

# **The Evolution of Sex**

**J. MAYNARD SMITH**

The question of why organisms reproduce sexually is still a matter of controversy. In this account, Professor Maynard Smith considers the selective forces responsible for the origin and evolution of sexual reproduction and genetic recombination, using quantitative population genetics arguments to support his ideas. The relative importance of individual and group selection processes are also considered.

The topics discussed also include hermaphroditism, parthenogenesis, sexual selection, sexual dimorphism and parental care. There is an introductory chapter guiding the reader through the rest of the book, which is arranged in a series of well structured chapters. The author does not claim to solve all the problems he raises, but this clear and well argued account should provide stimulating reading for advanced undergraduate students and research workers in evolutionary theory.

**Hard covers £9.50 net**

**Paperback £2.95 net**

# **Endurance of Life**

**The Implications of Genetics for Human Life**

**MACFARLANE BURNET**

A book in which the author uses his wide experience as a medical scientist to examine the phenomenon of old age. He presents an original theory of human ageing in terms of genetics. From this he goes on to discuss the genetic factors which, moderated by the environment, produce intelligence, temperament and behaviour. In the final chapters he discusses the genetic inheritance of modern man and the difficulties it presents in today's complex civilisation.

The author has founded his argument in scientific fact. But, being a pioneer in an uncharted area, he relies also on analogy and speculation. The result is a stimulating and controversial work which probes comfortable theories about our society and shows them to be wanting.

**£8.95 net**

**CAMBRIDGE  
UNIVERSITY PRESS**

# Journal of Reproduction & Fertility

Volume 54 (No. 1), September 1978

- P. A. Neighbour.** Studies on the susceptibility of the mouse preimplantation embryo to infection with cytomegalovirus
- K. Hoffmann.** Effects of short photoperiods on puberty, growth and moult in the Djungarian hamster (*Phodopus sungorus*)
- J. M. Richards & S. S. Witkin.** A nuclear DNA polymerase in bull spermatozoa
- E. M. Tucker, A. R. Dain & R. M. Moor.** Sex chromosome chimaerism and the transmission of blood group genes by tetraparental rams
- R. G. Sutcliffe, D. J. H. Brock, L. V. B. Nicholson & E. Dunn.** Fetal- and uterine-specific antigens in human amniotic fluid
- D. M. Smith, C. H. Conaway & W. T. Kerber.** Influences of season and age on maturation *in vitro* of rhesus monkey oocytes
- S. G. Revell & P. D. P. Wood.** A photographic method for the measurement of motility of bull spermatozoa
- M. Konwinski, D. Solter & H. Koprowski.** Effect of removal of the zona pellucida on subsequent development of mouse blastocysts *in vitro*
- D. N. Logue & M. J. A. Harvey.** Meiosis and spermatogenesis in bulls heterozygous for a presumptive 1/29 Robertsonian translocation
- A. R. Dain & P. S. Bridge.** A chimaeric calf with XX/XXY mosaicism and intersexuality
- G. Valnezuela, M. J. K. Harper & L. Magnasco.** Endotoxin-induced interruption of early pregnancy in the rabbit

The *Journal of Reproduction and Fertility* is published every 2 months at £14.00 (U.S. \$30.00) per issue; annual subscription £70.00 (U.S. \$150.00), by the

JOURNALS OF REPRODUCTION AND FERTILITY LTD  
P.O. Box 32, Commerce Way, Colchester CO2 8HP, U.K.



**Oxford University Press**

---

## **Blood Groups and Diseases**

**A. E. Mourant, Ada C. Kopec',  
and K. Domaniewska-Sobczak**

In this book, the authors bring together the widely scattered data on the frequencies of blood groups and other biochemical characters in persons suffering from each of a wide range of diseases, and analyse them statistically. The research worker is thus provided with a unique key to the literature; the clinician is shown how to apply the results by assessing susceptibility to specific diseases and the prognosis in established disease, and in some cases, in planning treatment. Illustrated £25  
*Oxford Monographs on Medical Genetics*

## **The Genetics of the Jews**

**A. E. Mourant, Ada C. Kopec',  
and K. Domaniewska-Sobczak**

The authors here present much statistical data that could not be included in *The Distribution of the Human Blood Groups* (1976, £55). The extensive work now in progress in Israel and elsewhere on hereditary diseases has been taken into account. £12.50

## **Textbook of Human Genetics**

**Max Levitan and Ashley Montagu**

'Probably the most comprehensive textbook of human genetics...strongly recommended', said the *Journal of the American Medical Association* of the first edition. For this new edition much new material has been included about areas of human genetics where significant advances have been made. Second edition £15.50

## **The Genetic Approach to Human Disease**

**Vincent M. Riccardi**

This book describes the application of genetics in primary health care. It gives a clear picture of the basic types of genetic disease and of how this information can be applied to clinical practice.  
Paper covers £7.00

# GENETICAL RESEARCH

EDITORIAL BOARD

CHARLOTTE AUERBACH    W. HAYES  
R. H. PRITCHARD    MARY F. LYON    R. RILEY    A. ROBERTSON

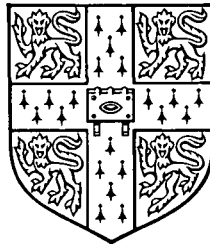
EXECUTIVE EDITOR

E. C. R. REEVE

ASSISTANT EXECUTIVE EDITOR

N. S. WILLETTS

**Volume 32. 1978**



CAMBRIDGE UNIVERSITY PRESS  
CAMBRIDGE · LONDON · NEW YORK

**PUBLISHED BY  
THE SYNDICS OF THE CAMBRIDGE UNIVERSITY PRESS**

**The Pitt Building, Trumpington Street, Cambridge CB2 1RP  
Bentley House, P.O. Box 92, 200 Euston Road, London NW1 2DB  
32 East 57th Street, New York, N.Y. 10022**

**© Cambridge University Press, 1978**

*Printed in Great Britain at the University Press, Cambridge*

# CONTENTS

No. 1 (August 1978)

EICHER, EVA M., LEWIS, SUSAN E., TURCHIN, HOWARD A. and GLUECK-SOHN-WAELSCH, SALOME. Absence of mitochondrial malic enzyme in mice carrying two complementing lethal albino alleles	page 1
BEATTY, R. A. and COULTER, V. J. Digynic triploidy in rabbit blastocysts after delayed insemination	9
MUKHERJEE, A. S. and MANDAL, S. K. Characterization of fractional mutations in <i>Drosophila</i> : differential inhibition of complete and fractional mutations by inhibitors of repair synthesis	19
TWEATS, D. J. and SMITH, J. T. Interaction between the plasmid R6K and <i>Escherichia coli</i> with defective DNA polymerase I	25
GOLD, J. R., WOMAC, W. D., DEAL, F. H. and BARLOW, J. A. JR. Gross karyotypic change and evolution in North American cyprinid fishes	37
SHAUMAR, NAGAT, ROJAS-ROUSSE, DANIELLE and PASTEUR, NICOLE. Allozyme polymorphism in the parasitic hymenoptera <i>Diadromus pulchellus</i> WSM. (Ichneumonidae)	47
TODD, N. K. and RAYNER, A. D. Genetic structure of a natural population of <i>Coriolus versicolor</i> (L. ex. Fr.) Quél.	55
LAMB, B. C. and HELMI, S. A new type of genetic control of gene conversion, from <i>Ascobolus immersus</i>	67
ARCHER, J. R., SELF, S. J. and WINCHESTER, B. G. Mechanism of infertility in t-complex mice	79
RADIN, DAVID N. and CARLSON, PETER S. Herbicide-tolerant tobacco mutants selected in situ and recovered via regeneration from cell culture	85
WEST, JOHN D. and CHAPMAN, VERNE M. Variation for X chromosome expression in mice detected by electrophoresis of phosphoglycerate kinase	91

No. 2 (October 1978)

MARSHALL, TERRI and WHITTLE, J. R. S. Genetic analysis of the mutation <i>Female-lethal</i> in <i>Drosophila melanogaster</i>	103
PÉLISSON, ALAIN. Non-mendelian female sterility in <i>Drosophila melanogaster</i> : variations of chromosomal contamination when caused by chromosomes of various inducer efficiencies	113

MARKOV, THERESE A. A test for the rare male mating advantage in coisogenic strains of <i>Drosophila melanogaster</i>	page 123
BECKER LYNCH, CAROL and HOY, MARJORIE A. Diapause in the gypsy moth: environment-specific mode of inheritance	129
WALLACE, MARGARET E., KNIGHTS, P. J. and ANDERSON, JANICE R. Inheritance and morphology of exencephaly, a neonatal lethal recessive with partial penetrance, in the house mouse	135
KARLIN, SAMUEL and CAMPBELL, R. B. Analysis of central equilibrium configurations for certain multi-locus systems in subdivided populations	151
EVANS, I. H. and WILKIE, D. Mitochondrial instability in a strain of <i>Saccharomyces cerevisiae</i>	171
SELF, STEVEN J., WINCHESTER, BRYAN G. and ARCHER, JAMES R. Strain variation in spermatozoal glycosidases in inbred mice	183
PIDDUCK, HEATHER G. and FALCONER, D. S. Growth hormone function in strains of mice selected for large and small size	195

## No. 3 (November 1978)

WHITE, G. P. and DUNN, N. W. Compatibility and sex specific phage plating characteristics of the TOL and NAH catabolic plasmids	207
LANGLEY, CHARLES H., SMITH, DIANA B. and JOHNSON, F. M. Analysis of linkage disequilibria between allozyme loci in natural populations of <i>Drosophila melanogaster</i>	215
EHRMAN, LEE, THOMPSON, JR, JAMES N., PERELLE, IRA and HISEY, BRENT N. Some approaches to the question of <i>Drosophila</i> laterality	231
YANNOPOULOS, GEORGE. Studies on the sterility induced by the male recombination factor 31.1 MRF in <i>Drosophila melanogaster</i>	239
HEWETSON, L., DUNN, H. M. and DUNN, N. W. Evidence for a transmissible catabolic plasmid in <i>Pseudomonas putida</i> encoding the degradation of <i>p</i> -cresol via the protocatechuate <i>ortho</i> cleavage pathway	249
CAMPBELL, J. H., DYKHUIZEN, D. and ROLFE, B. G. Effects of the <i>rex</i> gene of phage $\lambda$ on lysogeny	257
HILL, WILLIAM G. Estimation of heritability by regression using collateral relatives: linear heritability estimation	265
PICARD, G., BREGLIANO, J. C., BUCHETON, A., LAVIGE, J. M., PELISSON, A. and KIDWELL, M. G. Non-mendelian female sterility and hybrid dysgenesis in <i>Drosophila melanogaster</i>	275

*Contents*

v

HELLER, R. and MAYNARD SMITH, J. Does Muller's ratchet work with selfing?	<i>page</i> 289
AL-MURRANI, W. K. and ROBERTS, R. C. Maternal effects on body weight in mice selected for large and small size	295
MARKHAM, PAUL and BAINBRIDGE, BRIAN W. Characterization of a new choline locus in <i>Aspergillus nidulans</i> and its significance for choline metabolism	303
SHORT PAPER	
ŻURKOWSKI, WITOLD and LORKIEWICZ, ZBIGNIEW. Effective method for the isolation of non-nodulating mutants of <i>Rhizobium trifolii</i>	311
BOOKS RECEIVED	315
INDEX	317



# GENETICAL RESEARCH

VOLUME 32, NUMBER 3, NOVEMBER 1978

## CONTENTS

WHITE, G. P. and DUNN, N. W. Compatibility and sex specific phage plating characteristics of the TOL and NAH catabolic plasmids	page 207
LANGLEY, CHARLES H., SMITH, DIANA B. and JOHNSON, F. M. Analysis of linkage disequilibria between allozyme loci in natural populations of <i>Drosophila melanogaster</i>	215
EHRMAN, LEE, THOMPSON, JR, JAMES N., PERELLE, IRA and HISEY, BRENT N. Some approaches to the question of <i>Drosophila</i> laterality	231
YANNOPOULOS, GEORGE. Studies on the sterility induced by the male recombination factor 31.1 MRF in <i>Drosophila melanogaster</i>	239
HEWETSON, L., DUNN, H. M. and DUNN, N. W. Evidence for a transmissible catabolic plasmid in <i>Pseudomonas putida</i> encoding the degradation of <i>p</i> -cresol via the protocatechuate <i>ortho</i> cleavage pathway	249
CAMPBELL, J. H., DYKHUIZEN, D. and ROLFE, B. G. Effects of the <i>rex</i> gene of phage $\lambda$ on lysogeny	257
HILL, WILLIAM G. Estimation of heritability by regression using collateral relatives: linear heritability estimation	265
PICARD, G., BREGLIANO, J. C., BUCHETON, A., LAVIGE, J. M., PELISSON, A. and KIDWELL, M. G. Non-mendelian female sterility and hybrid dysgenesis in <i>Drosophila melanogaster</i>	275
HELLER, B. and MAYNARD SMITH, J. Does Muller's ratchet work with selfing?	289
AL-MURRANI, W. K. and ROBERTS, R. C. Maternal effects on body weight in mice selected for large and small size	295
MARKHAM, PAUL and BAINBRIDGE, BRIAN W. Characterization of a new choline locus in <i>Aspergillus nidulans</i> and its significance for choline metabolism	303
SHORT PAPER	
ZURKOWSKI, WITOLD and LORKIEWICZ, ZBIGNIEW. Effective method for the isolation of non-nodulating mutants of <i>Rhizobium trifolii</i>	311
BOOKS RECEIVED	315
INDEX	317

© Cambridge University Press 1978

CAMBRIDGE UNIVERSITY PRESS

The Pitt Building, Trumpington Street, Cambridge CB2 1RP  
Bentley House, 200 Euston Road, London NW1 2DB  
32 East 57th Street, New York, N.Y. 10022