

D. Ploog. Early Communication Processes in Squirrel Monkeys, Brain and Early Behaviour

Q 50

R.J. Robinson, (ed.) Academic Press:
London & New York, 1969. p.269-300. p.277

The second point which I would like to emphasize is in contradiction to the common concept of early social communication. Especially in primate behaviour, the mother-infant dyad is considered to be the source and the beginning of social communication. My point of view is different. -- As mentioned earlier, the chained actions of the new born are object-related and object-directed. The mother, therefore, is not really a social partner but rather a composite of objects consisting of fur, nipples, angles, curvatures, and warmth, which can be clasped and clung to. As we see in the substitute-mother experiment, although most of the stimulus properties have been greatly altered, the animal still performs almost perfectly.



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London & NY 1969. p.269-300. p.286

Genital display as a social signal shows some features which may be important for all primates, including man. This complex social signal, which expresses self-assertion, is innate. The distributional pattern of the signal shows that the child is fully aware of the hierarchical structure of the group. The signal is used by the infant over and over again, virtually without consequences for either the sender or recipient. Despite this lack of reinforcement it persists up to a predetermined age - after which it is followed by severe consequences and the animal quickly learns the contexts in which it may or may not be used. This protracted maturation process, which coincides with other biological data such as second dentition and final weaning, seems to be characteristic of the social development of primates. It is

different from object-related learning processes.

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The first steps of weaning are taken. When the infant wants to suck, the mother forces it from her back. Both resort to screaming. Precisely at this time the infant begins to display towards the mother. This change of behaviour is associated with the acquisition of fur on the naked ventral side. From now on the prolonged and progressive weaning is one of the major factors which influence the maturation of the infant's social behaviour. In fact, weaning is a continuously increasing withdrawal of the main reward that the mother has to offer to the infant. By the time this process comes to an end, at 13 months, the relations between mother and child are indistinguishable from the relations between any adult female and other 13-month-old members of the group.



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London & NY 1969. p.269-300, p.297

The behavioural ontogeny and early communication processes in 15 infant squirrel monkeys raised in mixed groups were studied from birth to the third year. The complete development is divided into seven phases.

For the first week of life the mother appears to be merely a composite of objects for the child. During the first 2 weeks of life interactions between mother and child which resemble specific features of social behaviour, that is, partner-directed interactions, are rare. The mother fully gains partner status during the third and fourth weeks when the infant begins to dismount for short periods.

Tactile, acoustic and visual communication with group mates starts as early as the first day of life. Examples of early social signals are given. From

about 2 weeks onwards a strong social bond is established between the infant and a female group mate, the so-called aunt. Aunt-infant interactions show greater variation than mother-infant interactions

As the infant gains motor independence during its second month mother-infant visual communication increases and weaning starts. Most of the species-specific behaviour elements are already present. Between the fifth and ninth months new behaviour patterns develop and others change in frequency and in the context of their occurrence.

The behaviour, based on innate elements, is developed further through learning during stage-specific interaction with group mates. Prolonged and progressive weaning until the beginning of the second year, social play, and various forms of rejective and suppressive behaviour shape the mode of social communication.

From brain stimulation experiments on adult squirrel monkeys and from neuroanatomical data on

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brain maturation it can be inferred that brain structures important for complex communication processes are already fulfilling their function at birth. Specific characteristics of early social communication in primates are discussed.

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