

## Book Reviews

### Sociobiology and Conflict. Evolutionary perspectives on competition, cooperation, violence and warfare.

Edited by J. van der Dennen and V. Falger

Published by Chapman and Hall, London

338 pages

This book comprises 14 essays that explore the potential significance of sociobiological theorising to an understanding of human aggressive behaviour, 'in the hope that we might better understand and come to terms with the problems of human conflict' (p. 14). The thesis advanced by the majority of the contributors is predicated on the following notions: (i) that aggressive behaviour in humans has a genetic basis which is sufficiently deterministic to allow for its selection from generation to generation; (ii) that all human 'acts of aggression', from an individual punching his neighbour to the invasion of one state by another, spring from the same set of genetic predispositions; and (iii) attempts to reconstruct our evolutionary past by means of comparative studies of other species (primate and non-primate) and societies (referred to as 'primitive' in the text), together with creative interpretation of the scant fossil record, will help us to understand why George Bush declared war on Saddam Hussein — and why so many soldiers undertook to fight that war.

The volume was born out of a meeting of the European Sociobiological Society, held in January 1987, in Jerusalem, Israel, 'a symbolic place in many respects', according to the foreword. The editors further tell us that 'many non-Israeli participants were able to experience the naturalistic, geographical and political history of the country in an impressive guided tour which influenced clearly the presentations and discussion in the conference'. One cannot help but wonder how.

The use and elaboration of sociobiological explanations by most of the contributors is problematic, since it is obvious that few of them have been trained in either biology or genetics. The result is that several of the authors display an alarmingly cavalier attitude to what ought to be a rigorous field of study. For instance, we are told in the anonymous introduction that, owing to the recent appearance of humans in the fossil record, 'many of our genes' frequencies and behaviours are still oscillating without having reached yet a less disequilibrium state as is usually found among other species' (p. 17). [I shall leave my comments on the prose style for later.] Is there any evidence for such a statement? None is presented. Perhaps the variability among our behaviours has more to do with our neuronal plasticity than with a lack of linkage disequilibrium in our genes.

The time-honoured tradition of reducing evolutionary theory to a pan-selectionist caricature is also much in evidence. Several authors still appear to believe that the identification of a plausible selection pressure is sufficient to test theories of adaptation. For example, see the following quote by van Hooff:

'...there is often an unjustified assumption that theories about the evolutionary background, and the adaptiveness of behaviour cannot be empirically tested. They can, however, because the activity of selective pressures can in principle be demonstrated.' (p.27).

I hate to sound a jarring note, but the critics have a point. Far more fundamental to testing theories of evolutionary change, is the

demonstration of heritability. If there is no heritable variance in a trait, selection cannot operate. Glib statements like the following:

'...for any socially living mammalian species the competing sets of needs under discussion are very general and basic. We must therefore assume that the variance in the balance between those sets of basic needs has strong genetic roots' (van der Molen, p. 65, my emphasis)

are inadequate. Without the demonstration of heritability, adaptationist explanations remain 'just-so stories'. This point has been made many times in the past, but the message has still not been received and understood. It is 15 years since the publication of Wilson's *opus magnum*, *Sociobiology*. Surely this is time enough for workers who posit genetic explanations to begin to accumulate some genetic data? Some of us still like to believe that biology is a science — even when it is applied to the human species. A thorough scientific treatment demands critical examination of all prior assumptions.

Then there is the far more fundamental question as to whether or not theories regarding the selective origin of aggressive behaviour in individuals — regardless of their merits and demerits — can tell us anything whatsoever about the conduct of war between nations. One contributor — P. Meyer — thinks not:

'[War] is neither merely a reaction to the distribution of external resources nor an expression of some inbuilt impulses to mutual destruction. These impulses do obviously exist in man, but their very existence does not provide a satisfactory account for the origin of war. ... war is not a unitary phenomenon, consequently there can be no single "function" of war and hence there is no homogeneous human nature which could be blamed for the institution of war' (pp. 239–240).

Strangely enough, one of the editors seems to agree with him:

'...regrettably, most human sociobiologists and ethnologists writing about human warfare, primitive or contemporaneous, do not seem to be bothered by their stupendous ignorance of the subject, which does not prevent them from espousing vulgar materialist notions of war causation, or linking war in an astoundingly simplistic fashion to human "aggression"...' (van der Dennen, p. 260).

I must confess, this was precisely my reaction to several of the essays in this collection, and it leads me to question seriously why van der Dennen consented to be the senior editor of a volume that can only exacerbate the problem which he finds so exasperating.

There are several contenders for the title of 'Worst Use of Vulgar Materialism', or 'Most Imaginative Use of Limited Data', and a page-by-page commentary would become tedious very quickly. I shall therefore restrict my comments to general impressions. First, and most damningly, this book contains a host of ill-chosen statements, ranging from the outright offensive to the mildly amusing, that a stringent system of peer review would have eliminated. For example, van der Molen tells us that sex is a 'non-social personal need' (p. 64). He has my sympathies. He also informs us that whether we are 'thing-oriented' (sic) or 'person-oriented' depends to a large extent on our genes (p. 66). So it's true, then: our political attitudes are based on our genetic endowments. Hopp and Rasa (pp. 143–144) suggest that women fear rape and sexual assault because these actions represent 'a form of resource loss': 'the presence of an illegitimate child in urban society reduces status and, with it, the possibility of making a good marriage'. They ought to try that one on one of the Rape Crisis Centres. Meyer's (p. 229) and Melotti's (p. 242) references to populations who grow their own food as 'horticultural societies' could be misconstrued.

There is, furthermore, a strong flavour of sexism and racism throughout the book. Women are never interpreted as participants in or contributors to their societies; they are 'material resources:

territory, protein, women, pigs, cattle, mineral deposits, oil, etc.' (p. 178). The height of their aspiration is described by Lopreato and Green (p. 114), who suggest they represent 'the most coveted reward of leadership'. All revolutionary leaders, according to these authors, are male by definition, since the ultimate motivation for political activism is to increase one's fitness, and gain more female 'booty'. A less sexist view of the world would not only be less insulting, but could do wonders for science. Then again, since Lopreato and Green also view intellectuals as society's 'myth makers' (p. 112), this may give us some idea of their own motivations.

The aspects of racism I found most offensive, were the lack of recognition of the authors' own cultural biases and constraints, and the pervasive use of a *scala naturae* approach to 'stages of social evolution'. All social analyses performed in this book spring from a Western perspective, and usually apply more closely to Western societies than they do to the groups under study. Van der Dennen (p. 179) explains how, in primitive warfare, 'actors strive for power in order to improve their positions', and that fear is 'the universal motive behind primitive warfare... fear-inspired preemptive attack is embedded in the extreme ethnocentrism of primitive societies'. I would say this described the current actions of the west fairly accurately.

Finally, a word on style. Several of the contributors to this book quite obviously do not speak English as their first language, and in many cases their grammar is abominable. This is not an indictment of the authors, but of the editors. Their carelessness and lack of attention to detail extends as far as omitting one of the authors (van Hooff) from the list of contributors. Most of these papers are of a rather low standard, and might never have seen the light of day were it not for this book. I do not believe the interests of the scientific community have been well served.

But then, as the Introduction informs us (p.18), the important question 'is ultimately whether a contribution is made to the understanding of, in this case, human behaviour'. My answer to that is, 'yes and no'. Yes, it has indeed told us about the needs, desires, prejudices and motivations of the 16 contributors to this book. As for the rest of us — I'm not so sure.

#### JUDITH MASTERS

Population Genetics Laboratory, Museum of Comparative Zoology, Harvard University, Cambridge, MA. 02138 U.S.A.

## Namib Ecology

Edited by M.K. Seely

Transvaal Museum Monograph No. 7, 1990  
230 pages

The research station at Gobabeb in the Namib Desert is much more than just a place of work. That is the lasting impression gained from reading *Namib Ecology*, and is a conclusion that will come as no surprise to anyone who has had the opportunity to visit the area. Few field stations in the world can claim to have such a dramatic location, situated on the (rarely flowing) Kuiseb River at the boundary of contrasting stony and sandy deserts. Also, few research stations could claim to have contributed as much to the science of desert ecology.

*Namib Ecology* is a volume in the Transvaal Museum Monograph series, edited by Mary Seely. Subtitled *25 Years of Namib Research*, this is an anniversary volume that brings

together 23 contributions by workers who have been associated over the years with the Desert Ecological Research Unit of Namibia, as it is now known. The volume provides a history of the research unit at Gobabeb and a sample of the research programmes that have been carried out there. Dr Seely is clearly an appropriate editor, with an association with Gobabeb since 1969 and a period of directorship dating back almost as long.

Five historical, biographical and bibliographical chapters begin and end the volume and constitute a comprehensive collation of the research carried out at Gobabeb. They provide both an overview of Namib research, and a glimpse of the personalities who were responsible for the founding of the unit and its subsequent success. The future of research at Gobabeb is also discussed, with environmental education highlighted as an area for future expansion.

Geographical and geological aspects of the Namib Desert are covered in a series of four papers. Ward & Corbett discuss the controversial issue of the age of the Namib, for which estimates ranging between the Cretaceous and less than 1,8 million years ago have been produced. The climate of the central Namib is described by Lindesey & Tyson, Lancaster describes patterns of sand deposition in the area, and sand dune dynamics are reviewed by Livingstone.

Studies of desert animals form the bulk of the remaining chapters. Botanical contributions are limited to one paper on the Namib's most famous plant, *Welwitschia mirabilis*, and this concentrates on the microhabitats generated by the plant that are available to animals.

Aspects of the history and biogeography of the Namib are combined in an interesting study of primitive flightless insects by Irish. These remarkably desert-adapted species are believed to have originated in the dry heart of the Gondwanaland supercontinent, before its fragmentation.

The best-known and most-studied inhabitants of the desert are its tenebrionid beetles. These are discussed in four papers, covering habitat preferences, feeding habits, water relationships, and their protective wax blooms. Taken together, they provide clear insights into the ecology and physiology of these fascinating insects, and a convenient review of the somewhat scattered literature on the subject.

Well produced, indexed and edited (although I did note three different spellings for the tree *Ficus sycomorus!*), *Namib Ecology* will be a useful addition to the bookshelves of anyone interested in desert ecosystems.

#### S.G. COMPTON

Department of Zoology and Entomology, Rhodes University, Grahamstown, 6140

## Bird Migration

T. Alerstam

Cambridge University Press, 1990  
420 pages ISBN 0521 328 659  
Price: £55

Recently I reviewed a book of the same title, but this volume is quite different in its content and approach. Thomas Alerstam has been closely involved in research on bird migration, and here he provides a general account of this topic, primarily based on his own experience with European migrants. He did not set out to

write an exhaustive review cluttered with references. This book is translated from Swedish, and the original text was completed in 1981. There are some inserts referring to more recent work, such as the finding that migrants do stop over in the Sahara even if they have adequate fat reserves to complete the crossing.

Following a brief introduction, there are four main chapters, starting with the earth as the theatre for bird migration. This includes a lucid description of the significance of the tilting of the earth on its axis for climate at high latitudes. No explicit definition of migration is included, though the author appears to use the term in a wider sense than most ornithologists, embracing irruptive and local movements away from the breeding areas.

By far the longest chapter, taking up half the text, deals with the annual cycle of selected migrants representing different groups (birds in wetlands, insectivores, etc.). The focus is naturally on Sweden, and many of the species discussed will be unfamiliar to southern African readers; several of them I have not seen in the wild in Europe. However, for those species which do migrate to our region, such as the curlew sandpiper (*Calidris ferruginea*), South African studies are summarized and included in the references. The importance of moult in the annual cycle of the birds is given due consideration throughout. This section includes a brief discussion of the evolution of migration, setting out Alerstam's own views very clearly.

A chapter entitled 'The migratory journey' includes a section on radar studies, a technique unfamiliar to most biologists in our region. The basic principles of flight are well described, and the discussion of fat as fuel introduces an important topic, which is rarely considered in general texts. Apart from bad weather and errors in direction finding, the dangers along the way include falcons which specialize in hunting the smaller migratory birds, and breed during the main migration to ensure maximal food supplies. The concluding chapter provides a brief review of orientation and navigation by birds. The classic experimental studies are mentioned, but there is no new synthesis, and it makes an unsatisfying end to the book. The bibliography lists selected references by chapter section; more than 50 titles are in Scandinavian languages.

It is always clear that this account was written from a personal perspective. Specialists may feel that some topics are covered too briefly, and one may disagree with the author's opinions, but Alerstam has produced a readable book, enlivened by incidents such as flying in a small aircraft alongside migrating cranes, which were simultaneously tracked by ground-based radar. This may not be the reference I would give to a student wanting an up-to-date review of the subject, but anyone with an interest in the natural history of birds and of migration will enjoy reading the book as a whole, and learn a great deal from it; I certainly did. Unfortunately few will buy it at this price.

**ADRIAN CRAIG**

Department of Zoology and Entomology, Rhodes University,  
Grahamstown, 6140

## Parasitism and Host Behaviour

Edited by C.J. Barnard and J.M. Behnke

Published by Taylor & Francis Ltd, London

Price: R310,50

In 1984 at the Silver Jubilee Meeting of the Zoological Society of Southern Africa, I reviewed, together with Fiona Donnelly, the

contribution made to South African parasitology by Dr R.J. Pitchford. His was pioneering work in the African context in which, during the preceding 25 years, he had investigated in his down-to-earth way, the relationship between the behaviour of larval trematodes (schistosomes) and that of their intermediate and definitive hosts and its implications for the success of transmission. These early attempts at marrying the disciplines of parasitology and animal behaviour have come a long way in more recent years and the concept of an evolutionary association between them is now well entrenched. This synergism can be shown to have had an important influence on the evolution of host behaviour and morphology, even affecting population dynamics at both the species and community levels. This book is a first synthesis of evidence for this fundamental relationship and takes as its examples varied parasitological topics from across the phylogenetic spectrum from Protozoa to vertebrates.

There are 10 chapters, each dealing with a different aspect of the subject. Chapter 1 by C.J. Barnard examines the relationships between producers (hosts) and scroungers (parasites or exploiters); the ways in which host behaviour is used; the prices that the hosts have to pay and their responses in terms of counter-moves. Chapter 2 is a more detailed look at the cost of parasitism by J.C. Holmes & S. Zohar. They examine its effects on pathology, especially organ malfunction, the control of the neuroendocrine system by parasites and its adaptive significance. In Chapter 3, S.N. Thompson considers the physiological bases for these changes and their effects on host behaviour and on the maintenance of homeostasis in respect of the host/parasite complex. M. Milinski in Chapter 4, discusses the evidence for changes in decision-making by hosts (predators, i.e. sticklebacks), particularly foraging behaviour, as a consequence of parasite infection. Chapter 5 examines the relationship between parasitism and sexual behaviour on the part of the host. This is thought to have played an important role in the evolution of sexual behaviour and A.F. Read uses vertebrates, chiefly birds, as examples. R.C. Tinsley in Chapter 6 reviews the relationship between parasite and host behaviour from the perspective of the life-cycle. The very close synchrony between larval trematodes for instance, and their hosts is well known and has served to hone their transmission strategies to such a degree that they can capitalize on even brief opportunities presented by their hosts' behaviour and ecology. In Chapter 7, J. Moore & N.J. Gotelli take a critical look at the manipulation hypothesis in respect of parasite-altered behaviour patterns. They question the assumption that altered host behaviour is solely the result of natural selection favouring manipulation by the parasite and propose some alternative ideas. In Chapter 8, G.S. Nelson uses his wide experience in Africa to review the role of human behaviour, especially cultural practices, in the epidemiology of helminth infections such as trichinosis, hydatid disease and bilharzia. Chapter 9 takes a more detailed look at this. D.A.P. Bundy & U.J. Blumenthal examine the role of behaviour in the exposure of man to infection. They discuss problems in quantifying exposure to both water- and soil-transmitted helminths and look at the relationship between exposure and infection. Their well-argued conclusion that exposure patterns are the major determinants of the intensity of infection (as opposed to naturally acquired immunity) has important implications for the direction that work into the epidemiology of parasitic diseases should be taking. Chapter 10, by M.D. Murray, uses birds and mammals to discuss in some detail the influence of host behaviour on ectoparasites, notably Diptera and Phthiraptera.

This is a book I have wanted to read since scanning through a copy at Taylor & Francis' exhibit at ICOPA VII in Paris in August 1990. It is a valuable compendium of essays by eminent authors. It leads its reader into and through recent work on the influences that parasitism itself and transmission strategies have had and are

having on host behaviour and is not dominated by the medical and veterinary fields. Important conclusions are drawn which should provide a stimulus to parasitologists in South Africa to look more closely at the exciting work being done to involve parasitology in the discipline of evolutionary biology. We have, I believe, been slow to do this. The book is very readable, well produced and, as far as I could see, without typographical errors. I unreservedly recommend that it be acquired by all those with even a modest interest in parasitology. At R310,50, however, only libraries are likely to be able to afford it so budget for a copy now!

C.C. APPLETON

Department of Zoology and Entomology, University of Natal, Pietermaritzburg, 3200

## The Mammals of the Southern African Subregion

J.D. Skinner and the late R.H.N. Smithers

Published by the University of Pretoria, 1990

771 pages

The publication of the second edition of *The Mammals of the Southern African Subregion* continues a trend that started in 1951 with the appearance of *The Mammals of South Africa* by Austin Roberts. This was superseded in 1983 by the first edition of *The Mammals of the Southern African Subregion* by Reay Smithers, in which the important taxonomic information of the earlier volume was blended with a synthesis of the enormous pool of ecological data that had accumulated in the intervening thirty years. John Skinner and the late Reay Smithers have rewritten much of the text for the second edition and, where research has allowed, species descriptions are more detailed with increasing reference to aspects of animal physiology. The trend from Roberts' taxonomic work, through that of Smithers, which saw the introduction of ecological data, to the present edition in which we see the incorporation of ecophysiological information, mirrors the development of African mammalogy. That scientists are now looking for physiological explanations for previously observed phenomena is indicative of the healthy condition of mammalogy in Southern Africa.

Like its predecessor, the second edition is structured taxonomically, the classification being based on the recently published Classification of southern African mammals by Meester, Rautenbach, Dippenaar & Baker. Varying amounts of general information (much of it new) is presented for each order, family and subfamily and this is followed by extensive species descriptions. The species descriptions are augmented by many new distribution maps and the excellent line drawings from the first edition. The

major strength of *The Mammals of the Southern African Subregion* lies in the species descriptions which are condensed from over 3000 references (1100 more than the first edition). Many of these references are in obscure journals and some are unpublished reports and postgraduate theses, and while the accumulation and synthesis of this information represent the major contribution of this book, it highlights the disservice that scientists do when they allow information to lie hidden or to go unpublished.

In a book of this size it is difficult to avoid mistakes. Some errors have survived from the first edition, so for example, Malawi is still missing from Map iii, and *Nycteris thebaica* is still described as one of the commonest of small insectivorous bats, yet Herselman and Norton (1985) describe it as never common in the Cape Province. Some new errors have crept in, and for example, the captions for plates 8, 12 & 24 are incomplete or contain errors. The treatment of subspecies remains inconsistent, so that subspecies of large mammals such as *Equus zebra* and *Damaliscus dorcas* receive separate detailed descriptions while those of rodents for example do not. While this inconsistency is understandable it can lead to misconceptions about the size and 'importance' of the various orders.

Perhaps the most obvious change is that Clare Abbott's colour plates have been replaced by illustrations by Dick Findlay. Although more species are illustrated, in my opinion the art work of Findlay lacks the clarity of that of Abbott (possibly owing to the different techniques used), and in a few cases, the plates are poorly conceived. Plate 5, the ventral views of bats is particularly uninformative since diagnostic features of several species (*Nycteris*, *Rhinolophus*, and *Hipposideros*) are not visible. The text and line drawings have been printed several shades darker than in the first edition and in a number of cases this has resulted in a loss of detail (Fig. IX.1. head of *Nycteris*; Fig 278.1. feet of water mongoose; Fig. 288.4. dead female aardvark) and in some instances the art work shows through from one page to the next.

A book of this magnitude should not be judged on the small number of errors that it contains, or on an individual's opinion of the plates, but on its potential role as a source book for professional and amateur mammalogists. Jonathon Kingdom in a review of the first edition described it as a 'landmark in the literature of African mammals' and suggested that it would find a place on the book shelves of all students of African mammals. I have no doubt that the new edition will come to receive similar acclaim and will be recognized as a fitting tribute both to the authors and to the University of Pretoria.

### Reference

HERSELMAN, J.C. & NORTON, P.M. 1985. The distribution and status of bats (Mammalia: Chiroptera) in the Cape Province. *Ann. Cape Prov. Mus. (nat. Hist.)*. 16 (4): 73-126.

RIC BERNARD

Department of Zoology and Entomology, Rhodes University, Grahamstown, 6140