



Book Review

Macchiavellian Intelligence: How Rhesus Macaques and Humans Have Conquered the World. Edited by DARIO MAESTRIPIERI. Chicago: University of Chicago Press (2007), Pp. 198. Price \$25.00.

Over three decades ago, Humphrey (1976) formulated a new explanation for the cognitive complexity seen in human and nonhuman primates: we inhabit rich and complicated social worlds that demand substantial intelligence. This intelligence is needed to manage social relationships with members of the groups to which we belong. At one point in his seminal chapter, Humphrey discussed Defoe's *Robinson Crusoe* as particularly illustrative of this idea: Crusoe faced many difficult technological problems in staying alive on the deserted island, but by far his most difficult problem solving task arose when Friday came into the social picture.

Humphrey's ideas about the 'social function of intellect' evolved into today's 'Machiavellian intelligence hypothesis' (e.g. Byrne & Whiten 1988). Simply put, to be successful in a social group, one needs to interact and maintain relationships effectively with group members, and doing this well requires sophisticated cognitive abilities. Most of the work to test this hypothesis has involved great apes, and broader comparative work has been needed. One researcher who has provided much of this comparative work is Dario Maestripieri, testing many of the ideas that stem from the Machiavellian intelligence hypothesis with rhesus macaques, *Macaca mulatta*. His new, cleverly titled book, reviews much of this work, and I highly recommend it.

After two brief introductory chapters that raise the key issues of the book and provide an overview of macaques, the book comprises seven main chapters. In 'Nepotism and Politics', Maestripieri nicely contrasts these two terms in macaque life. The social structure of macaque groups is largely based on matrilineal lines, so relatedness plays an enormous role in how individuals interact with one another. On the other hand, individual macaques frequently have to interact with unrelated individuals, so politics becomes crucial: one needs to be deft at managing the behaviour of others. Some of the key behavioural means by which relationships are managed involve social grooming and the establishment and maintenance of dominance hierarchies. The latter point is developed in the next chapter, 'Aggression and Dominance'. Here, Maestripieri raises the point that aggressive behaviour in macaques is often hard to predict, and, after the fact, to explain, except perhaps in that macaques need to behave aggressively to obtain 'social power' in their groups. The chapter discusses how matrilineal relationships underlie

dominance hierarchies, how alliances can affect social structure, and the nature of life in a macaque group for a 'high'-ranking individual compared to a 'low'-ranking one. The next chapter, 'Wars and Revolutions', takes the aggression question to a different level, describing situations in which dominant matrilineal lines are overthrown within groups and the kinds of aggressive interactions that occur when two macaque groups come together.

The chapter 'Sex and Business' describes sex in macaque groups from the different standpoints of sex for reproduction and as a political behaviour. Politically, females appear to engage in sexual behaviour with males to gain protection (often from males) for themselves and for their offspring. The next chapter, 'Parental Investment', describes the stressors that face females when they have successfully reproduced and are now raising offspring. Maestripieri couches the chapter in the framework of the parental investment theory of Trivers, and the discussion touches on a number of behavioural developmental questions, as well as on infant adoption and kidnapping. 'The Business of Communicating' describes the key signals of macaques and how these function to manage the behaviour of group members. Maestripieri focuses on visual signals, primarily facial expressions, but also describes some of the vocal signals of the species, explaining the contexts in which the signals are used and the effects of these signals on other macaques. The final chapter, 'Macchiavellian Origins of Love and Compassion', wraps up several ideas raised throughout the book, detailing the importance of sex differences in social structure, how nepotism often drives despotism, and the differences in social structure and social interactions between despotic and egalitarian groups. This final chapter also suggests the role of social intelligence in explaining why macaques are one of the more successful primate species in the world.

Despite my favourable view of this book, I found some aspects troubling. Most of the photos (23 black-and-white figures and seven colour plates) range from good to excellent at illustrating macaque behaviour, but almost all would have benefited from more direct referencing in the text. I found the discussion of representational and nonrepresentational communication to be confusing at times. Another issue concerns anthropomorphism. Maestripieri frequently takes pains to describe the difficulties of attributing conscious strategizing and representation-based decision making to macaque behaviour, and he often offers simpler cognitive interpretations. On the other hand, he too often falls back on language that relies on the very rich interpretation of data that he elsewhere cautions against. Examples include references to macaques having first thoughts about sex (page 86), keeping mental files on which individuals are afraid of which

individuals (page 56), knowing that a daughter was 'out of her mind' for behaving a certain way (page 57) and having low self confidence (page 145).

Macchiavellian Intelligence is written in a lively and frequently conversational way (which may partly explain the criticism of 'rich interpretation of language' just raised). Maestriperi commonly makes direct and helpful comparisons between human and macaque behaviour and social groups, and often uses his own behaviour, experiences and thoughts to illustrate points. The book is also wonderfully concise. At less than 200 pages, and being reasonably priced, it could be an accessible and effective teaching tool in a number of undergraduate courses, and perhaps some specialized high school courses. As a supplementary reading to a primary textbook, this book raises important ideas and examples that could greatly facilitate students' understanding of fundamental topics in animal behaviour such as sex differences in behaviour, parental care, communication, aggression and agonistic behaviour, and social facilitation and learning of behaviour. Thus, the book may potentially be useful

in courses on evolutionary psychology, animal behaviour, comparative psychology, behavioural ecology and social psychology. Not least, *Macchiavellian Intelligence* stands as an important introduction to the behaviour and social intelligence of this interesting species.

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References

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