VOLUME 2, NO. 3

NOVEMBER 1961

and leves (1

GENETICAL RESEARCH

EDITORIAL BOARD

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

E. C. R. REEVE



PUBLISHED BY

CAMBRIDGE UNIVERSITY PRESS

Bentley House, 200 Euston Road, London, N.W. 1 American Branch: 32 East 57th Street, New York 22, N.Y.

PRICE 40s. net (U.S.A. \$7.00)

GENETICAL RESEARCH

GENETICAL RESEARCH publishes original work on all aspects of genetics, or in any field of research which has an important bearing on genetics. Papers will be submitted to referees before acceptance. They will generally be printed in order of acceptance. In addition, short notes limited to 1500 words or the equivalent space including figures, etc., may be included if received 3 months before publication date.

EACH ANNUAL VOLUME will consist of three parts (to be published in February, July and November) plus an index.

SUBSCRIPTIONS may be sent to any bookseller or to the Cambridge University Press, 200 Euston Road, London, N.W. 1. Subscriptions in the U.S.A. should be sent to the American Branch of the Press, 32 East 57th Street, New York 22, N.Y. The subscription price is £5 net (including postage) for an annual volume of three parts (\$17.50 in the U.S.A.), payable in advance; Separate parts 40s. or \$7.00 each (plus postage).

NOTES FOR CONTRIBUTORS

CONTRIBUTIONS will be welcomed from scientists of all nationalities, but must be written in English, with an English summary. An additional summary in French, German, Russian or Italian will be accepted. Papers should be sent to the Executive Editor, Dr. E. C. R. Reeve, Institute of Animal Genetics, West Mains Road, Edinburgh 9.

General. Submission of a paper or note will be taken to imply that it is unpublished and is not being considered for publication elsewhere. Papers published in *Genetical Research* may not be reprinted or published in translation without permission from the Editorial Board. Papers should be as concise as clarity permits, and illustrations kept as few as possible. Attention to the following instructions will assist rapid publication.

Typescripts. A top copy and one carbon copy should be submitted. They should be typed with double-spacing, on one side of the paper, leaving margins of about 1½ inches at the left-hand side and head of each sheet. Quarto is preferred to foolscap paper. Heavily corrected typescripts may have to be returned to the author for retyping. Papers should state the name and address of the author (or his proxy) to whom proofs are to be sent. The address of the laboratory at which the work was carried out will be printed with the authors' names at the head of the paper, and changes of address and sources of financial support may be added in footnotes.

A short title should be supplied for running headlines; this must not exceed 50 characters, counting each letter and space as one character.

(continued inside back of cover)

JOURNAL OF REPRODUCTION AND FERTILITY

The Journal publishes original papers, abstracts of Proceedings, and occasionally reviews and bibliographies dealing with the morphology, physiology, biochemistry and pathology of reproduction in man and animals, and with the biological, medical and veterinary problems of fertility and lactation. In 1962, enlarged numbers will be issued bimonthly, to give two volumes a year.

Papers to appear early in 1962 include:

- MATS AHLGREN and LARS PH. BENGTSSON. Transplantation of fertilized rabbit eggs to the anterior chamber of the eye.
- G. C. Ashton and G. R. Fallon. β -Globulin type, fertility, and embryonic mortality in cattle.
- G. R. Fallon. Body temperature and fertilization in the cow.
- EVERETT D. WILSON and M. X. ZARROW. A comparison of superovulation in the immature mouse and rat.
- C. W. EMMENS and C. A. FINN. Local and parenteral action of oestrogens and anti-oestrogens on early pregnancy in the rat and mouse.
- E. STEINBERGER. A quantitative study of the effect of an alkylating agent (triethylenemelamine) on the seminiferous epithelium of rats.
- R. P. Amann and J. O. Almouist. Reproductive capacity of dairy bulls. VI. Effect of unilateral vasectomy and ejaculation frequency on gonadal and extragonadal sperm reserves; kinetics of epididymal physiology.
- M. W. Orsini. A study of ovo-implantation in the hamster, rat, mouse, guinea-pig and rabbit in cleared uterine tracts.
- R. G. Wales and I. G. White. The effects of some antibacterials on dog spermatozoa.
- C. W. EMMENS. The action of oestrogens and anti-oestrogens on early pregnancy in the rabbit.
- J. D. BIGGERS, C. FINN and A. McLaren. The long-term reproductive performance of female mice. I. The effect of removing one ovary. II. Variation of litter-size with parity.
- D. M. JOUBERT. Sex behaviour of purebred and crossbred Merino and Blackhead Persian ewes.
- D. G. EDGAR. Studies on infertility in ewes.

Editorial correspondence should be sent to Dr C. R. Austin, Physiological Laboratory, Downing Street, Cambridge, England, and business correspondence to the publishers.

The subscription rate is 70s. per volume. U.S.A. and Canada \$12.

BLACKWELL SCIENTIFIC PUBLICATIONS BROAD STREET, OXFORD

i

COMMONWEALTH BUREAU OF ANIMAL BREEDING AND GENETICS

ANIMAL BREEDING ABSTRACTS

Issued quarterly in March, June, September and December at 90s. per annum

By means of abstracts, review articles and book reviews this journal covers the world's published research on breeds, breeding, productivity, genetics and reproduction of all farm livestock, as well as poultry and fur bearers. Experimental work with small laboratory animals is also reported in so far as it may throw more light on problems connected with animals of economic importance.

The June 1961 issue contains a review by A. L. Ogden on "Biochemical Polymorphism in Farm Animals". Other recent reviews include "Hereditary Dwarfism in Beef Cattle", by K. P. Bovard, and "Selection for Heterosis", by J. C. Bowman.

Subscriptions may be placed with any major bookseller or sent to:

COMMONWEALTH AGRICULTURAL BUREAUX
CENTRAL SALES BRANCH
FARNHAM ROYAL, BUCKS., ENGLAND

INTERNATIONAL ABSTRACTS OF BIOLOGICAL SCIENCES

AIMS AND SCOPE

INTERNATIONAL ABSTRACTS OF BIOLOGICAL SCIENCES attempts to cover the more important papers in experimental biology, approaching the subject from the fundamental point of view, with emphasis on

ANATOMY BIOCHEMISTRY BIOPHYSICS GENETICS

IMMUNOLOGY PHARMACOLOGY PHYSIOLOGY

BOTANY and ZOOLOGY are treated as experimental subjects, and little that is purely descriptive is included. Abstracts of ANIMALBEHAVIOUR are included.

Biochemical and physiological aspects of MICROBIOLOGY and PATHOLOGY are covered. ODONTOLOGY, DENTAL PATHOLOGY and DENTAL ANATOMY are also included.

JOURNALS COVERED

A list of the journals (currently over 400) which are regularly scrutinized by the abstracters is given in the first number of each volume. In the majority of cases an indicative abstract of the paper is prepared, but in a few cases—for instance, if the paper is a preliminary communication or the subject matter is border-line—a title only is given.

The total number of abstracts published in a year exceeds 24,000. Monthly issues contain about 2000 abstracts each. Three issues and index of subjects and authors constitute a quarterly volume.

SUBSCRIPTION RATES

Price per volume (post free) £10 (\$28.00) Printed on one side of the page £10. 10s. (\$29.50)
Annual subscription (4 volumes) £35 (\$98.00)

PERGAMON PRESS Oxford - London - New York - Paris

HEADINGTON HILL HALL, OXFORD 4 & 5 FITZROY SQUARE, LONDON W.1 122 EAST 55th STREET, NEW YORK 22, N.Y.

COMMONWEALTH BUREAU OF PLANT BREEDING AND GENETICS

SCHOOL OF AGRICULTURE, CAMBRIDGE, ENGLAND

Information on all topics concerned with the improvement of economic plants and microorganisms, in particular the methods and achievements of crop breeding, field trials, new varieties and strains, genetics, cytology and applied statistics, is given regularly in the journal

PLANT BREEDING ABSTRACTS

COMPILED FROM WORLD LITERATURE

Each volume contains five to six thousand abstracts from articles and reports in thirty to forty different languages, also reviews of new books and notices of new journals.

Subscription rate: 110s. or \$16.50 per volume (including indexes)

Order through booksellers or to
COMMONWEALTH AGRICULTURAL BUREAUX
CENTRAL SALES BRANCH, FARNHAM ROYAL, SLOUGH, ENGLAND

JOURNAL OF GENETICS

Editor: J. B. S. Haldane, F.R.S.

18/1 BARRACKPORE TRUNK ROAD, P.O. BELGHORIA (West Bengal), INDIA.

The Journal of Genetics publishes researches in genetics, as Bateson used that word, i.e., "Heredity and Variation" in his letter of 18/4/1905 to Adam Sedgwick, and "The special physiology of Descent" in "Darwin and Modern Science" in 1909. Primarily a record of Research in the Commonwealth, it includes some outside contributions.

It has been possible to reduce the price of future volumes to $R^s.55$, £4 5s, or \$15.

Subscriptions are accepted as per volume. Volume 58 started in April 1961.

All communications should be sent to "THE JOURNAL OF GENETICS, 18/1 Barrackpore Trunk Road, P.O. Belghoria, West Bengal, India

GENETICA AGRARIA

A Journal of "Genetics applied to Agriculture" edited by "Centro di Genetica del Consiglio Nazionale delle Ricerche" and "Società Italiana di Genetica Agraria", (SIGA) Pavia, Italy.

The Journal is issued four times a year. Price per volume of about 400 pages: till Vol. IX°, L. 4000 or \$7.0; since Vol. X°, L. 5000 or \$8.5.

Besides other original papers, proceedings of Symposia of the SIGA are published:

- Vol. XII°, 1960: "Proceedings of the I° National Meeting in Lonigo" on "Improved seeds", n. 1-2: pp. 229, Figg. 14, Tab. 9 (wheat, maize, rice, forage crops, horticultural crops, potatoes, sugar-beet; n. 3-4: pp. 168, Figg. 18, Tab. 33, Proceedings VI° Meeting of the SIGA on: "Induced, with radiations or chemicals, mutations for plant breeding" (reports in English of McKey, Nilan, Gaul, Hagberg, Ehrenberg, and Italian of D'Amato, Donà, Bianchi).
- Vol. XIII°, 1960: n. 1-2: pp. 221, Figg. 7, Tab. 47+2 Col. Proceedings VI° Meeting SIGA in Forli, '59. Reports in English of Favret, Julén, Gélin, Heslot, Jolly, and Italian of Jucci, Esposito Avanzi, Scarascia, Wittmer, Marchesi, Meletti Manunta, Fava, Rognoni; n. 3-4: Report in English of Datta, Mikaelsen, Wood etc. (in press).
- Vol. XIV°, 1961: "Proceedings VII° Meeting of the SIGA in Padova" on "Genetics and agriculture: in silkworms culture, in agricultural entomology and in plant breeding" (reports in English of McKelvie, Wood, Spurway, Hogen, Hesch; French of Genevois, Pochon, and in Italian of Lombardi, Bianchi, Manunta, Milani, Masera, Rognoni, Colombo, Giorgi, Battaglia).
- Vol. XV°, 1961: Proceedings II° National Meeting on durum wheat, Foggia (June 1960). Reports of Carrante, Jucci, Visco, Conti, Dionigi, Maliani, Candura, Casali, Agnesi, Kolotos (Greece) Bonaspetti (Brazil).

Orders may be sent to the editor or placed through booksellers. Managing Editor: Prof. C. Jucci, Centro di Genetica del C.N.R. (Palazzo Botta), Pavia, Italy.

SYMPOSIA GENETICA et **BIOLOGICA ITALICA**

A Journal of Genetics and General Biology in which are collected together papers concerned with original researches carried out at the "Spallanzani Institute" of Zoology, University of Pavia, and at the Appenninic Center. The Appenninic Center is a Biological Station on Mount Terminillo (Rieti) organized for international cooperation in genecological research and in the applications of genetics to

ol. 1 ('50), Vol. 2 ('51–57), Vol. 3 ('52), Vol. 4 ('56), Vol. 5 ('56), Vol. 6 ('58–59), Vol. 8 ('61), Vol. 7, 9

(in press).

Vol. 8 and Vol. 9: PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM OF EXPERIMENTAL BIOLOGY IN MEMORY OF SPALLANZANI (Reggio Emilia—Pavia,

- Opening session—Welcome by Authorities and Official Delegates. Messages by Italian and Foreign Academies, Universities, and Societies. Simp. 1°: Generation of microorganisms and biochemical evolution (Oparin, Luria, Chaix, Bolcato, Quagliarello). Simp. 2°, 3°, 4°: Respiration of tissues (Longmuir, De Bernard, Martius, Slater, De Caro, Laser, Eichel, Sacktor, Metcalf, Fenwick, Manunta, Brodie, Gillette, Marrè, Cavallini, Mascherpa, Agrell, Hess, De Barbieri, Santamaria, Quastel, Brachet). Vol. 8: Opening session-
- Memorial session in Pavia—Simp. 5: Metabolism and reproduction (Monroy, Horstadius, Reverberi, Foote, Geigy, Benazzi, Braden, Mann, Astaurov).

 Simp. 6: Artificial insemination and sexual biology (Bonadonna, Baier, Leone, Galgano, Frizzi, Milani, Bianchi).

 Simp. 7: Digestion, nutrition, symbiosis (Straub, Hirsch, Smith, Bueding, Fraenkel, Valadares, Kock, Brooks, Manunta, Bernardini, Fava, Waddington).

 Simp. 8: Orientation and nervous activities—Circulation (Schreiber, Mohres, Terzi, Casella, Patlaciai, Piovalla, Mada)

Simp. 9: Regeneration, transplants, histocompatibility (Bodenstein, Tayeau, Jullien, Locatelli, Baserga, Millonig, Vago, Fraccaro, Pontecorvo).

Orders may be sent to the editor or placed through booksellers.

Managing Editor: Prof C. Jucci, Centro di Genetica del C.N.R., Palazzo Botta, Pavia (Italy).

SCIENTIFIC AMERICAN

SCIENTIFIC AMERICAN Offprints in the Life Sciences are 102 separate, selected articles published exactly as they appeared in SCIENTIFIC AMERICAN magazine. Now it is practicable to reinforce your textbook with articles by such authors as Beadle, Crick, Muller, Sonneborn, and Crow. Offprints may be ordered in any quantity or combination.

Each Offprint, 20¢.

a. h. STIJRTEVANT

GENETICS AND EVOLUTION: Selected Papers of A. H. Sturtevant, edited by E. B. Lewis, with a foreword by George Beadle, draws together some of the most important papers of one of the founders of modern genetics. "No one can master a science without going to the original works," says Dr. Lewis. "Without a book of the present kind it becomes increasingly difficult for students to have first hand contact with the original papers."

1961, 346 pp., \$7.50

CURT STERN

PRINCIPLES OF HUMAN GENETICS is a textbook of "quite remarkable balance, breadth of vision and good judgment.... [The] educational value of the work rises from that belonging to a specialist field of science to the status of a contribution to general human culture."—C. H. Waddington in *New Scientist*, 2 February 1961.

2nd edition, 753 pp., \$9.50

ADRIAN M. RAY D.

SRB & OWEN

GENERAL GENETICS. "It is difficult to resist superlatives in the description of this book. Suffice it to say that I find it most admirable in every way."—M. F. Ashley Montagu.

1952, 561 pp., \$6.75



W. H. FREEMAN AND COMPANY

660 MARKET STREET, SAN FRANCISCO 4, CALIFORNIA

v