience. They should have shown more signs of distress than the other monkeys. But this was not the case. The infants who stayed at home while their mothers were removed were the ones that seemed most disturbed when their mothers were returned to the cage. This is the opposite of what is seen in human reactions. Children who are sent away to a strange place are more distressed than those whose mothers leave them at home.

Closer examination of the monkey separation showed that the original observations were incomplete and did not represent the real situation. It was maternal behavior, not the separation, that was responsible for the infant behavior. When the infants were taken away and then returned, the mothers would spend a lot of time caring for and comfort-

## Speaking of ethology

The word ethology was used in the 19th century by John Stuart Mill and others to refer to the study of human character. In the 20th century, Konrad Lorenz used the word to describe his naturalistic studies of animal behavior. But Lorenz came full circle and brought ethology back to human behavior. From intriguing studies of geese and ducks, Lorenz moved on to pessimistic pronouncements about the inability of humans to control their aggressive tendencies. Lorenz feels that aggression is inborn rather than learned and that because of this instinct the human race may eventually destroy itself. A spirited debate followed Lorenz' publication of this thesis. Environmentalists argued that aggression and all human behavior is learned and can be unlearned. The cloud of dust raised by this controversy has tended to obscure much of what the ethologists have had to say on subjects other than aggression.

Irenäus Eibl-Eibesfeldt, a colleague of Lorenz at the Max Planck Institute for Behavioral Physiology in Germany, agrees that too much attention has been paid to aggression. He does, however, insist that humans have inborn motor patterns and innate releasing mechanisms that enable them to act without the need of conditioning.

Releasing mechanisms, for instance, evolved as stimulators to release survival behaviors in certain species. A red spot releases pecking behavior in young herring gulls. The adult gulls have such a red spot on their beaks. Young gulls see this and instinctively peck at it, getting the adults to open their beaks and feed them. Primates have releasing mechanisms for sexual behavior. Females of certain species have brightly colored rear ends that they present, when they are in heat, to the males. This, along with certain odors, releases sexual behavior in the males. As humans evolved and began to walk upright, the female genital area was no longer visible from the rear. Releasing mechanisms developed in the front of the woman's body—red lips and protruding breasts.

Animal and cross-cultural human comparisons have helped ethologists understand releasing mechanisms and determine which behaviors are genetically pre-programmed. But advocates of the environmental view continue to argue that the human brain is a

blank slate to be written on or programmed only by what is learned after birth. Eibl-Eibesfeldt challenges this view with his studies of children who are born deaf and blind. They can never see another person laugh, cry, smile or display anger but they still are able to display these basically normal facial expressions. "It could be argued," Eibl-Eibesfeldt says, "that they informed themselves of others' expressions and gestures with their sense of touch." But he had the opportunity to study deaf- and blind-born thalidomide children who had not even the opportunity to explore their environment with the help of touch. They too, he reports, manifest normal facial expressions. This, he says, strongly indicates that these expressions are part of an innate human behavior repertoire with which human babies are born.

There are many inborn behaviors, says Eibl-Eibesfeldt, and the job of ethology is to understand the laws governing them and "to determine the extent of phylogenetic preprogramming. . . . Environmentalistic philosophies, in lack of basic biological knowledge and partly blinded ideologically, have failed to take these facts into consideration." This, the ethologist concludes, leads to the imposition of frustrating programs on people and to "dangerous totalitarian consequences as far as the strategies of education are concerned."



*Eibl-Eibesfeldt stresses the human biological heritage.*