

VOLUME 5, NO. 1

Reforma
FEBRUARY 1964

Reeve

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



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 47s. 6d. net (U.S.A. \$8.50)

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 £6 net (including postage) for an annual volume of three parts (\$21.00 in the U.S.A.), payable in advance; Separate parts 47s. 6d. or \$8.50 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 Submission of a paper or note will be taken to imply that it is unpublished and is not being considered for publication elsewhere.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 $1\frac{1}{2}$ 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. Numbers are issued bimonthly to give two volumes a year.

Papers to appear during 1964 include:

- M. BYGDAMAN and R. ELIASSON. The effect of progesterone and oestrone on the motility and reactivity of the pregnant human myometrium *in vitro*.
- C. A. FINN. The influence of the male on litter size.
- R. B. L. GWATKIN. Effect of enzymes and acidity on the zona pellucida of the mouse egg before and after fertilization.
- B. HENRICSON and L. BACKSTRÖM. A systematic study of the meiotic divisions in normal and subfertile or sterile boars and bulls.
- N. W. MOORE and J. N. SHELTON. The response of the ewe to a horse anterior pituitary extract.
- L. NELSON. Acetylcholinesterase in bull sperm.
- H. PETERS and E. LEVY. The effect of radiation in infancy on the mouse ovary. A quantitative study of oocyte sensitivity
- D. F. ROBERTS. The probability of spontaneous abortion in multiparae.
- M. J. K. HARPER. Effects of 1- α -methylallylthiocarbamoyl-2-methylthiocarbamoylhydrazine (I.C.I. 33,828) on early pregnancy in the rat.
- E. S. E. HAFEZ and E. RAJAKORSKI. Growth and survival of blastocysts in the domestic rabbit. I. Effect of maternal factors.
- R. G. EDWARDS, L. C. FERGUSON and R. R. A. COOMBS. Blood group antigens on human spermatozoa.
- L. M. BARNES and R. K. MEYER. Delayed implantation in intact rats treated with medroprogesterone acetate.

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 or £7 per year (two volumes).
U.S.A. and Canada \$12.00 per volume or \$24.00 per year.*

**BLACKWELL SCIENTIFIC PUBLICATIONS
BROAD STREET, OXFORD**

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
CYTOLOGY

GENETICS
IMMUNOLOGY
PHARMACOLOGY
PHYSIOLOGY

Also covered are BOTANY and ZOOLOGY, treated as experimental subjects; ANIMAL BEHAVIOUR; biochemical and physiological aspects of MICROBIOLOGY and PATHOLOGY; ODONTOLOGY, which includes DENTAL PATHOLOGY and DENTAL ANATOMY.

JOURNALS COVERED

A list of the journals (currently over 500) which are regularly scrutinized by the abstractors 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—an expanded title only is given.

The total number of abstracts published in a year exceeds 26,400. Monthly issues contain over 2,200 abstracts each. Three issues and index of subjects and authors constitute a quarterly volume.

Write for free inspection copy and details of subscription rates, mentioning this journal

PERGAMON PRESS Headington Hill Hall, Oxford

COMMONWEALTH BUREAU OF ANIMAL BREEDING AND GENETICS

ANIMAL BREEDING ABSTRACTS

Issued quarterly in March, June, September and December

This journal provides comprehensive coverage of world literature on the reproduction and genetics of laboratory mammals (excluding primates) as well as of farm livestock, poultry, and other animals of economic importance. Theoretical and statistical genetics are covered in so far as these are concerned with principles of general application. In addition to abstracts the journal contains book reviews and review articles.

Recent review articles include "Fertilisation in Farm Animals" by J. L. Hancock; "Puberty in Farm Animals" by D. M. Joubert; and "Body Growth and Fleece Development in the New Zealand Romney N-Type Sheep," by F. Cockrem.

*Subscription rate: 140s. per annum
65s. per annum in U.K. and contributing countries*

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

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

SYMPOSIA GENETICA et BIOLOGICA ITALICA

A Journal of genetics and general biology mainly devoted to the scientific contributions of the "Istituto di Zoologia Lazzaro Spallanzani" of the University of Pavia and of the "Centro Appenninico", a biological station on Mount Terminillo (Rieti).

Some volumes are devoted to the "Proceedings" of international meetings organized by the Istituto L. Spallanzani.

- Vol. 1 (1950), Vol. 2 (1951), Vol. 3 (1952), Vol. 4 (1956), Vol. 5, (1957), Vol. 6 (1958-59), Vol. 7 (1960-61), Vol. 8 (1961), Vol. 9 (1962), Vol. 10 (1963), Vols. 11, 12 (1963), Vol. 13 (1963). In press
- Vol. 8 and Vol. 9: PROCEEDINGS ON THE INTERNATIONAL SYMPOSIUM OF EXPERIMENTAL BIOLOGY IN MEMORY OF SPALLANZANI.
Symposia on generation of microorganisms and biochemical evolution—Respiration of tissues—Metabolism and reproduction—Artificial insemination and sexual biology—Digestion, nutrition, symbiosis—Orientation and nervous activities—Circulation—Regeneration, transplants, histocompatibility. single vol. L. it. 6500 or \$10.5
- Vols. 10, 11, 12: PROCEEDINGS OF THE IV CONGRESS UIEIS (UNION INTERNATIONALE ETUDE INSECTES SOCIAUX), Pavia, 1962-63.
- Vol. 10: Symp. 1°: Endocrinology (Lüscher, Schweigër, Karlson, Bernardini-Mosconi, Lukoschus, Schmidt, Jucci).
Symp. 2°: Cast differentiation (Gösswald, Brian, Pain, Simpson).
Sims. 4°: Gregarism and subsociality (Joly, Carlisle, Ellis, Raabe, Atwood, Hamard, Biliotti, Boistel, Manunta, Rabaglio, Bernardini-Mosconi) L. it. 6500 or \$10.5
- Vol. 11: Sect. 4°: Applications (Bonaventura, Schmidt, Schultze-Dewitz, Sampaio, Giordani-Soika, Gay, Pavan, Muller, Sy, Grimalsky, Gallo, Rudnev, Becker, Ruj). Sect. 1°: Termites (Richard, Snyder, Noirot, Lüscher, Harris, Krishna, Russo, Kalsoven, Baccetti, Howse, Wilkinson, Ernst, Hocking, Becker, Kushwaha, Springhetti) L. it. 6500 or \$10.5
- Vol. 12: Sect. 2° Ants (Gösswald, Kloft, Pavan, Kneitz, Cole, Wellenstein, Kannowski, Kusnezov, Földi, Ronchetti, Halberstadt, Haldane, Mukerji). Sect. 3°: Bees and wasps (Chauvin, Morse, Michener, Strambi, Esch, Husing, Da Costa Cruz, Altmann, Gontarski Vinogradova, Spurway).
Symp. 3°: Symbiosis (Buchner, Koch, Fava, Laudani, Jucci) L. it. 6500 or \$10.5

Orders may be sent to the Managing Editor or placed through booksellers.
Managing Editor: The Acting Director, Istituto di Zoologia, P. Botta, PAVIA (Italy).

GENETICA AGRARIA

A Journal of "Genetics applied to Agriculture" edited by the Istituto di Zoologia of the University of Pavia with the support of the Società Italiana di Genetica Agraria (SIGA).

The Journal is issued four times a year. Price per volume of about 400 pages: from Vol. IX°, L. 5000 or \$8.5; from Vol. XV°, L. 6500 or \$10.5.

Besides other original papers, Proceedings of the Annual Meeting of the SIGA are published:

- Vol. XV°, 1961 n. 1-2: Proceedings II° National Meeting on: "durum wheat", Foggia (June 1960). Reports by Carrante, Jucci, Visco, Conti Dionigi, Maliani, Candura, Casali, Agnesi, Kokolios (Greece), Bonaspetti (Brazil).
- 1962, n. 3-4: Proceedings of the VIII° Meeting of the SIGA in Bergamo on: "Breeding for quality in cultivated plants and methods for it". Report (in German) by Schwanitz, Hackbarth; (in Italian) by Fenaroli, Bianchi, Meletti, Rognoni, Dionigi, Panella.
- Vol. XVI°, 1963, n. 1-4: Proceedings VIII° Meetings SIGA in Bergamo (continued). Reports (in English) by Banga and Wood; (in Italian) by Wittmer, Nozzolini, Visonà, Marchesi, Trentin, De Bastiani, Manunta, Scaramella-Petri, Mariani, Bozzini, Zanotti. Miscellaneous contributions (in English) by Bal; (in Italian) by Matassino, Uncini, Chiappini, Maliani Carfagna, Bettini.
- Vol. XVII°, 1964, n. 1-4: Proceedings of the FAO Meeting on: "Plant exploration and introduction", Rome 1961, edited by G. Julén. Reports (in English) by Jucci, Purseglove, Ross, Hartley, Ellerström, Yamashita, Oppenheimer, Brieger, Rachie, Stanton, Thomas, Krug, Wykerley, Bartley, Stein, Banga, Pansiot, Boom, Whyte, Julén, Maguire, Rudolf, Erkun, Hawkes, Hudson, Hyland, Hafiz, Yangboonkird, Smitinand, Singh, Granhall, Tinsley; (in French) by Perrin de Brichambaut, Hedin, Angladette, Koechlin, Sauger, Portères, Souty, Barrau; (in Spanish) by Leon, Marzocca.

Orders may be sent to the Managing Editor or placed through booksellers.

Managing Editor: The Acting Director, Istituto di Zoologia, P. Botta,
PAVIA (Italy).

**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 and cytology, 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.

ANNUAL SUBSCRIPTION :

Rate to subscribers in Non-Contributing Countries (\$21.00) or 140s.

Rate to subscribers in Contributing Countries 70s. per volume (*including indexes*)

Order through booksellers or to

COMMONWEALTH AGRICULTURAL BUREAUX
CENTRAL SALES BRANCH, FARNHAM ROYAL, SLOUGH, ENGLAND

**Annals of
Human Genetics**

Edited by

L. S. PENROSE

with the assistance of

JULIA BELL

J. B. S. HALDANE, MARY N. KARN

R. R. RACE, J. A. F. ROBERTS

C. A. B. SMITH

The *Annals of Human Genetics* publishes original articles which describe observations on human heredity or which deal with closely related genetical and statistical problems

Subscription price, 120s. net per volume

Single issues 35s. plus postage,

7d. inland, 4d. overseas.

CAMBRIDGE UNIVERSITY PRESS

Bentley House, 200 Euston Road, London, N.W.1.

FULL PARTICULARS OF THE

JOURNALS

PUBLISHED BY THE

CAMBRIDGE UNIVERSITY
PRESS

MAY BE HAD FROM

THE MANAGER

CAMBRIDGE UNIVERSITY PRESS

Bentley House

200 Euston Road, London, N.W.1

GENUS

The review of the
ITALIAN COMMITTEE FOR THE STUDY OF POPULATION PROBLEMS
and of the ITALIAN SOCIETY OF GENETICS AND EUGENICS
edited under the auspices of the NATIONAL RESEARCH COUNCIL
EDITOR: CORRADO GINI

Contents of volume XIX, n. 2, 1963

ROBERT E. KUTTNER—Eugenic Aspects of Preventive Therapy for Mental Retardation.

CORRADO GINI—Di un'applicazione della transvariazione alla tassonomia (La regola del 75%).

I. DALLA VALLE e S. SAGGESE—Iauada del Fezzan: Caratteristiche demografiche.

GEORGE A. AGOGINO—The Paleo-Indian in North America.

P. EDUARDO NICOLICCHIA—La situazione demografica di Um-el-Araneb nell'ottobre del 1933.

CORRADO GINI—L'America Latina e i futuri sviluppi della Sociologia.

INTERNATIONAL COMMITTEE FOR THE STUDY OF THE HUMAN-LIKE HAIRY BIPEDS

I. T. SANDERSON—Some Preliminary Notes on Traditions of Submen in Arctic and Subarctic North America.

C. R. DORION—Aprecio por tierras de Izabal.

M. J. JURCICH—Tarma, el Hombre Salvaja de America.

CHARLES CORDIER—Deux anthropoides inconnus marchant debout au Congo ex-Belge.

I. T. SANDERSON—The Winderwasa or Hairy Primitives of Ancient Europe.

Rassegna:

CORRADO GINI—Teoria scientifica della cultura e altri saggi.

Recensioni.

Bibliografia.

GENUS

Accepts scientific articles, papers, notes and communications written in Italian, English, French, German and Spanish in the field of the different sciences related to population problems (Demography, Sociology, Economics, General Biology, Genetics, Eugenics, Anthropology, Social Hygiene, Psychology, Geography).

Orders should be addressed to: *Segreteria del Comitato Italiano per lo Studio dei Problemi della Popolazione - Via delle Terme di Diocleziano 10 - ROMA (Italy).*

Lit. 3.600

U.S.A. \$6.00

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., to mean "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 Journal of Genetics to R^s.55, £4 5s, or \$15 per volume.

Subscriptions are accepted as per volume. Volume 59 is the current volume.

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

MUTATION RESEARCH

*International journal on mutagenesis, chromosome
breakage and related subjects*

PURPOSE AND SCOPE

The rapidly expanding field of mutagenesis needs a medium in which papers hitherto scattered throughout the biological literature are brought together. It was therefore decided to create a bi-monthly international journal of **MUTATION RESEARCH**, the first issue of which is scheduled to appear early in the summer of 1964. The Editorial board, which is representative of the leading centres of mutation research, will aim at the highest scientific and literary standards. In this periodical will appear authoritative and original contributions, review articles and short communications. These papers will deal with spontaneous, radiation- and chemically-induced mutations ranging from the molecular level in viruses to mutation and chromosome aberrations in the whole range of living organisms from bacteria up to man.

PUBLICATION

Six issues constituting one volume of approx. 500 pages per year.

SUBSCRIPTION

Subscription price £6 10s. 0d. or \$18.00 or D.fl. 65.00 per year (post free). Orders should be sent to **ELSEVIER PUBLISHING COMPANY**, P.O. Box 211, Amsterdam, The Netherlands.

SUBMISSION OF MANUSCRIPTS

Papers should be sent to: The Managing Editor, Professor F. H. Sobels, Department of Radiation Genetics, Wassenaarseweg 62, Leiden, The Netherlands.

Managing editor
F. H. Sobels, Leiden

Associate editor
A. Rörsch, Rijswijk,
The Netherlands

Editorial Board

F. d'Amato, Pisa
C. Auerbach, Edinburg
R. C. von Borstel, Oak Ridge,
Tenn.
A. Brito da Cunha, São Paulo
L. Cavalli Sforza, Pavia
E. H. Y. Chu, Oak Ridge,
Tenn.
A. M. Clark, Adelaide
A. D. Conger, Gainesville, Fla.
J. F. Crow, Madison, Wisc.
M. Demerec, Brookhaven, N.Y.
N. P. Dubinin, Moscow
H. J. Evans, Harwell
R. Falk, Jerusalem
E. A. Favret, Castelar
C. E. Ford, Harwell
M. Fraccaro, Pavia
E. Freese, Bethesda, Md.
A. R. Gopal-Ayengar, Bombay
Å. Gustafsson, Stockholm
W. Harm, Cologne
H. Heslot, Paris
A. Hollaender, Oak Ridge,
Tenn.
B. A. Kihlman, Uppsala
R. F. Kimball, Oak Ridge,
Tenn.
K. G. Lüning, Stockholm
G. E. Magni, Pavia
H. Marcovich, Paris
H. J. Muller, Bloomington, Ind.
J. V. Neel, Ann Arbor, Mich.
H. B. Newcombe, Chalk River
R. A. Nilan, Pullman, Wash.
P. Oftedal, Oslo
I. I. Oster, Philadelphia, Pa.
D. R. Parker, Riverside, Calif.
L. S. Penrose, London
R. Rieger, Gatersleben
W. L. Russell, Oak Ridge,
Tenn.
A. G. Searle, Harwell
H. H. Smith, Brookhaven, N.Y.
Y. Tazima, Misima
R. Thomas, Brussels
H. Ulrich, Zürich
F. Vogel, Heidelberg
I. Watanabe, Tokyo
D. von Wettstein, Copenhagen
E. M. Witkin, New York, N.Y.
S. Wolff, Oak Ridge, Tenn.
M. R. Zelle, Argonne, Ill.



ELSEVIER PUBLISHING COMPANY
AMSTERDAM LONDON NEW YORK