

# The Journal of Experimental Biology

(Late *The British Journal of Experimental Biology*)

EDITED BY

J. GRAY

ASSISTED BY

J. Barcroft A. J. Clarke J. B. S. Haldane J. S. Huxley W. H. Pearsall  
S. C. Brooks F. A. E. Crew E. Newton Harvey M. H. Jacobs E. Ponder  
R. Chambers W. O. Fenn L. T. Hogben C.F.A. Pantin J. T. Saunders

Vol. VIII, No. 1 Price 12s. 6d. net January, 1931

SUBSCRIPTION PRICE PER VOLUME 40s. NET

## CONTENTS

- ROBERT CHAMBERS, BARNETT COHEN and HERBET POLLACK, Intracellular Oxidation.—Reduction Studies:  
III. Permeability of Echinoderm Ova to Indicators.
- W. NELSON JONES, A Sensitive Recording (Transpiration) Balance with a New Form of Electrically Operated Recorder.
- SYLVIA M. MILLS, The Effect of H-ion Concentration on Protozoa, as Demonstrated by the Rate of Food Vacuole Formation in *Colpidium*.
- E. A. SPAUL and W. W. MYDDLETON, Biological and Chemical Studies of Extracts of the Anterior Lobe Pituitary.
- E. A. SPAUL and W. W. MYDDLETON, The Phosphate Content and the Biological Activity of the Anterior Lobe Pituitary.
- J. GRAY and S. B. SETNA, The Growth of Fish:  
IV. The Effect of Food Supply on the Scales of *Salmo irrideus*.
- C. F. A. PANTIN, The Adaptation of *Gunda ulvae* to Salinity:  
I. The Environment.
- E. WEIL and C. F. A. PANTIN, The Adaptation of *Gunda ulvae* to Salinity:  
II. The Water Exchange.
- C. F. A. PANTIN, The Adaptation of *Gunda ulvae* to Salinity:  
III. The Electrolyte Exchange.
- W. E. AGAR, A Lamarckian Experiment Involving a Hundred Generations with Negative Results.

Published for *The Company of Biologists Limited*  
by THE CAMBRIDGE UNIVERSITY PRESS

LONDON: Fetter Lane, E.C.4

# The Journal of Experimental Biology

(Late *The British Journal of Experimental Biology*)

EDITED BY

J. GRAY

ASSISTED BY

J. Barcroft    A. J. Clark    J. B. S. Haldane    J. S. Huxley    W. H. Pearsall  
S. C. Brooks    F. A. E. Crew    E. Newton Harvey    M. H. Jacobs    E. Ponder  
R. Chambers    W. O. Fenn    L. T. Hogben    C. F. A. Pantin    J. T. Saunders

---

VOL. VIII, No. 2    Price 12s. 6d. net    *April*, 1931

SUBSCRIPTION PRICE PER VOLUME 40s. NET

---

## CONTENTS

- R. P. HOBSON, Studies on the Nutrition of Blow-Fly Larvae :  
I. Structure and Function of the Alimentary Tract.
- S. C. BROOKS, A. C. GIESE and R. I. GIESE, Potential Differences across  
Natural Membranes separating unlike Salt Solutions.
- F. C. STOTT, The Spawning of *Echinus esculentus* and some changes in Gonad  
Composition.
- WILLIAM C. YOUNG, A Study of the Function of the Epididymis :  
III. Functional Changes undergone by Spermatozoa during their  
Passage through the Epididymis and Vas deferens in the Guinea-pig.
- FIORINDO A. SIMEONE and WILLIAM C. YOUNG, A Study of the Function of  
the Epididymis :  
IV. The Fate of Non-ejaculated Spermatozoa in the Genital Tract of  
the Male Guinea-pig.
- G. S. CARTER, Iodine Compounds and Fertilisation :  
II. The Oxygen Consumption of Suspensions of Sperm of *Echinus  
esculentus* and *Echinus miliaris*.  
III. The Fertilisable Life of the Eggs of *Echinus esculentus* and *Echinus  
miliaris*.
- J. GRAY, The Senescence of Spermatozoa, II.

---

Published for The Company of Biologists Limited  
by THE CAMBRIDGE UNIVERSITY PRESS

LONDON: *Fetter Lane*, E.C.4

THE  
QUARTERLY JOURNAL  
OF  
MICROSCOPICAL SCIENCE

EDITOR :

EDWIN S. GOODRICH, M.A., LL.D., F.R.S.

CONTENTS OF No. 294—NEW SERIES.

Part II, Volume 74, January, 1931.

MEMOIRS.

- The Hatching of Insects from the Egg, and the Appearance of Air in the Trachea System. By ENID K. SIKES, Ph.D., B.Sc., and V. B. WIGGLESWORTH, M.A. M.D. (With 8 Text-figures.)
- The Oogenesis of *Calanus finmarchicus*. By IRENE F. HILTON, M.Sc. (With plates 9 and 10, and 5 Text-figures.)
- The Structure of the Clitellum of *Alma emini*, Mich. By A. J. GROVE, M.A. (Cantab.), D. Sc. (Birm.). (With 4 Text-figures.)
- The Oogenesis of *Lumbricus*: a Restatement. By L. A. HARVEY, M.Sc., A.R.C.S. (With Plate 11 and 5 Text-figures.)
- Yolk-Formation in *Periplaneta orientalis*. By R. A. R. GRESSON, B.Sc. (With Plates 12 and 13.)
- The Cranial Characters of the Brevicipitid Genus *Cacosternum* (Boulenger). By C. G. S. DE VILLIERS, M.A., Ph.D. (With 12 Text-figures.)
- Notes on *Protodrilus*. By E. S. GOODRICH. (With 11 Text-figures.)
- The Structure and Post-Embryonic Development of *Vanessa urticae* (Lepidoptera). I. The Larval Alimentary Canal. By H. HENSON, B.Sc. (With Plate 14 and 10 Text-figures.)
- The Club-Shaped Gland of *Amphioxus*: (a correction.) By EDWIN S. GOODRICH.

CONTENTS OF No. 295—NEW SERIES.

Part III, Volume 74, April, 1931.

MEMOIRS.

- The Scientific Work of Edwin Ray Lankester. By EDWIN S. GOODRICH.
- The Biological Relationship between *Septobasidium retiforme* (B. & C.) Pat. and *Aspidiotus Osborni* New. and Ckll. By JOHN N. COUCH (With Plates 15-19 and 60 Text-figures.)
- Observations on Dicystid Gregarines from Marine Worms. By D. L. MACKINNON, D.Sc., and H. N. RAY, Ph.D. (With Plates 20 and 21.)
- A New Protozoon, *Hyperidion thalassemae* n.gen., n.sp., from the intestine of *Thalassema neptuni* Gärtner. By D. L. MACKINNON, D. Sc., and H. N. RAY, Ph.D. (With Plate 22.)
- Mechanisms for the Prevention of Self-Fertilization in some species of Fresh-Water Triclad. By P. ULLYOT and R. S. A. BEAUCHAMP. (With 5 Text-figures and Plate 23.)
- On the Autonomic Nervous System of the Teleostean Fish *Uranoscopus scaber*. By JOHN Z. YOUNG, B.A. (With 12 Text-figures.)

Subscription Price per Volume, £3 3s. net.  
Single Parts £1 1s. net.

OXFORD UNIVERSITY PRESS  
AMEN HOUSE, LONDON, E.C. 4

# CONTENTS OF NEW SERIES, Vol. XVII., No. 2.

	PAGE
1. NOTES ON THE BIOLOGY OF CERTAIN LAMELLIBRANCHS ON THE SCOTTISH COAST. By A. C. STEPHEN. <i>With 15 Figures in the Text</i>	277
2. ON THE EFFECT OF THE SEVERE WINTER OF 1928-1929 ON THE OYSTER DRILLS WITH A RECORD OF FIVE YEARS OBSERVATIONS ON SEA-TEMPERATURE ON THE OYSTER-BEDS OF THE BLACKWATER ESTUARY. By J. H. ORTON. <i>With 2 Figures in the Text</i>	301
3. OBSERVATIONS AND EXPERIMENTS ON SEX-CHANGE IN THE EUROPEAN OYSTER ( <i>O. edulis</i> ). Part II. ON THE GONAD OF EGG-SPAWNING INDIVIDUALS. By J. H. ORTON AND C. AMIRTHALINGAM. <i>With 12 Figures in the Text</i> .	315
4. THE MUDS OF THE CLYDE SEA AREA. III. CHEMICAL AND PHYSICAL CONDITIONS; RATE AND NATURE OF SEDIMENTATION; AND FAUNA. By H. B. MOORE. <i>With 11 Figures in the Text</i>	325
5. THE SPECIFIC IDENTIFICATION OF FAECAL PELLETS. By H. B. MOORE. <i>With 6 Figures in the Text</i>	350
6. RAYS AND SKATES OF DEVON AND CORNWALL. METHODS OF RAPID IDENTIFICATION ON THE FISHMARKET. By G. A. STEVEN. <i>With 10 Figures in the Text</i>	367
7. TUBE FORMATION IN <i>Pomatoceros triqueter</i> L. By H. FAOUZI. <i>With 3 Figures in the Text</i>	379
8. THE LARVAE OF THE PLYMOUTH GALATHEIDAE. II. <i>Galathea squamifera</i> and <i>Galathea intermedia</i> . By M. V. LEBOUR. <i>With 1 Figure in the Text and Plate I</i>	385
9. THE VERTICAL DISTRIBUTION OF MARINE MACROPLANKTON. X. NOTES ON THE BEHAVIOUR OF SAGITTA IN THE PLYMOUTH AREA. By F. S. RUSSELL. <i>With 8 Figures in the Text</i>	391
10. THE LOWER LIMITS OF PERCEPTION OF ELECTRICAL CURRENTS BY FISH. By H. C. REGNART	415
11. SOME OBSERVATIONS ON SCHOOLING IN FISH. By G. M. SPOONER. <i>With 12 Figures in the Text</i>	421
12. THE VALIDITY OF SINGLE VERTICAL HAULS OF THE INTERNATIONAL NET IN THE STUDY OF THE DISTRIBUTION OF THE PLANKTON. By A. C. GARDINER. <i>With 2 Figures in the Text</i>	449
13. THE DETERIORATION OF FABRICS EXPOSED ON A ROOF AFTER TREATMENT WITH FISHING-NET PRESERVATIVES. By W. R. G. ATKINS	473
14. NOTE ON THE CONDITION OF THE WATER IN A MARINE AQUARIUM. By W. R. G. ATKINS	479
15. ON THE COLORIMETRIC DETERMINATION OF pH IN SEA-WATER. By O. GOMEZ IBÁÑEZ. <i>With 2 Figures in the Text</i>	483
16. ON ABNORMAL CONDITIONS OF THE GILLS IN <i>Mytilus edulis</i> . Part II. STRUCTURAL ABNORMALITIES, WITH A NOTE ON THE METHOD OF DIVISION OF THE MANTLE CAVITY IN NORMAL INDIVIDUALS. By D. ATKINS. <i>With 27 Figures in the Text</i>	489
17. NOTE ON SOME ABNORMALITIES OF LABIAL PALPS AND FOOT OF <i>Mytilus edulis</i> . By D. ATKINS. <i>With 7 Figures in the Text</i>	545
18. NOTE ON THE REGENERATION OF THE GILL OF <i>Mytilus edulis</i> . By D. ATKINS. <i>With 8 Figures in the Text</i>	551
19. THE NATURAL HISTORY OF <i>Bulla hydatis</i> LINN. By N. J. BERRILL. <i>With 1 Figure in the Text</i>	567
20. NOTES ON CYANEA CAUGHT IN THE RING-TRAWL IN THE PLYMOUTH AREA DURING THE YEARS 1925 TO 1930. By F. S. RUSSELL	573
21. NOTES ON THE CILIATE <i>Boveria stevensi</i> ISSEL FROM <i>Galeomma turtoni</i> SOWERBY AT PLYMOUTH. By D. L. MACKINNON AND H. N. RAY. <i>With 2 Figures in the Text</i>	577
22. AN AMOEBA FROM THE INTESINE OF AN ASCIDIAN AT PLYMOUTH. By D. L. MACKINNON AND H. N. RAY. <i>With 3 Figures in the Text</i>	583
23. REPORT OF COUNCIL, 1930	587
24. BALANCE SHEET	604
25. LISTS OF SUBSCRIPTIONS AND DONATIONS PAID DURING THE YEAR. 1ST APRIL, 1930, TO 31ST MARCH, 1931	607

## NOTICE.

The Council of the Marine Biological Association do not accept responsibility for statements published; those statements are contained in an official publication.