DISRUPTION OF SEXUAL BEHAVIOUR BY HIGH RANKING RHESUS MONKEYS (MACACA MULATTA)

by

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(With 4 Figures)
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Based upon his observations of free-ranging groups of rhesus monkeys at Cayo Santiago, Carpenter (1942b) reported that the number of females with which a male engages in sexual behaviour is dependent on the male’s rank. Carpenter further suggested that subdominant males may have to use “stealth” in order to gain access to females. This association between male rank and copulatory behaviour was supported by other field studies in the same colony (Conaway & Koford, 1964; Kaufmann, 1965) and by studies of wild monkeys in India (Lindburg, 1971).

However, when more rigorous observation procedures were used, it was seen that the correlation between male rank and copulatory behaviour was statistically non-significant (Loy, 1971). An explanation of the apparent relationship seen between these two variables in the earlier papers was offered by Drickamer (1974). He showed that when groups rather than individuals are observed, the frequency with which low ranking males engage in sexual behaviour is underestimated, since low-ranking males often conceal themselves from the observer’s view. Chapais (1983) has recently provided additional support for this conclusion.

This explanation does not suffice to explain similar results in captive groups, since all animals are equally visible. In captivity, whether there will be a strong correlation between male rank and sexual behaviour fre-
quency seems to depend on the size of living quarters. In a small enclosure, about 225 m², it has been found that even when all males are observed for the same length of time, dominant males engage in sexual behaviour far more often than low ranking males (Ruiz de Elvira et al., 1982). Inhibition of male-to-male sexual behaviour in the lowest ranking animal was also reported for an all-male group housed in a similar enclosure (Gordon et al., 1979). However, no correlation between male rank and sexual behaviour was found for a captive group of Japanese macaques living in an enclosure measuring more than 8,000 m² (Eaton, 1974) or a captive group of rhesus monkeys living in an enclosure measuring 2,000 m² (Stern & Smith, 1984).

Dominant rhesus (Carpenter, 1942a; Wilson, 1981; Chapais, 1983) or Japanese macaques (Hanby et al., 1971; Eaton, 1974) may disrupt the copulatory activity of lower ranking monkeys. It is possible, therefore that the diminished observability of sexual activity of low ranking males results from a tendency of subordinate animals to initiate copulation out of the view of dominant animals, thus avoiding interference during mating. Similarly, the low frequency of sexual behaviour of subordinate males in small enclosures may reflect the lack of available hiding places.

The aim of the present study was to examine patterns of interference by dominant rhesus monkeys with the sexual behaviour of lower ranking group members in a situation in which a) the observer’s visibility of the monkeys and the monkeys’ visibility of each other were completely independent and b) the monkeys’ visibility of each other was limited.

Methods

A group of outdoor-living rhesus monkeys, made up of 10 males and 14 females (four of them ovariectomized (OVX)) was used in this study. This group was part of the colony living at the Field Station of the Yerkes Primate Center, located at Lawrenceville, GA (U.S.A.). The group was housed in a fenced-in outdoor facility consisting of two adjacent compounds, as described earlier (Ruiz de Elvira et al., 1982). Each compound was 15.25 × 15.25 m and had attached indoor quarters. The two compounds were separated by a 6 m high wall of sheet metal, but animals could pass freely from one compound to the other through a sliding door (1.2 × 0.6 m) that was kept open permanently. This doorway was at one end of the separating sheet metal wall, an arrangement which permitted most animals in one compound to be out of view of most animals in the other compound. An elevated observation post was placed so as to provide a clear view of all animals in both compounds (Fig. 1).

Observations were performed between March and December, from the tower overlooking both enclosures. For the purpose of a separate study, three of the OVX females were treated with estradiol-benzoate from April to August.

The group was observed 10 hours per week. On 3 days per week, all animals were observed simultaneously for a 2 hour period, and all occurrences of a selected group of social behaviours was noted. The remaining observation time consisted of focal samples of