

Sexual Selection is to have captured something of the excitement being generated by advances in understanding the evolutionary significance of sperm competition.

A general overview of progress in this field has been long awaited. The most recent previous summary was Smith's (1984) excellent *Sperm Competition and the Evolution of Animal Mating Systems*, which emerged from a largely transitional phase in sperm competition research, when ideas generated from insect studies were being applied to more diverse taxa. If a successor to Smith has been a long time coming, it is perhaps testament to the enormous undertaking required to produce a comparable overview of the field today. Several chapters in Birkhead & Møller's book could be expanded to fill volumes in their own right, including those on sperm competition theory (Parker), sperm competition and sexual selection (Møller), and sperm competition in insects (Simmons & Siva-Jothy); indeed some already have (female roles in sperm competition by Eberhard; sperm competition in birds by Birkhead). To have condensed this information into a single cohesive text is undoubtedly a major achievement.

The book is divided into two sections; the first covering general themes and the second devoted to taxonomic treatments. This division is both a strength and to some extent a weakness of the book. Although there is much to be said for adopting both perspectives, the volume of advances covered by taxonomic group has inevitably reduced available space for more general treatments which the field is now mature enough to support. Birkhead & Møller's closing chapter is particularly valuable in this respect, providing a general overview of key problems and directions for future research. But if the diversity of taxa covered by chapters in the second half of the book limits space for more general treatments, it also leaves little room for doubt of the widespread evolutionary significance of sperm competition. Taxa covered include groups as diverse as flowering plants (Delph & Havens), external fertilisers (Levitan), simultaneous hermaphrodites (Michiels), molluscs (Baur), fishes (Petersen & Warner), amphibians (Halliday), birds (Birkhead) and eutherian mammals (Gomendio, Harcourt & Roldan). Most chapters are also readily accessible to those previously unfamiliar with these various taxonomic groups. My own favourites in this regard are contributions on spiders and other arachnids (Elgar), reptiles (Olsson & Madsen), and the first account of sperm competition in

marsupials and monotremes (Taggart, Breed, Temple-Smith, Purvis & Shimmin).

I would recommend Birkhead & Møller's book as an essential reference text for anyone with more than a passing interest in sexual selection or reproduction. Early growth in this field has established sperm competition as a ubiquitous and highly influential evolutionary selective force. The challenge now underway, signified by the arrival of Birkhead & Møller's book, is to assimilate and integrate data and ideas from widely diverse disciplines and taxa. Although much still remains to be discovered, I suspect it will be a long time before anyone attempts a similarly comprehensive and detailed overview of sperm competition research.

References

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PAULA STOCKLEY
Faculty of Veterinary Science
University of Liverpool
Leahurst Veterinary Field Station
Neston
South Wirral L64 7TE
 U.K.

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