deal in complex social relationships and yet who, except the author and her co-workers, can find it easy to follow a text studded with names which need constant back-reference to determine age, social rank and sometimes even sex? Such diversions are distracting but it is merely the presentation which is at fault — the philosophy of looking at individuals in detail is sound. No proper understanding of primate social behaviour and its evolution will be developed unless we have robust information on individual differences: on this count the book makes an important contribution. Although the sample of 18 infants may sound small it is in fact large by field (and even some laboratory) standards.

One of the major challenges of primatology is to see through the tangle of individual differences to reveal valid generalizations and thereby derive an understanding of the basic principles governing individual behaviour. As students of human personality will no doubt point out, this is not a straightforward task. Altmann searches for such generalizations wherever her sample size permits, and finds, for example, some interesting relationships between a mother's rank and her interaction with her infant and other group members. As would have been expected, low-ranking mothers gave more distress responses (submissive behaviour patterns) during social interactions and their infants were particularly prone to being interfered with by other members of the group. Mothers of different social rank also tended to show different styles of mothering: high rankers tended to be *'laissez-faire'* mothers (mothers tolerating separation from their infants); low rankers tended to be 'restrictive' mothers (mothers maintaining close contact with their infants). These differences in mothering appear to have consequences for infant maturation — infants of *laissez-faire* mothers became independent more rapidly. However it is much easier to describe such behavioural differences than to assess the costs and benefits (in terms of genetic fitness) with which the individual differences in behaviour are associated. The author recognizes this when considering the costs and benefits of mothering styles. Both forms have advantages and disadvantages but it is concluded that the styles adopted by mothers of different rank are adaptive because of the contrasting social pressures to which they are subjected by other group members. Arguments like this can only be speculative; they will become more convincing when larger samples of data are available.

Jeanne Altmann's 'Alto's Group' of baboons, resting and grooming in Amboseli National Park, Kenya.

The whole book is firmly based in modern evolutionary theory and those familiar with the parent–offspring conflict models of R. Trivers will find considerable interest in Altmann's analysis of weaning and independence. It has been proposed that the behavioural conflict during weaning between a mother and her infant is a reflection of an underlying conflict of interest — the infant attempting to secure more maternal care than the mother has been selected to provide. With her extensive field data behind her, Altmann helps to shift this argument from a theoretical to a practical plane and concludes that "parent–offspring genetic conflict of interest may arise infrequently as a relevant variable in many real-life situations".

In conclusion this book offers much to all those interested in social behaviour. Its holistic approach is attractive since it clearly acknowledges the undeniable complexity of primate social relationships but it does, however, leave one anxious for the day when sample sizes will be larger and selection pressures better understood. □

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# Magnetic resonance for biochemists and biophysicists

Karl-Erik Falk

*ESR and NMR of Paramagnetic Species in Biological and Related Systems.* Edited by I. Bertini and R.S. Drago. Pp.434. (Reidel: 1980.) Dfl.95, $50.

THIS volume comprises the papers given at a NATO Advanced Study Institute meeting held in June 1979, the subject of which was the magnetic resonance of paramagnetic species of biological importance. Twenty-four expert authors have contributed chapters covering various aspects of this large and important area of research.

The first part of the book is devoted to NMR and to the effects of paramagnetism on the NMR parameters, with chapters on the basic theory of relaxation and pulse techniques, paramagnetic effects in NMR, and a number of short reviews of current research. The applications for obtaining structural and dynamic information on various paramagnetic biological systems, ranging from purified small proteins to cell suspensions, are also discussed. The section on ESR contains a thorough consideration of theoretical aspects, focused on the 3d metal ions, followed by a discussion of the various classes of metalloproteins and, especially, the role of the metal ions. Throughout the book emphasis is put on the coupling between the unpaired electron and the nucleus, and about half of the volume deals with the complex effects of this interaction.

As a whole, the book is well balanced. NMR and ESR are given equal prominence, with theoretical descriptions, educational examples and reviews of current research results. Several of the chapters contain useful tables concerning, for example, the interpretation and description of the abbreviations used in multipulse NMR, and the network of equations and assumptions that form the basis for understanding paramagnetic relaxation. The discussion of the various metalloproteins clearly reveals the importance and applicability of magnetic resonance techniques in unravelling the biological role of the metal ions.

The collected writings are generally interesting and well prepared, although there is some duplication of material, perhaps inevitable in a multiauthor publication. Overall, then, a good book which will be of value to biochemists and biophysicists with an interest in the biological application of magnetic resonance. □

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