Brief Report

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The World's First Surviving *Macaca sylvanus* Twins in a Semifree-Ranging Colony

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Key Words

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Dizygotic twins

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Introduction

Observations

'La Forêt des Singes' is a 14-ha visitor park that contains 175 Barbary macaques of mixed ages and sex. The animals are free-ranging but are provisioned with grains, monkey chow and apples. Barbary macaques are seasonal breeders and mating occurs from September through January [see Küster and Paul, 1984].

Females exhibit oestrous cycles that are characterized by swelling of the perineal area corresponding with ovulation. Breeding is strictly seasonal and infants are born in the spring (end of March-July). The birth of the twins occurred during a long-term study of male behaviour that was conducted from October 1985 through September 1987. Twin births seem to occur only occasionally in Old World monkeys [Geissmann, 1986, in press a].

The Mother

The twins' mother RB 11, La Lune, was 9 years old when the twins were born in Spring 1987. She is also colony-born. According to 'ad libitum' observations [Alt-mann, 1974] from the present study and the systematic work of M.F. Small, this female held alpha position among 42 adult females since Spring 1986. La Lune had given birth to one set of twins during the previous birth season (1986), but they died at 3 and 4 days of age (sex unknown). Although accurate records on birth data had not been compiled before behavioural studies began in the park, long term observations suggest that RB 11 has had at least two previous offspring [pers. observation and M.F. Small, pers. commun.].

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Fig. 1. Weight of male offspring 1986/1987 in September 1986/1987. Line shows linear regression, x = male twin, n = 18.

Fig. 2. Weight of female offspring 1986/1987 in September 1986/1987. Line shows linear regression, x = female twin, n = 18.

[illegible]

Age, days

Conception

Female RB 11 conceived during her first oestrous cycle of the season. This cycle occurred in late October 1986.

Weight of the Twins Compared to the

Weight of Single Offspring 1986/87

The animals are weighed once yearly in

September during the annual vaccination. At

this point the twins were approximately 5

months old. The male of the twins, Harold,

was lighter (1.1 kg) than the lightest of the single male babies (1.3 kg). In contrast, the female of the twins, Maude, weighed 1.6 kg, which is about the expected weight at her age (fig. 1,2).

Maternal Care

In contrast to observations of some other catarrhine primate twins [Geissmann, in press b], the mother did not appear to have problems carrying both infants simulta-

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Fig. 3. La Lune with her twins Harold and Maude after 3 weeks (a, b) and 3 months (c, d).

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Table I. Recorded cases of Barb macaques twins in ary				
Place	Date	Sex	Notes	Reference
Gibraltar	between 1950 and	??	stillbirth	Burton and Sawchuk,
Gibraltar	June 22/24, 1974	f/f	stillbirth	Burton and de Pelham,
Salem	April 21, 1978	m/f	m died on April 1978, f survived	Paul and Thommen, 1984a, b and A. Paul,
Salem	March 31, 1979	m/?	both died on April 2, 1979	Paul and Thommen, 1984a, b and A. Paul,
Salem	February 1984	m/m	stillbirth	A. Paul, pers. commun.
Rocamadour	April 1986	??	stillbirth	L. Ambiehl, pers.
Rocamadour	April 13, 1986	??	died on April 15 and 16, 1986,	pers. observation
Rocamadour	April 5, 1987	m/f	both survived	present report

neously. During their first 3 weeks of life, both were carried ventrally, often supported with the hand. This pattern was also observed for females with 1 infant. After about 1 month, the larger and therefore stronger female Maude was usually riding on her mother's back, whereas the male Harold was still carried ventrally. Various combinations (one dorsal; one ventral; both dorsal) appeared as the infants' motor coordination improved with time (fig. 3).

Male Care

Male Barbary macaques are known for their extensive degree of parental care [Taub, 1978]. In comparison to the 24 other infants born during the 1987 birth season, the twins were preferred by

males. In 234 triadic interactions that involved two males and one infant [recorded by the 'ad libitum'-method; Altmann, 1974], 162 included one of the twins (69.2%). 85 involved Harold, the male twin, and 66 involved Maude, the female twin. In the remaining 11 cases, a twin was involved but it was not possible to identify which twin. The preference for Harold over Maude is not statistically significant ($\chi^2 = 2.59$; $p > 0.1$).

Discussion

A number of previous twin births have been recorded for Barbary macaques (table I). The pair described here is unusual, however, because they both survived the neonatal period and were reported still alive at 11 months of age. It is likely that the success of these twins is attributable to the fact that their mother holds alpha rank. She therefore has access to all resources, and her infants are preferred by males. Male care probably has an important positive effect on infant survival, and infants of high-ranking mothers are usually preferred partners [Merz, pers. commun.; Schaub, in preparation]. The survival of these twins suggests that twinning is a reasonable reproductive

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strategy for some cercopithecine primates. It appears that premature birth rather than maternal care is the limiting factor for survival of twins.

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