ISSN: 0031-1820

# **PARASITOLOGY**

journals.cambridge.org/par

Special Centenary Issue - Parasitology 1908-2008



Editors R. S. Phillips, R. B. Gasser & L. H. Chappe

Assistant Editor

M. Elisabeth Painter

CAMBRIDGE UNIVERSITY PRESS

#### **Parasitology**

EDITORS

R. S. PHILLIPS, R. B. GASSER and L. H. CHAPPELL

## ASSISTANT EDITOR

M. ELISABETH PAINTER Ph.D.

EDITORIAL POLICY

Parasitology publishes definitive papers on all aspects of pure and applied parasitology including biochemistry, molecular biology, immunology, genetics, ecology and physiology and also the application of new techniques, long-term epidemiology studies, advances in the understanding of life-cycles, chemotherapy and major systematic revisions. Papers should normally be full length with an explanatory introduction and detailed discussion of the findings reported. Shorter reports of particularly important findings will also be considered.

### To submit papers online, go to http://mc.manuscriptcentral.com/par/

- T. J. C. ANDERSON, Southwest Foundation for Biomedical Research, San Antonio
- C. ARME, Keele University
- M.-G. BASANEZ, Imperial College
- J. M. BEHNKE, University of Nottingham
- P. J. BRINDLEY, Tulane University of Louisiana
- F. E. G. COX, London School of Hygiene & Tropical Medicine
- T. A. DAY, Iowa State University
- J. T. ELLIS, University of Technology, Sydney
- A. FENTON, University of Liverpool
- T. G. GEARY, McGill University
- H. GINSBURG, The Hebrew University of Jerusalem
- W. HARNETT, University of Strathclyde
- H. HELMBY, London School of Hygiene & Tropical Medicine
- A. HEMPHILL, University of Berne
- G. HIDE, Salford University
- A. ITO, Asahikawa Medical College
- M. K. JONES, Queensland Institute of Medical Research, Brisbane
- M. W. KENNEDY, University of Glasgow

- D. P. KNOX, Moredun Research Institute
- P. T. LOVERDE, State University of New York at Buffalo
- A. MAULE, Queen's University, Belfast
- V. MCDONALD, Barts and the London School of Medicine and Dentistry
- S. A. NADLER, University of California, Davis
- H. A. NOYES, Liverpool University
- E. OTTESEN, Emory University, Atlanta
- R. POULIN, University of Otago
- S. E. RANDOLPH, University of Oxford
- D. ROLLINSON, Natural History Museum, London
- A. SAUL, Queensland Institute of Medical Research, Brisbane
- T. P. M. SCHETTERS, Intervet International Boxmeer
- M. E. SCOTT, McGill University
- R. C. TINSLEY, University of Bristol
- K. VICKERMAN, FRS, University of Glasgow
- R. A. WILSON, University of York
- D. ZARLENGA, Beltsville Agricultural Research Centre

Parasitology (ISSN 0031-1820) is published monthly and semi-monthly in April and September.

Subscriptions may be sent to any bookseller or subscription agent or direct to the publisher: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU, UK. Subscriptions in the USA, Canada and Mexico should be sent to Cambridge University Press, Journals Fulfillment Department,

100 Brook Hill Drive, West Nyack, New York 10994-2133. All orders must be accompanied by payment.

The subscription price (excluding VAT) of volume 136, 2009 which includes print and electronic access is £990 (US \$1880 in the USA, Canada and Mexico), for fourteen parts; the electronic-only price for institutional subscribers is £865 (US \$1685 in the USA, Canada and Mexico); separate parts cost £74 or US \$141 each (plus postage). EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Japanese prices for institutions are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo 156, Japan. Periodicals postage paid at New York, NY and at additional mailing offices. POSTMASTER: send address changes in USA, Canada and Mexico to Parasitology, Cambridge University Press, 100 Brook Hill Drive, West Nyack, New York 10994–2133.

Information on back volumes, permissions and advertising is given on the inside back cover.

The Journal is listed in the major relevant abstracting and indexing services worldwide, including Abstracts on Hygiene and Communicable Disease, Biological Abstracts, Biotechnology Research Abstracts, Chemical Abstracts,

Current Awareness in Biological Science, Current Contents, Dairy Science Abstracts, Excerpta Medica, Helminthological Abstracts, Index Medicus, Index Veterinarius, IABS, Protozoological Abstracts, Reviews of Applied Entomology, Tropical Diseases Bulletin, Veterinary Bulletin.

Internet access. This journal is included in the Cambridge Journals Online service which can be found at http://journals.cambridge.org/. For further information on other Press titles access http://www.cambridge.org/.

This journal issue has been printed on FSC-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see www.fsc.org for information.

## Contents

CENTENARY PAPERS

Foreword – Stephen Phillips	1383
A brief history of <i>Parasitology</i> Supplements and Special Issues – L. H. Chappell	1385
George Henry Falkiner Nuttall and the origins of parasitology and Parasitology - F. E. G. Cox	1389
"Not a very nice subject." Changing views of parasites and parasitology in the twentieth century – <b>Keith Vickerman</b>	1395
Tick-borne disease systems emerge from the shadows: the beauty lies in molecular detail, the message in epidemiology – S. E. Randolph	1403
Progress towards understanding the immunobiology of <i>Theileria</i> parasites – <b>W. Ivan Morrison</b>	1415
Malaria, sexual development and transmission: retrospect and prospect – R. E. Sinden	1427
The malaria merozoite, forty years on - L. H. Bannister and G. H. Mitchell	1435
The carboxy-terminus of merozoite surface protein 1: structure, specific antibodies and immunity to malaria – <b>A. A. Holder</b>	1445
Along a TNF-paved road from dead parasites in red cells to cerebral malaria, and beyond – I. A. Clark	1457
The evolution of the knowledge of cat and dog coccidia – J. P. Dubey	1469
Past and future: vaccination against Eimeria - V. McDonald and M. W. Shirley	1477
Molecular epidemiology of African sleeping sickness - G. Hide and A. Tait	1491
Species-specific probes for the identification of the African tsetse-transmitted trypanosomes – <b>W. Gibson</b>	1501/
The molecular epidemiology and phylogeography of <i>Trypanosoma cruzi</i> and parallel research on <i>Leishmania</i> : looking back and to the future – M. A. Miles, M. S. Llewellyn, M. D. Lewis, M. Yeo, R. Baleela, S. Fitzpatrick, M. W. Gaunt and I. L. Mauricio	1509
Echinococcus, Giardia and Cryptosporidium: observational studies challenging accepted dogma – R. C. A. Thompson	1529
Predisposition to ascariasis: patterns, mechanisms and implications – C. V. Holland	1537
Exploring the immunology of parasitism – from surface antigens to the hygiene hypothesis – <b>R. M. Maizels</b>	1549
Heligmosomoides bakeri: a model for exploring the biology and genetics of resistance to chronic gastrointestinal nematode infections – J. M. Behnke, D. M. Menge and H. Noyes	1565
The saga of schistosome migration and attrition – R. A. Wilson	1581
A wake up call for urinary schistosomiasis: reconciling research effort with public health importance – <b>D. Rollinson</b>	1593
Schistosomiasis – a rich vein of research – Paul Hagan	1611
Radiation-attenuated schistosome vaccination – a brief historical perspective – Q. D. Bickle	1621
Forty years of helminth biochemistry – J. Barrett	1633
Reflections on the biochemistry of <i>Echinococcus</i> : past, present and future – <b>D. P. McManus</b>	1643
The ecology of parasites of freshwater fishes: the search for patterns - C. R. Kennedy	1653
A note on the editors of Parasitology – Stephen Phillips	1663