
Are Rhesus Macaques Really so Aggressive?

By Viktor Reinhardt

There is a wide-spread belief that adult rhesus macaques are particularly aggressive animals (Vandenbergh, 1966; Southwick, 1967; Lindburg, 1971; Fairbanks et al., 1978; Teas et al., 1982; Thierry, 1985). They are supposedly not only belligerent toward humans and dangerous to handle, but also vicious toward other conspecifics and hence difficult to introduce to members of their own kind (Wickings and Nieschlag, 1980; Kessler et al., 1985; Line, 1987; Line et al., 1990; Reinhardt, 1991a). This notion is reflected in the conventional housing and handling of adult rhesus macaques assigned to research protocols -the animals are most often kept singly and handling procedures usually involve forceful restraint (Bayne, 1989). Both circumstances are unsatisfactory for the following reasons:

1. Continual single-housing of any social animal, including rhesus macaques, raises ethical and scientific concerns because it ignores the subject's species-typical need for social contact and interaction.
2. Enforced restraint of any animal, including rhesus macaques, is a distressing experience which should be avoided for obvious ethical reasons. It should also be avoided for scientific reasons, since distress is likely to affect the subject's physiology and emotional state.

Are there alternatives to single-caging and stressful handling for adult rhesus macaques which can guarantee the safety of both the animals and the personnel?

The rhesus' bad reputation is based on a belief with little verifiable evidence. It is true that adults, especially males, can inflict serious wounds with their razor-sharp dagger-like canines. It is also true that they can be extremely aggressive when introduced to strange conspecifics. This, however, does not prove that the animals are particularly aggressive by nature. After having studied the behavior of several animal species for many years, the author has come to the conviction that captive animals are not particularly aggressive; management-related circumstances, however, can make them aggressive. Such provoked aggression is defensive rather than offensive, and unskillful management and/or human behavior is responsible for it. Staring at a caged rhesus monkey, for example, is unskillful; the gesture acts as a threat, and the 'cornered' animal has little choice but to react in a defensively aggressive way. The author's experience with captive animals and commitment to their well-being inspired him from 1986 on to gradually develop the following alternative management practices for caged rhesus macaques, allowing for social housing and low-stress handling.



In-homecage venipuncture of 10-year-old Owen, who avoids the stress of immobilization by cooperating. It takes less than one hour of training to ensure the cooperation of adult rhesus macaques during in-homecage venipuncture (Reinhardt, 1991b).

HANDLING

Venipuncture is the most common handling procedure research rhesus macaques are subjected to. The procedure involves manual or mechanical restraint which is usually feared and resisted by the animals. Using the animals' intelligence, the author developed a training technique - based on positive reinforcement, patience and gentle firmness - which ensures the subjects' cooperation during venipuncture in their home cages (Vertein and Reinhardt, 1989; Reinhardt, 1991b). Eighteen adult males and 17 adult females have been trained. Neither the trainer nor the animals received any injuries during the training.

Working with non-resisting experimental macaques in their familiar environment not only increases the scientific value of the research conducted by eliminating undue stress reactions (Reinhardt et al., 1990; Reinhardt et al., 1991), but also increases the safety of the personnel. Not being forcefully subdued, the animals are no longer unpredictable and ready to defend themselves by biting and scratching (Illustration 1).

COMPATIBLE JUVENILE COMPANIONSHIP

In the course of ethological studies of breeding troops, the author has regularly witnessed adult rhesus macaques of both sexes being extremely tolerant toward infants, even during competition for food. It was also repeatedly observed that not only adult females but also adult males temporarily carried and cradled infants to whom they were not related (Illustration 2). These observations prompted the conclusion that adult rhesus macaques are usually inhibited from serious aggression towards infants, but rather show protective behavior toward them.

This inference proved to be correct. Previously singly-caged adults of both sexes were transferred to social pair-housing by introducing naturally weaned 12-18 months old infants from Wisconsin Regional Primate Research Center's breeding colony (Reinhardt et al., 1987). The young animals effectively inhibited overt aggression in the adult partners, who cared for them

as if they were their own kin. Of more than 150 pairs tested, adults showed injuring aggression towards their companions in only two cases. Presently there are 110 adult-infant pairs at the Center (Reinhardt, 1991c); many of them were formed four years ago and have consistently remained compatible.

COMPATIBLE ADULT COMPANIONSHIP

By nature, rhesus macaques live in relatively exclusive groups, showing intense aggressive reactions towards unfamiliar conspecifics (Southwick et al., 1974). Familiar group members relate to each other in accordance with dominance-subordination relationships which serve as basic social structures essential for harmonious group life (Kaufman, 1967; Vandenbergh, 1967).

The author hypothesized that previously singly-caged adult rhesus macaques should get along with each other in pairs, if both partners were familiar with each other and had a dominance-subordination relationship established prior to pair formation. Accordingly, singly-caged adults of both sexes were paired with same-sexed partners after rank relationships had been established during a period of non-contact familiarization (Reinhardt, 1989). More than 350 pairs were tested in this way.

Aggressive disputes were negligible, probably because there was no need to physically reinforce already established rank relationships (Reinhardt, 1989). Rather than fighting over dominance, companions usually engaged in affiliative grooming and/or huddling soon after they were introduced to one another. Partners got involved in serious (but not life-threatening) aggression in only 3 pairs. Presently there are 108 adult female pairs and 29 adult male pairs at the WRPRC (Reinhardt, 1991c). Many of them were formed three years ago and have proven compatible throughout this time.

Thanks to their companions, the formerly singly-caged adults spend approximately 23% of their time actively expressing their social needs in species-typical ways (Reinhardt, 1990). Compatible companionship has made them truly social animals, and hence more valid research models.

Several years of experience with pair housing of previously singly-caged adult rhesus macaques and venipuncture in the home cage of cooperative, non-resisting animals lead the author to conclude that rhesus macaques are not as aggressive as commonly believed. The species' reputation for being conspicuously aggressive is evidently no reason for not transferring singly-caged individuals to a species-appropriate social environment, and to handle research subjects in gentle ways.



Infant Jimmy seeks the protection of Jack, the oldest male (33 years) in the group. Jimmy and Jack are not related.

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