

The rest of the year, males yield to females and young over food sources and suspend their own dominance hierarchies.

Subsequent chapters focus on the costs and benefits of associating with males in monkey societies, the costs of male perpetrated infanticide of infants fathered by other males, female counterstrategies, and the determinants of sex differences in body size. Hrdy argues that sexual competition between males has led to large male body size in many primate species. Such large body size for the male gives great potential for male dominance and abuse. Females cannot afford the obvious counterstrategy of being equally large because of the heavy nutritional requirements placed on them by lactation. However, even when female primates are forced to accept male dominance because of major differentials in body size, this does not mean that they are passive and noncompetitive. Hrdy points to evidence of how females do compete successfully and often ruthlessly by forming female-female affiliations, by establishing social systems based on ranked matriline, and even by inhibiting fertility among low-ranking females. Hrdy notes that the principles underlying female competition and dominance differ from those of males. A female's reproductive success is not limited on the basis of her access to members of the opposite sex as it is in males, but rather by how many offspring she can raise. The major determinant of a female's evolutionary success lies in her ability to gain and control access to food supplies for herself and her offspring. Hence, female social relationships are based on problems of access to food and not to males.

A final chapter on female sexuality examines such questions as why some female primates advertise their ovulation while others don't,

whether female orgasm is unique to human females, why sexuality in some female primates is nymphomaniacal, and how female primates may raise paternal investment in their offspring by mating with as many males as possible during estrus.

Hrdy's book goes a long way toward dispelling old myths about a primate heritage of female passivity, lack of orientation toward dominance, lack of competitive spirit, and subservience to male sexuality. Hrdy's female primates are certainly not baby-making machines; rather, they are fierce competitors whose reproductive strategies rival those of males in the evolutionary history of each species. If there is any fault to this book, it's the lack of depth and detail in discussion about women. The book is really about female primates and the legacy human women may or may not have inherited. It is up to the reader to see how this material applies to our understanding of modern women. I don't see this as faulting the book. It stands complete in what it set out to accomplish. The book is written toward a borderline between the scientific and the popular audience—not an easy thing to do—but, by and large, Hrdy does just that. For this reason, the book has a place in both research and teaching. It will certainly be a requirement for the libraries of workers in the fields of primate behavior, women's studies from anthropological, psychological, and sociological perspectives, and evolutionary biologists interested in sex differences in reproductive strategies. It would also make a readable text, in combination with other books, for courses in primate behavior and women's studies.

JANE B. LANCASTER  
*University of Oklahoma*  
*Norman, Oklahoma*

ABORIGINAL MAN ADAPTING. By R.L. Kirk. New York: The Clarendon Press; Oxford University Press. 1981. vii + 229 pp., figures, tables, references, indices. \$59.00 (cloth).

The idea that Australia was cut off from genetic contact with the rest of the world has been greeted with particular enthusiasm by physical anthropologists of the post-World War II generation because of their assumption that there is something important about

isolates per se. Australia has been thought of, then, as an isolate and an especially primitive one. Consequently Australian aborigines have been treated as living human fossils who have been preserved unchanged, frozen representatives of the past who can tell us something about the human condition back in the Pleistocene.

Recent works in archeology, linguistics, and genetics mentioned in the volume under review, all show that Australia was nowhere near so isolated as has been commonly assumed. They also demonstrate that post-Pleis-

tocene human evolution in Australia has proceeded as rapidly as it has anywhere else in the world.

In this little book, Robert L. Kirk pulls together and summarizes all of the relevant studies to date. For anyone seriously interested in the physical anthropology of the Australian aborigines, this work is essential if insufficient reading. Aside from the clumsy and inadvertently sexist title, it is fascinating, flawed, and indispensable if annoyingly incomplete. The annoyance results from the extremely compressed form of presentation.

For example, Australian geography, climates, botany, zoology, and Pleistocene history and culture areas are treated in a mere 17 pages. That simply is not enough space for any one of those topics to be presented even in cursory form. To the uninitiated, then, this is completely inadequate, and to the knowledgeable it will present an oversimplification of material that they already know.

Another annoyance is the cavalierly incomplete use of references. This may seem a churlish comment on a book that correctly cites more than 250 authors, but it is not a completely trivial complaint. For example, where estimates of aboriginal population density are discussed, the observations of those nineteenth century stalwarts, Sturt, Eyre and Mitchell, are noted, but no reference is given to where or when they were published. Although these are not particularly difficult for the interested reader to ferret out from other sources, this is not the case for such undocumented offerings as "more recent estimates indicate almost a hundredfold difference" (p. 40) and "for other parts of the continent, recent estimates suggest similar differences in density" (p. 41). There are a number of similarly unattributed claims on these two pages alone. The specialist may know some or all of the actual sources, but there is no way that the uninitiated can get at the original information.

This style persists, unfortunately, throughout the whole book. Information is presented in text and tables without any citation of source. Again, there is no reason to doubt the accuracy of what is treated, but the reader would often like to know the actual work on which it is based. One instance where even the physical anthropologist who does not have a particular familiarity with the Australian literature will recognize the unmentioned source is the treatment of "Australia antigen" -hepatitis B research (pp. 184-185). In this instance the person responsible received a Nobel

Prize so presumably his work is now in the realm of common knowledge. Nevertheless it would have been nice if Baruch S. Blumberg had been mentioned by name and some reference had been made to his publications.

This should not be taken to indicate that the volume is undocumented. Each chapter has its bibliography and in most instances this will allow the reader entry into the relevant literature. In fact, discussion is generally so extremely brief that the book as a whole barely gets beyond the level of an annotated bibliography. The topics include demography, subsistence activities and diet, anthropometry, skeletal and dental studies, serology, genetics, growth, physiology, response to environmental stress, health, psychometric studies, and current sociological considerations. The brief treatment of each and the access to the relevant literature that it provides constitutes the real strength and value of this all-too-brief little volume.

Thinking at a larger level, it now seems quite clear that no one person can control the spectrum of Australian aboriginal anthropology. Kirk has made a valiant effort and paid close attention to advice from the portions that are outside of his immediate familiarity. His Canberra colleagues have helped him deal effectively with the prehistoric skeletal material and, somewhat less securely, with what Australian archeologists have to offer. His assumption of the supposed technological uniformity of precontact Australia, for example, means that he has missed consideration of what might well be significant differences in selective forces that impinged upon the inhabitants of different parts of Australia. His review of linguistic diversity appears to have left him at a loss to account for the different pictures that are supported by his own genetic work in the northern part of Australia and the scenario that he has chosen from those presented by Australian linguists. The same linguistic data in fact can be interpreted in a way that is perfectly compatible with his own work.

The major contribution of this book is in the collation of recent work on the biology of Australian aborigines. It would have been much better if this had been presented at considerably greater length and the weaker parts on geography, archeology, and linguistics left out entirely. Since these latter are well treated elsewhere, in the final analysis we are presented with less than 150 pages of synthesis of the material that Kirk really commands, and for this, we are being asked by the publisher to pay

\$59. This is simply inexcusable. Although the book is well-made, it contains no expensive artwork, and the text is barely over 200 pages long. At one-tenth the cost it would have been picked up as an ancillary text in a dozen university courses in the United States alone and multiplied sales by far more than enough to compensate the publisher for the difference in the listed price. As it is now, the only buyers

will be libraries. By setting this outrageous price, the publisher has foreordained the obscurity of what should have been a most useful synthesis.

C. LORING BRACE  
*The University of Michigan*  
*Ann Arbor, Michigan*

AUDITORY REGIONS OF PRIMATES AND EUTHERIAN INSECTIVORES. MORPHOLOGY, ONTOGENY, AND CHARACTER ANALYSIS. By R.D.E. MacPhee. Contributions to Primatology, Vol. 18. Basel: Karger. 1981. xvi + 288 pp., figures, tables, references. \$39.75 (paper).

This is one of the finest pieces of scholarship that I have read. In it, MacPhee combines his impressive knowledge of the morphology and ontogeny of the ear region with a sound philosophy of systematic biology to produce an *instant classic*. It is already essential to the systematics of the order Primates, a host of eutherians connected to the living insectivorans he deals with, and the mammalian auditory region generally. The work is well organized, written with verve and an enviable anatomical eloquence, and beautifully illustrated with good drawings and high-quality photomicrographs, all sensibly prepared to document observations and clarify processes and hypotheses.

The major part of the text is a structure-by-structure description of the ontogeny of the middle ear—its spaces, bones, relations, connective tissues, membranes, veins, arteries, nerves, and muscles—in three species of lemuriforms and loriforms, *Tupaia glis*, solenodon, an elephant shrew, some tenrecs, and European and Madagascan “hedgehogs.” Many samples consist of several individuals at mostly fetal and perinatal developmental stages, which MacPhee studied as serial sections or by microdissection and compared with adults. Given this cast of characters and the often maligned anatomical complexity of the otic region, one is tempted to broadcast a warning to the average reader of this journal—For Specialists Only! But I urge you all to take a crack at it. This is comparative primate anatomy at its best, and MacPhee, with his

engaging, clear style, has really made it easier on us than have most. And if you’ve been wondering how so-called cladists come to reach their conclusions about the relative primitiveness or derivedness of traits, this is one case where the full chain of evidence and logic is spelled out as Darwin intended it to be. The work is literally devoted to character analysis. MacPhee doesn’t even dwell on the phylogenetic implications, scenarios, and controversies that issue from his study, for it is the character analysis that counts most. Admirably, the author doesn’t hide his uncertainties regarding numerous homologies and polarities.

There are significant methodological lessons that can be drawn from this work. For example, developmental information clearly has much to contribute to character analyses, as we well know, but seemingly at the level of homology recognition rather than polarity inference. The former point is famously illustrated in many examples across many taxa, in one instance by (for most I would hope) forever dispelling the notion that tree shrews have anything remotely to do with true primates. However, when it comes to theorizing which state of a set of possibilities is primitive and which is derived, we are forced, as is MacPhee, to rely on distributional criteria.

This brings me to an irony and personal quibble with MacPhee’s approach. If properly used, the fossil record can provide rich information on transformation, but, alas, it very rarely supplies ontogenetic sequences. Thus, when in assessing polarities, push comes to shove, and MacPhee mostly does not budge from the living: He cannot satisfy himself that fossilized traits are precisely homologous with those whose developmental patterns he has traced on the survivors. He therefore leaves the question open. This querulous criticism in no way detracts from this work; it is a testimony to MacPhee’s caution and scientific rigor. A second methodological lesson shows the value of