

# International **ABSTRACTS** of **Biological Sciences**

HONORARY EDITOR: DR C C N VASS

Published for the council of Biological and Medical Abstracts this journal covers the more important papers in experimental biology. Subjects are approached from a fundamental viewpoint with an emphasis placed on anatomy, odontology, microbiology, pharmacology, experimental pathology, immunology, experimental zoology, experimental botany, cytology, genetics and animal behaviour. The Journal's two largest sections deal with biochemistry and physiology and these are obtainable as separate publications at special subscription rates.

More than 500 journals are surveyed annually and over 35,000 abstracts are published in four volumes. A subject and author index is included with each quarterly issue.

## Published monthly

### Annual subscription rates

(Combined Edition)	£90.00	\$225.00	A\$194.00
Biochemistry section	£12.00	\$ 30.00	A\$ 26.00
Physiology section	£ 8.00	\$ 20.00	A\$ 17.50

Please write for a free inspection copy of this Journal and details concerning other related publications.



# Pergamon Press

DEPT ED(2) HEADINGTON HILL HALL · OXFORD OX3 0BW · ENGLAND

3/70

Genetical Research, 16, 3

(i)

---

*New from Cambridge*

---

# The Control of Organelle Development

Edited by **PETER MILLER**

*Contents:*

Controls of chloroplast structures; Differentiation of thylakoid system; Nucleocytoplasmic interactions in mitochondria; Mitochondrial drug resistance; Gene and protein structure of iso-1-cytochrome C; Are plastids autonomous?; Origin of plastids; Information content in chloroplast DNA; Antibiotics and mitochondrial autonomy; Mitochondrial DNA; Cellular compartment interactions; Chloroplast ribosomal-RNA; RNA synthesis in *Acetabularia*; Control of macronuclear events; Nuclear autonomy in multicellular organisms; Genetics of protozoan organelle chloroplast DNA; Organelles as membrane complexes.

*Symposia of the Society for Experimental Biology 24*

£7 net



**CAMBRIDGE UNIVERSITY PRESS**

---

# Annals of Human Genetics

Articles published in this quarterly journal describe observations on human heredity or deal with closely related genetical and statistical problems.

*Partial contents of Volume 34  
Part 2 (October 1970)*

P. A. JACOBS, J. AITKEN, ANNA FRACKIEWICZ, PAMELA LAW, MARJORIE S. NEWTON and P. G. SMITH. The inheritance of translocations in man: data from families ascertained through a balanced heterozygote

ANGELA I. TAYLOR, D. N. CHALLACOMBE and R. M. HOWLETT. Short arm deletion, chromosome 4, (4p-), a syndrome?

J. HERBICH, R. A. FISHER and D. A. HOPKINSON. Atypical segregation of human red cell acid phosphatase phenotypes: evidence for a rare 'silent' allele  $P^0$

K. P. SINHA, W. H. P. LEWIS, G. CORNEY and HARRY HARRIS. Studies on the quantitative variation of human red cell peptidase A activity

PHYLLIS J. MCALPINE, D. A. HOPKINSON and HARRY HARRIS. The relative activities attributable to the three phosphoglucomutase loci ( $PGM_1$ ,  $PGM_2$ ,  $PGM_3$ ) in human tissues

Annual subscription £8 (\$26)

**CAMBRIDGE  
UNIVERSITY PRESS**

# GENETICAL RESEARCH

EDITORIAL BOARD

C. H. WADDINGTON (*Chairman*)

CHARLOTTE AUERBACH    J. R. S. FINCHAM

W. HAYES    MARY F. LYON

R. RILEY    A. ROBERTSON

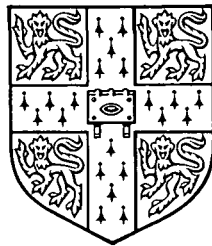
EXECUTIVE EDITOR

E. C. R. REEVE

ASSISTANT EXECUTIVE EDITOR

J. O. BISHOP

**Volume 16. 1970**



CAMBRIDGE  
AT THE UNIVERSITY PRESS

1970

**PUBLISHED BY**  
**THE SYNDICS OF THE CAMBRIDGE UNIVERSITY PRESS**  
Bentley House, 200 Euston Road, London, N.W. 1  
American Branch: 32 East 57th Street, New York, N.Y. 10022

*Printed in Great Britain at the University Printing House, Cambridge*

## CONTENTS

### No. 1 (August 1970)

MCPHEE, C. P. and ROBERTSON, ALAN. The effect of suppressing crossing-over on the response to selection in <i>Drosophila melanogaster</i>	page 1
EDWARDS, K. J. R. Developmental genetics of leaf formation in <i>Lolium</i> . 3. Inheritance of a developmental complex	17
THRELKELD, S. F. H. and STOLTZ, J. M. A genetic analysis of non-disjunction and mitotic recombination in <i>Neurospora crassa</i>	29
WOOD, R. J. The influence of the <i>y</i> locus on DDT resistance in the mosquito <i>Aedes aegypti</i> L.	37
TILNEY-BASSETT, R. A. E. The control of plastid inheritance in <i>Pelargonium</i>	49
NORMARK, STAFFAN. Genetics of a chain-forming mutant of <i>Escherichia coli</i> . Transduction and dominance of the <i>envA</i> gene mediating increased penetration to some antibacterial agents	63
AZEVEDO, J. L. and ROPER, J. A. Mitotic non-conformity in <i>Aspergillus</i> : successive and transposable genetic changes.	79
ASHESHOV, ELIZABETH H., WOODS, JENNIFER M. and DYKE, K. G. H. Penicillinase synthesis in <i>Staphylococcus aureus</i> : the effect of inducer and of the cellular location of the genetic determinants on the amount of enzyme formed	95
COOKE, MARYLYN, MEYNELL, ELINOR and LAWN, A. M. Mutant Hfr strains defective in transfer: restoration by F-like and I-like de-repressed R factors	101
WILLETTS, N. S. and FINNEGAN, D. J. Characteristics of <i>E. coli</i> K 12 strains carrying both an F prime and an R factor	113
HARTLEY, JENNIFER M. Contrasting complementation patterns in <i>Aspergillus nidulans</i>	123

### No. 2 (October 1970)

FLORES DA CUNHA, MIGUEL. Mitotic mapping of <i>Schizosaccharomyces pombe</i>	127
KIMURA, MOTOO and OHTA, TOMOKO. Genetic loads at a polymorphic locus which is maintained by frequency-dependent selection	145

LEWIS, C. M. and FINCHAM, J. R. S. Genetics of nitrate reductase in <i>Ustilago maydis</i>	page 151
OHTA, TOMOKO and KIMURA, MOTOO. Development of associative over-dominance through linkage disequilibrium in finite populations	165
LOUTIT, J. S. Investigation of the mating system of <i>Pseudomonas aeruginosa</i> strain I. VI. Mercury resistance associated with the sex factor (FP)	179
BARANOWSKA, HANNA. Intragenic recombination pattern within the 164 locus of <i>Ascobolus immersus</i> in the presence of outside markers	185
ANDERSON, E. S. and THRELFALL, E. J. Change of host range in a resistance factor	207
PITTON, J. S. and ANDERSON, E. S. The inhibitory action of transfer factors on lysis of <i>Escherichia coli</i> K12 by phages $\mu 2$ and $\phi 2$	215
WOOLLEY, D. M. A test of the functional significance of the quantity of mitochondria in the spermatozoa of mice	225
PUHALLA, JOHN E. Genetic studies of the <i>b</i> incompatibility locus of <i>Ustilago maydis</i>	229
CHANDRA, H. SHARAT. On <i>X</i> inactivation of <i>XO</i> embryos of mammals	233
REEVE, E. C. R. Transfer characteristic of two resistance determinants in a wild strain of <i>Klebsiella aerogenes</i> (V9A)	235

## No. 3 (December 1970)

JAMES, J. W. The founder effect and response to artificial selection	241
MULLEN, R. J. and HOORNBECK, F. K. Genetic aspects of fertility and endocrine organ size in rats	251
WOOLLEY, D. M. Selection for the length of the spermatozoan midpiece in the mouse	261
PANTELOURIS, E. M., ARNASON, A. and TESCH, F. W. Genetic variation in the eel. II. Transferrins, haemoglobins and esterases in the eastern North Atlantic. Possible interpretations of phenotypic frequency differences	277
HOUGHTON, J. A. A new class of slow-growing non-perithecial mutants of <i>Aspergillus nidulans</i>	285
CATTANACH, B. M. Controlling elements in the mouse <i>X</i> -chromosome. III. Influence upon both parts of an <i>X</i> divided by rearrangement	293
CLUTTERBUCK, A. J. A variegated position effect in <i>Aspergillus nidulans</i>	303

## Contents

v

BIELIG, L. M. and DRISCOLL, C. J. Substitution of rye chromosome 5R for its three wheat homoeologues	page 317
BENNETT, M. D. and REES, H. Induced variation in chiasma frequency in Rye in response to phosphate treatments	325
PARRY, ELIZABETH M. and COX, B. S. The tolerance of aneuploidy in yeast	333
CHAUHAN, N. S. Genetic evidence of an unorthodox chromosomal system in the lac insect <i>Kerria lacca</i> (Kerr)	341
MONTELEONE, PATRICIA L., CHERRY, JAMES D. and MONTELEONE, JAMES A. Chromosomal analysis of cultured skin fibroblasts from patients with infectious mononucleosis	345
SMITH, H. R., GRINDLEY, JUNE N., GRINDLEY, N. D. F. and ANDERSON, E. S. Derepression of F-lac in <i>Salmonella typhimurium</i> by a determinant for kanamycin resistance	349
CANHAM, RAYMOND P., BIRDSALL, D. ALAN and CAMERON, DAVID G. Disturbed segregation at the transferrin locus of the deer mouse	355
ROBERTS, LILIAN M. and REEVE, E. C. R. Two mutations giving low-level streptomycin resistance in <i>Escherichia coli</i> K12	359

# GENETICAL RESEARCH

VOLUME 16, NUMBER 3, DECEMBER 1970

## CONTENTS

JAMES, J. W. The founder effect and response to artificial selection	page 241
MULLEN, R. J. and HOORNBECK, F. K. Genetic aspects of fertility and endocrine organ size in rats	251
WOOLLEY, D. M. Selection for the length of the spermatozoan midpiece in the mouse	261
PANTELOURIS, E. M., ARNASON, A. and TESCH, F. W. Genetic variation in the eel. II. Transferrins, haemoglobins and esterases in the eastern North Atlantic. Possible interpretations of phenotypic frequency differences	277
HOUGHTON, J. A. A new class of slow-growing non-perithecial mutants of <i>Aspergillus nidulans</i>	285
CATTANACH, B. M. Controlling elements in the mouse X-chromosome. III. Influence upon both parts of an X divided by rearrangement	293
CLUTTERBUCK, A. J. A variegated position effect in <i>Aspergillus nidulans</i>	303
BIELIG, L. M. and DRISCOLL, C. J. Substitution of rye chromosome 5R for its three wheat homoeologues	317
BENNETT, M. D. and REES, H. Induced variation in chiasma frequency in Rye in response to phosphate treatments	325
PARRY, ELIZABETH M. and COX, B. S. The tolerance of aneuploidy in yeast	333
CHAUHAN, N. S. Genetic evidence of an unorthodox chromosomal system in the lac insect <i>Kerria lacca</i> (Kerr)	341
MONTELEONE, PATRICIA L., CHERRY, JAMES D. and MONTELEONE, JAMES A. Chromosomal analysis of cultured skin fibroblasts from patients with infectious mononucleosis	345
SMITH, H. R., GRINDLEY, JUNE N., GRINDLEY, N. D. F. and ANDERSON, E. S. Derepression of F-lac in <i>Salmonella typhimurium</i> by a determinant for kanamycin resistance	349
CANHAM, RAYMOND P., BIRDSALL, D. ALAN and CAMERON, DAVID G. Disturbed segregation at the transferrin locus of the deer mouse	355
ROBERTS, LILIAN M. and REEVE, E. C. R. Two mutations giving low-level streptomycin resistance in <i>Escherichia coli</i> K12	359
BOOKS RECEIVED	367
INDEX OF SUBJECTS AND AUTHORS	369

CAMBRIDGE UNIVERSITY PRESS

Bentley House, 200 Euston Road, London NW1 2DB

American Branch: 32 East 57th Street, New York, N.Y. 10022

SUBSCRIPTION £5 net (U.S.A. \$16.50) per volume

SINGLE PARTS 45s. net (U.S.A. \$7.00)