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*Harlow and friend: Exploring the learned and instinctive aspects of affection.*

COMPARATIVE PSYCHOLOGY

# Monkeys as therapists

## Psychologists now turn to correcting the pathological behavior induced by isolation

by James Moriarty

In the 1950's Dr. Harry Harlow of the University of Wisconsin Primate Laboratory performed a series of now-classic experiments with monkeys raised with artificial or surrogate mothers. He wanted to demonstrate that the search for affection is an unlearned behavior, independent of the fact that the mother supplies food and drink. The experiment did show it: Rhesus monkey infants isolated from their mothers and exposed to mother substitutes made of both cloth and wire preferred to cling to the cloth substitute which was much more like a real monkey. The preference was there even when food and drink were supplied by the wire mother.

Dr. Harlow has since turned his attention to the effects of complete isolation on monkeys and efforts to correct the pathological behavior isolation induces. And he has used the surrogate-raised monkeys in these experiments with good results.

He has found that six months of social isolation results in seemingly permanent abnormal social, sexual and maternal behaviors in monkeys. Many socially isolated monkeys display abnormal aggression.

**His early attempts** at rehabilitation of isolates, using peers or conditioning techniques, were unsuccessful.

When six-month-old social isolates had the opportunity to interact with

socially normal monkeys of the same age they spent the majority of their time hugging themselves, huddling and rocking, usually in a corner of the test area. The age-mates typically reacted in an aggressive manner, behavior not likely to elicit positive responses from isolates.

Nor were conditioning techniques, either reinforcing positive behaviors or punishing undesirable behaviors, any more successful in rehabilitation. The slight changes that occurred did not generalize beyond the experimental situation.

Observation of the isolates and their own offspring following artificial insemination, however, suggested a new therapeutic approach to the pathology of isolate monkeys. The determination of the infants not to be separated from their isolate mothers, no matter how extreme the rejection, had a therapeutic effect on the isolates that Dr. Harlow had been unable to achieve with age-mates or conditioning.

"The infants struggled endlessly, regardless of punishment and abuse, to contact the mothers physically," he found. "From the fourth month onward the motherless mothers gradually gave up the struggle against their babies."

The infants' continuous approach toward the mother suggested to Dr. Harlow that perhaps young would be more

appropriate as therapists than age-peers. "We wanted therapists that would approach and cling to, rather than aggress against the isolates, and that would initially play at an elementary rather than sophisticated level while showing no abnormal behavior themselves," says Dr. Harlow.

**Dr. Harlow selected** four three-month-old female therapists. They had been reared with surrogates and peers who had also been raised with surrogates; when put together with the older isolates, they sought them out, instead of attacking them, as the normally raised monkeys had.

The initial response of the six-month-old isolates was one of withdrawal. But within two weeks the isolates responded to the approaches and clinging behavior of the younger monkeys. Eventually the older isolates were reciprocating and imitating the elementary play patterns of the therapists. Although they occasionally lapsed into the self-clasping behaviors, the isolates ultimately became virtually indistinguishable from the therapists in exploratory, locomotive and play behavior. "At 11 months of age the isolates are exhibiting essentially normal monkey social behavior—a finding which exceeds even our highest expectations," says Dr. Harlow.

Dr. Harlow and his associates are currently carrying out follow-up studies on the rehabilitated monkeys to see if they maintain, or regress from, their newly gained social poise. They are also presenting the former isolates with strange-stimulus animals, that is, monkeys who were not originally therapists. "If the isolates are truly rehabilitated then they should maintain their social gains with strange-stimulus animals. This would indicate that newly gained behavior from the experimental situation has been generalized," says Steve Suomi, one of Dr. Harlow's researchers. The current work involves 4 isolates and 12 strange-stimulus animals. The isolates are also being placed in new physical environments to see if they maintain their exploratory behavior beyond the 12 original experimental surroundings.

"Right now the results look good," says Suomi. "We still have another month of testing and need to analyze the data gathered, but we are very encouraged by the results so far with the strange-stimulus animals."

**A further criterion** for successful rehabilitation is the sexual behavior of the monkeys. In the past no male isolate has been able to reproduce sexually. It will be another three years before the former isolates reach sexual maturity. "The animals are presently displaying sexual posturing that is appropriate for their age," says Suomi, "but it will be awhile before we can report results with confidence." □