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0521448786 - The Differences between the Sexes
Edited by R. V. Short and E. Balaban
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In many animals, from bees to bulls, peacocks to people, the sex of the individual can be determined at a glance. How and why have these differences in appearance and behaviour developed? What is the nature and extent of sex differences in humans? Why do individuals in some species change sex?

In a series of lively and highly readable articles, the world's leading experts in the field of sex differences have reviewed the latest molecular, genetic, hormonal, anatomical and behavioural data from a wide range of species, bridging the gap between geneticists, biologists and socio-biologists. Such an overview has never been attempted before and it should have wide appeal, especially to undergraduates and graduates in the biological and medical sciences.

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Foreword

The fact is that animals, if they are subjected to a modification in minute organs, are liable to immense modifications in their general configuration. The phenomenon may be observed in the case of gelded animals; only a minute organ of the animal is mutilated, and the creature passes from the male to the female form. We may infer, then, that if in the primary conformation of the embryo an infinitesimally minute but essential organ sustain a change of magnitude, the animal will in one case turn to male and in the other to female; and also that, if the said organ be obliterated altogether, the animal will be of neither one sex nor the other . . .

The female is softer in disposition, is more mischievous, less simple, more impulsive, and more attentive to the nurture of the young; the male, on the other hand, is more spirited, more savage, more simple and less cunning. The traces of these characteristics are more or less visible everywhere, but they are especially visible where character is the more developed, and most of all in man.

The fact is, the nature of man is the most rounded off and complete, and consequently in man the qualities above referred to are found most clearly. Hence woman is more compassionate than man, more easily moved to tears, at the same time is more jealous, more querulous, more apt to scold and to strike. She is, furthermore, more prone to despondency and less hopeful than man, more void of shame, more false of speech, more deceptive, and of more retentive memory. She is also more wakeful, more shrinking, more difficult to rouse to action, and requires a smaller quantity of nutriment.

Aristotle, *Historia Animalium*

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Preface

The Eleventh International Conference on Comparative Physiology was held on September 12–14, 1992, in the beautiful mountain setting of the Hotel du Golf et des Sports, Crans-sur-Sierre, Switzerland, under the sponsorship of the Interunion Commission on Comparative Physiology. All the participants are deeply indebted to Professor C. Liana Bolis, the Secretary-General, and Professor Ewald Weibel, the Co-Chairman, for the excellent local arrangements.

The organizers were able to bring together a small international group of scientists from all four corners of the globe, many of whom had never met before and were often unaware of one another's work. The theme that united us was the endlessly fascinating topic of *The Differences Between the Sexes*; we began by signing our names on the flyleaf of a copy of Charles Darwin's *The Descent of Man, and Selection in Relation to Sex* to pay homage to his penetrating original observations on this subject.

We discussed the advantages of sexual reproduction as compared to parthenogenesis, and went on to review the nature and extent of the host of differences in body size, shape, structure, function, colour, smell, sound and behaviour that distinguish male from female in insects, fish, amphibians, reptiles, birds and mammals. We then turned our attention to the adaptive significance of these sex differences in terms of lifetime reproductive success, looking at species as diverse as fruit flies, deer, birds and elephants. Finally we focused on the environmental, hormonal, chromosomal and genetic mechanisms responsible for producing these striking differences. We concluded with a few speculations about the differences which separate, but which may also help to unite, man and woman.

The conference was made possible by very generous financial

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We would like to give our special thanks to Dr Jane Barrett of Cambridge University Press for her meticulous attention to a host of editorial details, and for her felicitous turn of phrase that clarified many obscurities in the text.

We hope that the published proceedings of this conference will appeal to anybody with a natural curiosity about life, be they molecular biologist or mammologist, behaviourist or biochemist, clinician or cytogeneticist, student or specialist, or just the ordinary man or woman.

R. V. S. and E. B.