Responses of Mother Squirrel Monkeys to Dead Infants*

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ABSTRACT. The responses of mother squirrel monkeys to infants were examined by testing the mothers with bodies of their own and other infants. Mothers whose infants were stillborn or died at one day of age showed strong and equivalent maternal responses to all the bodies with which they were presented, while those whose infants died after two weeks of age responded mainly to the body of their own infant. These results suggest that the female squirrel monkey becomes more selective in responding to the body of a dead infant with the passage of time after parturition. The female's post-parturient condition appears to be the prime cause for changes in her responsiveness, although other factors related to the infant's growth and development might also be important.

One of the most dramatic aspects of maternal behavior in nonhuman primates is their persistent carrying of a dead infant, lasting in some cases until the body has started to decay. Although mothers in most species probably behave in this way, it has been reported only for a few species. These reports are based primarily on incidental field observations (Jay, 1963; Rahaman & Parthasarathy, 1969; Schaller, 1963; van Lawick-Goodall, 1971), but such behavior has also been observed in the laboratory (Bowden, Winter, & Ploog, 1967; Rumbaugh, 1965). In light of the apparent generality of this powerful maternal response, it is surprising that studies have not been conducted to determine what factors influence it. For example, a female's responsiveness may depend on her hormonal condition and her maternal experience as well as on the infant's health and behavior before its death.

During the past three years, we have been examining the responsiveness of female squirrel monkeys (Saimiri sciureus) whose infants have died. We were initially interested in whether a female would respond to a dead body that was not her own infant's, and if so, what were the relevant cues that influenced her behavior. Since, in the wild, dead infants are continuously present for mothers to respond to, we were also interested in how continuous exposure to dead infants might affect the mother's responsiveness. Along these lines, Rumbaugh (1965) reported a case in which a mother squirrel monkey continued to respond to her stillborn infant for more than six weeks while the infant remained in the same cage as the mother and three other monkeys.

The results of our tests on five females answered some of our questions, and suggested that a female's post-parturient condition affects her responsiveness. These

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females included two whose infants died at six weeks of age, one whose infant died at one week of age, one who had a full-term stillbirth, and one who aborted approximately two months prematurely. Each had had at least one live birth previously. All the females were tested with the carcasses of their own and other infants shortly after their own infant died, and thereafter at weekly intervals until they failed to respond to any of the stimuli. The dead bodies were kept frozen between sessions and were thawed to room temperature for each test.

Typical responses observed during the test sessions included: (1) guttural vocalization, which, under normal circumstances, generally accompanies attempts to retrieve the infant; (2) approaches to and/or examination of the body; (3) retrieval postures (KAPLAN, 1972; ROSENBLUM, 1968); and (4) attempts to lift and carry the body. The female whose infant died at one week of age was the most persistent of the five females, responding to the dead bodies presented to her during three consecutive weekly tests. Furthermore, both she and the female who had a stillbirth, responded to other carcasses in about the same manner and to the same extent as they did to their own infants'. The females whose infants died at six weeks of age responded only to their own infants, and then only for one week after their death; the female that aborted prematurely showed no interest at all in any of the carcasses. These results show that, under some conditions, females do not restrict their responses to their own infants and may continue to respond to dead infants presented to them intermittently. Moreover, they suggest that the female’s behavior is influenced by factor(s) associated with the age at which her infant dies, e.g., her hormonal condition at that time.

These initial results were substantiated and extended in recent tests on ten additional females, whose infants’ deaths ranged from birth to seven weeks of age. The females were tested at weekly intervals with bodies of their own infants, a stillborn, and a six-week-old infant that was preserved by taxidermy. The four mothers whose infants were stillborn (two cases) or died at one day of age (two cases) responded strongly and in about the same manner to the three types of carcasses. In each case, the four typical responses described above were evident in tests conducted within 24 hours after the infant’s death. However, the degree of responsiveness in subsequent tests and the rate at which responses diminished over time (ranging from two to six weeks before responses were completely eliminated) varied for these four different females. Mothers whose infants died after two weeks of age (six cases) were less responsive to the stillborn body, e.g., fewer attempts were made to retrieve, lift, and carry the body. In many cases, only vocalizations and approaches were observed, while the response of these mothers toward their own infants remained quite strong. The responses of these six females to the preserved body varied, but generally were greater for those whose infants were older than four weeks at the time of death (four cases). This suggests that the mothers of these older infants may have been responding on the basis of the size of the preserved carcass, which was similar to their own infants' at the time of their deaths.

Our results to date indicate that the response of the female squirrel monkey to a dead infant depends partly on the age at which her own infant dies. Her behavior appears to become more selective with the passage of time after parturition. It remains to be determined whether this is actually related to changes in the female’s