

PROCEEDINGS  
OF THE  
ROYAL SOCIETY OF EDINBURGH

PROCEEDINGS  
OF  
THE ROYAL SOCIETY  
OF EDINBURGH

Section B (Biology)

VOL. LXVI

1955-1957

PUBLISHED BY  
OLIVER & BOYD  
EDINBURGH: TWEEDDALE COURT  
LONDON: 39A WELBECK STREET, W. 1

1957

# CONTENTS

NO.	PAGE
*1. A Note on the Leaf Cushions of a Species of Palæozoic Aborescent Lycopod ( <i>Sublepidophloios ventricosus</i> sp. nov.). By C. A. Hopping, B.Sc., Department of Botany, University of Glasgow. <i>Communicated</i> by Professor J. Walton. (With One Plate and One Text-figure.) Issued separately March 30, 1956, . . . . .	I
*2. On a Specimen of <i>Psilophyton robustius</i> Dawson, from the Lower Devonian of Canada. By C. A. Hopping, B.Sc., Department of Botany, University of Glasgow. <i>Communicated</i> by Professor J. Walton. (With Two Plates and Two Text-figures.) Issued separately March 30, 1956, . . . . .	10
*3. A Double Centenary—Two Notable Naturalists, Robert Jameson and Edward Forbes. By James Ritchie, C.B.E., M.A., D.Sc., LL.D., P.R.S.E. (With Four Plates and Five Text-figures.) Issued separately April 10, 1956, . . . . .	29
*4. The Morphology and Relationships of a Complete Therocephalian Skeleton from the Cistecephalus Zone of South Africa. By John Attridge, B.Sc., M.Sc., Department of Geology, University of St Andrews. <i>Communicated</i> by Dr H. I. Drever. (With Two Plates, Nine Text-figures and One Table.) Issued separately May 31, 1956, . . . . .	59
5. Behaviour and Adaptations of the Primates. By W. C. Osman Hill, Prosector, Zoological Society of London. Issued separately May 31, 1956, . . . . .	94
*6. An Investigation of the Hepatotoxic Effects in the Fowl of Ragwort ( <i>Senecio jacobæa</i> Linn.), with special reference to the Induction of Liver Tumours with Seneciphylline. By J. G. Campbell, British Empire Cancer Campaign Unit at the Poultry Research Centre, West Mains Road, Edinburgh, 9. <i>Communicated</i> by Dr A. W. Greenwood, C.B.E. (With Four Plates.) Issued separately May 31, 1956, . . . . .	111
7. <i>Mollusca Orcadensia</i> . By Robert Rendall, Kirkwall, Orkney. <i>Communicated</i> by Professor C. M. Yonge, C.B.E., F.R.S. Issued separately August 10, 1956, . . . . .	131
8. The Tracheal System in Larval Tabanidæ, with special reference to <i>Tabanus bisignatus</i> Jaennike. By Joan M. Whitten, Ph.D., Queen Mary College, University of London. <i>Communicated</i> by Dr John Smart, University of Cambridge. (With Three Text-figures.) Issued separately October 13, 1956, . . . . .	202
*9. <i>Uromyces punctatus</i> Schroet. in Britain. By D. W. Burns, B.Sc., Ph.D., Department of Botany, The University, Aberdeen. <i>Communicated</i> by Dr J. A. Macdonald. Issued separately October 13, 1956, . . . . .	212

NO.	PAGE
*10. The Scottish Home Department's Marine Laboratory in Aberdeen. By C. E. Lucas, D.Sc., Director of Fisheries Research, Scottish Home Department, Marine Laboratory, Aberdeen. (With Four Plates.) Issued separately October 13, 1956, . . . . .	222
*11. The Cytology of Pharaoh's Ant, <i>Monomorium pharaonis</i> (L.). By Ian C. Smith, B.Sc., Zoology Department, University of Glasgow. and Professor A. D. Peacock, M.Sc., D.Sc., Natural History Department, University of St Andrews, Queen's College, Dundee. (With Four Text-figures.) Issued separately February 1, 1957, . . . . .	235
*12. On the Pollen and Diatom Flora contained in the <i>Surtarbrandur</i> of East Iceland. By Bernard L. Meyer, Ph.D., Dr.rer.nat., Department of Botany, and John Pirrit, B.Sc., Department of Geology, University of Glasgow. <i>Communicated by</i> Professor J. Walton. (With One Plate.) Issued separately February 1, 1957, . . . . .	262
*13. The Mid-Winter Rumen Microfauna of the Seaweed-Eating Sheep of North Ronaldshay. By J. Margaret Eadie, B.Sc., the Rowett Research Institute, Bucksburn, Aberdeenshire. <i>Communicated by</i> Dr A. E. Oxford. Issued separately February 1, 1957, . . . . .	276
*14. Cytological Analysis of Formaldehyde Induced Chromosomal Changes in <i>Drosophila melanogaster</i> . By H. Slizynska, Ph.D. (Cracow), Institute of Animal Genetics, University of Edinburgh. <i>Communicated by</i> Professor C. H. Waddington, F.R.S. (With Two Text-figures.) Issued separately February 1, 1957, . . . . .	288
*15. Observations on the Development of the Proteus Group of Amœbæ. By Monica Taylor, S.N.D., D.Sc., Catherine Hayes, S.N.D., Ph.D., and Mary Galbraith, M.A., Ed.B., Notre Dame College and Zoology Department, University of Glasgow. <i>Communicated by</i> Professor C. M. Yonge, C.B.E., F.R.S. Issued separately February 1, 1957, . . . . .	305
*16. Ecological Distribution of the Lumbricidæ in the Hebrides. By J. Morton Boyd, Department of Zoology, University of Glasgow. <i>Communicated by</i> Professor C. M. Yonge, C.B.E., F.R.S. (With Four Text-figures.) Issued separately May 22, 1957, . . . . .	311
*17. Utilization of Dietary Purines and Pyrimidines by <i>Drosophila melanogaster</i> . By James H. Sang, Agricultural Research Council Scientific Staff, Poultry Research Centre, Edinburgh, 9. <i>Communicated by</i> Dr A. W. Greenwood, C.B.E. (With Seven Text-figures.) Issued separately June 29, 1957, . . . . .	339
*18. Records of <i>Potamopyrgus jenkinsi</i> (Smith) in Scottish Fresh Waters over Fifty Years (1906-56). By W. Russell Hunter and T. Warwick, Departments of Zoology, Universities of Glasgow and Edinburgh. <i>Communicated by</i> Professor C. M. Yonge, C.B.E., F.R.S. (With Two Text-figures.) Issued separately June 29, 1957, . . . . .	360

Contents

vii

NO.	PAGE
*19. Family Selection in Poultry: the Use of Sire and Dam Family Averages in Choosing Male Parents. By Robert Osborne, M.A., Ph.D.(Edin.), Agricultural Research Council Poultry Research Centre, Edinburgh, 9. Communicated by Dr. A. W. Greenwood, C.B.E. Issued separately June 29, 1957, . . . . .	374
20. The Floral Meristem as a Reaction System. By C. W. Wardlaw, Department of Cryptogamic Botany, University of Manchester. Issued separately June 29, 1957, . . . . .	394
21. Studies on Flowering-Plant Growth and Organogenesis. I. Morphogenetic Effects of 2, 3, 5-Triiodobenzoic Acid on <i>Cannabis sativa</i> . By J. Heslop-Harrison and Y. Heslop-Harrison, Department of Botany, The Queen's University, Belfast. (With Three Text-figures.) Issued separately September 6, 1957, . . . . .	409
22. Studies on Flowering-Plant Growth and Organogenesis. II. The Modification of Sex Expression in <i>Cannabis sativa</i> by Carbon Monoxide. By J. Heslop-Harrison and Y. Heslop-Harrison, Department of Botany, The Queen's University, Belfast. (With One Text-figure.) Issued separately September 6, 1957, . . . . .	424

\* The thanks of the Society are due to the Carnegie Trust for the Universities of Scotland for grants towards the costs of the illustrations, tables, etc. in these papers.

## INSTRUCTIONS TO AUTHORS (*continued*)

The overall space available for figures and plates is  $9\frac{1}{2}'' \times 7\frac{1}{2}''$  in *Transactions* and  $7\frac{1}{2}'' \times 4\frac{3}{4}''$  in *Proceedings*.

**Photographs** should be unmounted glossy black and white prints, marked on the back with the name of the author, number of the figure, and an indication of the top. Prints should not be trimmed or cut out. Authors should suggest the arrangement of the figures on each plate, either by a diagram or a paste-up of rough prints, with indication of any lettering to be inserted.

**Lettering** must be in black ink in neat and legible style, or lightly written in pencil.

**Indicating Lines and Arrows** required on wash drawings or photographs should have the point marked by a pin-hole, and must be drawn on the back or on a covering tissue and not on the photograph or drawing. On line drawings such lines should be drawn thin but firmly.

**Graphs** should be drawn on white Bristol board or on squared paper ruled in faint blue lines: no other colour ruling is suitable. Since blue lines do not appear in reproductions, any cross-lines required must be drawn. If a tracing of a graph constructed on an unsuitable grid is submitted, white tracing paper should be used.

**Numerical values.** In papers concerned with the biological sciences ALL numerical values must be accompanied by their decimal equivalents.

**Tables.** Tabular matter must be kept to a minimum. No paper should present both tables and corresponding graphs, except where good reason can be given.

**Duplicates.** When the author can conveniently do so, it is desirable that duplicates of illustrations should be supplied for the use of the referees.

**Proofs** of papers will be sent to authors or communicators to the addresses indicated in correspondence or on MSS. The cost of authors' **corrections in excess of 5 per cent.** of the printer's charges for the setting of a particular paper **will be charged to the authors.** Proofs should, if possible, be returned within one week to *The Secretary, Royal Society of Edinburgh, 22 George Street, Edinburgh, 2*, and *not to the printer.* To prevent delay, authors who are abroad should, if possible, appoint someone in this country to correct proofs.

**Offprints.** As soon as a *Transactions* paper, or the sheet in which the last part of a *Proceedings* paper appears, is ready for press, copies of offprints, in covers bearing the title of the paper and the name of the author, are printed and placed on sale. The date of such separate publication is printed on each paper. Authors of papers will receive twenty-five offprints free, if they so desire. Additional offprints may be obtained at a fixed scale of prices given on a form attached to the first proof. To prevent disappointment, especially if a paper contains plates, authors should, as soon as possible, notify the Secretary of the number of additional copies required.

**Indexes.** To facilitate the compilation of indexes, and to secure due attention being given to the important points of a paper in Catalogues of Scientific Literature, authors are requested to supply to the Secretary, with the final proofs of papers, a brief index (on the model given below) of the points in a paper which are considered new or important. Indexes will be edited by the Secretary for publication in each volume of the *Transactions* and *Proceedings*.

---

### MODEL INDEX

Houstoun, R. A.—A measurement of the velocity of light. *Proc. Roy. Soc. Edin.*, A, **63**, 1949–50, 95–104.  
Light, A measurement of the velocity of.

R. A. Houstoun. *Proc. Roy. Soc. Edin.*, A, **63**, 1949–50, 95–104.

Velocity of Light, A measurement of the.

R. A. Houstoun. *Proc. Roy. Soc. Edin.*, A, **63**, 1949–50, 95–104.

Authors are advised, before sending in papers, to consult *Notes on the Preparation of Papers to be communicated to the Royal Society of London* (1951), and especially the chapters dealing with symbols, signs, and abbreviations recommended for British Scientific Publications. A copy may be had on application to the Secretary.

- XXI. Studies on Flowering-Plant Growth and Organogenesis.  
 I. Morphogenetic Effects of 2, 3, 5-Triiodobenzoic Acid on *Cannabis sativa*. By J. HESLOP-HARRISON and Y. HESLOP-HARRISON, Department of Botany, The Queen's University, Belfast. (With Three Text-figures). 409  
*(Issued separately September 6, 1957)*
- XXII. Studies on Flowering-Plant Growth and Organogenesis.  
 II. The Modification of Sex Expression in *Cannabis sativa* by Carbon Monoxide. By J. HESLOP-HARRISON and Y. HESLOP-HARRISON, Department of Botany, The Queen's University, Belfast. (With One Text-figure) 424  
*(Issued separately September 6, 1957)*

Title, Contents, and Index to Volume

---

*The Papers published in this part of the PROCEEDINGS may be had separately, on application to the Publishers, at the following Prices:*

No. XVII . . . . .	Price 5s. 6d.	No. XX . . . . .	Price 4s. od.
No. XVIII . . . . .	„ 4s. od.	No. XXI } . . . . .	„ 7s. od.
No. XIX . . . . .	„ 5s. 6d.	No. XXII }	

**Fellows of the Society purchasing publications for their own use will be allowed a special discount of 33½ per cent on the stated prices (see Law XVI).**