GENETICAL RESEARCH

EDITORIAL BOARD C. H. WADDINGTON (Chairman) CHARLOTTE AUERBACH D. LEWIS H. GRÜNEBERG G. PONTECORVO W. HAYES A. ROBERTSON

> EXECUTIVE EDITOR E. C. R. REEVE ASSISTANT EXECUTIVE EDITOR J. O. BISHOP

Volume 9. 1967



CAMBRIDGE AT THE UNIVERSITY PRESS

1967

Printed in Great Britain by Spottiswoode, Ballantyne & Co. Ltd. London and Colchester and published by the Cambridge University Press Bentley House, 200 Euston Road, London, N.W.1 American Branch: 32 East 57th Street, New York, N.Y. 10022 Agents in Canada: The Macmillan Company of Canada Limited

No. 1 (February 1967)

FELLER, W. On fitness and the cost of natural selection	page	1
SLIZYNSKI, B. M. Oocyte pachytene analysis of Cattanach's fd translocation		17
KIMURA, M. On the evolutionary adjustment of spontaneous mutation rates		23
BRODA, P. The formation of Hfr strains in Escherichia coli K12		35
FINCHAM, J. R. S. Recombination within the am gene of Neurospora crassa		49
CASSELTON, L. A. and LEWIS, D. Dilution of gene products in the cyto- plasm of heterokaryons in <i>Coprinus lagopus</i>		63
ROBERTS, R. C. The limits to artificial selection for body weight in the mouse. III. Selection from crosses between previously selected lines	:	73
ROBERTS, R. C. The limits to artificial selection for body weight in the mouse. IV. Sources of new genetic variance-irradiation and out- crossing	ĩ	87
FLANAGAN, S. P. and ISAACSON, J. H. Close linkage between genes which cause hairlessness in the mouse		99
KIMBER, G. The addition of the chromosomes of Aegilops umbellulata to Triticum aestivum (var. Chinese Spring)		111
SCHARLOO, W. Disruptive selection on sternopleural chaeta number in Drosophila melanogaster]	115
THODAY, J. M. The general importance of disruptive selection (A com- ment on Waddington and Robertson's recent paper)	-	119
ROBERTS, R. C. Small eyes—a new dominant eye mutant in the mouse]	121
LAWRENCE, C. W. Influence of non-lethal doses of radiation on allelic recombination in <i>Chlamydomonas reinhardi</i>	J	123
GLOVER, S. W. and ARONOVITCH, J. Mutants of bacteriophage lambda able to grow on the restricting host <i>Escherichia coli</i> strain W	J	129
GLOVER, S. W. and KERSZMAN, G. The properties of a temperate bacterio- phage $W\phi$ isolated from <i>Escherichia coli</i> strain W	1	135

No. 2 (April 1967)

ELSTON, R. C. and GLASSMAN, E. An approach to the problem of whether clustering of functionally related genes occurs in higher organisms	page 141
DE GROOT, B. The bar-properties, in particular glucosylation of deoxy- ribonucleic acid, in crosses of bacteriophages T2 and T4	149
KRUSZEWSKA, A. and GAJEWSKI, W. Recombination within the Y locus in Ascobolus immersus	159
AHMED, K. A. and WOODS, R. A. A genetic analysis of resistance to nystatin in Saccharomyces cerevisiae	179
SIMCHEN, G. Genetic control of recombination and the incompatibility system in Schizophyllum commune	195
DUNN, L. C. and BENNETT, D. Sex differences in recombination of linked genes in animals	211
JONES, L. P. Effects of X-rays on response to selection for a quantitative character of <i>Drosophila melanogaster</i>	221
EDWARDS, K. J. R. Development genetics of leaf formation in Lolium. 1. Basic patterns of leaf development in L. multiflorum and L. perenne	233
EDWARDS, K. J. R. Development genetics of leaf formation in <i>Lolium</i> . 2. Analysis of selection lines	247

No. 3 (June 1967)

RILEY, R. and CHAPMAN, V. The inheritance in wheat of crossability with rye	י page 259
RIYASATY, S. and DAWSON, G. W. P. A genetic study of primary and secondary reversions of some tryptophanA auxotrophs of Salmonella typhimurium	269
DUBNAU, E. and STOCKER, B. A. D. Behavior of three colicine factors and an R (drug-resistance) factor in Hfr crosses in Salmonella typhimurium	283
GREWAL, M. S. and DASGUPTA, S. Skeletal polymorphism and genetic drift in a Delhi frog, <i>Rana cyanophlictis</i>	, 299
HARDIN, R. T. and BELL, A. E. Two-way selection for body weight in <i>Tribolium</i> on two levels of nutrition	309
MOORE, D. Four new linkage groups in Coprinus lagopus	331
GRÜNEBERG, H. Gene action in the mammalian X-chromosome	343
MEYNELL, G. G. and LAWN, A. M. Sex pili and common pili in the con- junctional transfer of colicin factor Ib by Salmonella typhimurium	359
BEALE, G. H. and MCPHAIL, S. Some additional results on the maintenance of kappa particles in <i>Paramecium aurelia</i> (stock 51) after loss of the gene K	369
BATEMAN, A. J. A probable case of mitotic crossing-over in the mouse	375
BEN-GURION, R. On the induction of a recombination-deficient mutant of <i>Escherichia coli</i> K-12	377
LYON, M. F., MORRIS, T., SEARLE, A. G. and BUTLER, J. Occurrences and linkage relations of the mutant 'extra-toes' in the mouse	383
Index of subjects and authors	387

PLATES should only be included where absolutely essential. They should be supplied as unmounted glossy prints; any lettering to be inserted on them is best indicated on a separate sketch. Please do not damage prints by writing heavily on their backs or by using paper clips.

DIAGRAMS should be about twice the size of the finished block, and the thickness of lines and size of points determined accordingly. They must be drawn in Indian ink on white Bristol Board or tracing linen; graph paper ruled in pale blue (but not other colours) is also acceptable. Lettering should be lightly inserted in soft pencil only, so that the printer can put in the finished lettering.

Legends to illustrations must be given on a separate sheet of paper. Each illustration must have the name of the author and figure number pencilled on the back. Plates and diagrams should be numbered separately and their position indicated on the typescript. It will hasten refereeing if a photograph of each diagram can be supplied with the carbon copy of the paper.

TABLES should each be typed on a separate sheet of paper and their approximate positions in the text indicated on the typescript. Each table should be numbered and carry an appropriate title. The table should be designed, whenever possible, to be printed in the normal orientation of the text. The data should be grouped so as to make the use of rules unnecessary. Vertical rules, in particular, are expensive to print, and will only be included at the Editor's discretion.

FOOTNOTES should be avoided where possible. They can often be incorporated into the text, in parentheses.

SYMBOLS. Italic letters should generally be adopted for both gene symbols and quantities in mathematical formulae. Bold letters add to printing costs, and should only be used where they are necessary to avoid confusion.

SPELLING should follow the Concise Oxford Dictionary.

REFERENCES should follow the normal usage in the journal. In the list of references at the end of the paper, titles of periodicals should be abbreviated according to the *World List of Scientific Periodicals* (fourth edition).

PROOFS. Two sets of single-sided page proofs, together with the typescript, of each paper will be sent to the author. The printers' marked proof should be returned after correction to the Executive Editor. Excessive alterations, other than corrections of printers' errors, may be disallowed or charged to the author. Correction should be made using the symbols in British Standard 1219: 1958, or its shortened version B.S. 1219C: 1958.

OFFPRINTS. Fifty offprints of each paper, including short papers, are provided free of charge. Additional offprints may be ordered on the form sent out with proofs, provided this is returned within seven days of receipt.

RILEY, R. and CHAPMAN, V. The inheritance in wheat of crossability with	
rye	page 259
RIYASATY, S. and DAWSON, G. W. P. A genetic study of primary and secondary reversions of some tryptophanA auxotrophs of Salmonella tunhimurium	269
DUBNAU, E. and STOCKER, B. A. D. Behavior of three colicine factors and an R (drug-resistance) factor in Hfr crosses in Salmonella	200
typhimurium	283
GREWAL, M. S. and DASGUPTA, S. Skeletal polymorphism and genetic	
drift in a Delhi frog, Rana cyanophlictis 🥂	299
HARDIN, R. T. and BELL, A. E. Two-way selection for body weight in	
Tribolium on two levels of nutrition	309
MOORE, D. Four new linkage groups in Coprinus lagopus	331
GRÜNEBERG, H. Gene action in the mammalian X-chromosome	343
MEYNELL, G. G. and LAWN, A. M. Sex pili and common pili in the con-	
jugational transfer of colicin factor Ib by Salmonella typhimurium	359
BEALE, G. H. and MCPHAIL, S. Some additional results on the maintenance of kappa particles in <i>Paramecium aurelia</i> (stock 51) after loss of the	
gene K	369
BATEMAN, A. J. A probable case of mitotic crossing-over in the mouse	375
BEN-GURION, R. On the induction of a recombination-deficient mutant of Escherichia coli K-12	377
LYON M F. MORRIS T. SEARLE A G and BUTLER J. Occurrences and	
linkage relations of the mutant 'extra-toes' in the mouse	383
Inder of subjects and authors	387
that of subjetts that database	001