

VOLUME 57 PART 1 FEBRUARY 1967

PARASITOLOGY

FOUNDED BY G. H. F. NUTTALL



CAMBRIDGE UNIVERSITY PRESS

BENTLEY HOUSE, 200 EUSTON ROAD, LONDON, N.W.1

AMERICAN BRANCH: 32 EAST 57TH STREET, NEW YORK, N.Y. 10022

Subscription per volume: £6. 10s. (\$23.50) (4 parts)

Single parts: £2 (\$6.75)

PARASITOLOGY

EDITOR

P. TATE, The Molteno Institute, Downing Street, Cambridge

EDITORIAL BOARD

ANN BISHOP, F.R.S. (*Chairman*)

D. R. ARTHUR

C. A. HOARE, F.R.S.

L. G. GOODWIN

J. LLEWELLYN

GWENDOLEN REES

EDITORIAL PANEL

The Editor is also assisted in the refereeing and editing of papers by the following:

H. D. CROFTON

B. G. PETERS

G. O. EVANS

S. PRUDHOE

E. HINDLE, F.R.S.

W. P. ROGERS

G. LAPAGE

G. SALT, F.R.S.

D. L. LEE

J. SMART

ELSPETH W. McCONNACHIE

K. M. SMITH, F.R.S.

J. D. SMYTH

PARASITOLOGY publishes original work on parasitology. The scope of the Journal includes papers on morphology; cytology, histochemistry and fine structures; physiology, biochemistry and chemotherapy; and the ecology, life cycle and taxonomy of parasites and their vectors.

EACH ANNUAL VOLUME consists of four parts (published in February, May, August and November) plus an index. Proceedings of the British Society for Parasitology are published in appropriate issues.

SUBSCRIPTIONS may be sent to any bookseller or subscription agent or direct to the Cambridge University Press, Bentley House, 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, N.Y. 10022. The subscription price is £6. 10s. net (including postage) for an annual volume of four parts (\$23.50 in the U.S.A.), payable in advance; separate parts cost 40s. net or \$6.75 each (plus postage).

BACK VOLUMES. Vols. 1—39: Inquiries should be addressed to Wm Dawson & Sons Ltd, 16 West Street, Farnham, Surrey. Vols. 40 onwards: Quotations for parts still in print may be obtained from the London or New York offices of the Cambridge University Press.

Contributors are strongly urged to study the notes for their guidance printed inside the back cover and to follow the recommendations set out there.

The previous part was published on 1 December 1966.

PARASITOLOGY

PARASITOLOGY

(*Founded by G. H. F. Nuttall, F.R.S.*)

EDITOR

P. TATE

EDITORIAL BOARD

ANN BISHOP, F.R.S. (*Chairman*)

D. R. ARTHUR

C. A. HOARE, F.R.S.

L. G. GOODWIN

J. LLEWELLYN

GWENDOLEN REES

EDITORIAL PANEL

H. D. CROFTON

B. G. PETERS

G. O. EVANS

S. PRUDHOE

E. HINDLE, F.R.S.

W. P. ROGERS

G. LAPAGE

G. SALT, F.R.S.

D. L. LEE

J. SMART

ELSPETH W. McCONNACHIE

K. M. SMITH F.R.S.

J. D. SMYTH

VOLUME 57, 1967

CAMBRIDGE

AT THE UNIVERSITY PRESS

1967

PUBLISHED BY
THE SYNDICS OF THE UNIVERSITY PRESS
Bentley House, 200 Euston Road, London, N.W. 1
American Branch: 32 East 57th Street, New York, N.Y. 10022

Printed in Great Britain at the University Printing House, Cambridge

CONTENTS

(All rights reserved)

PART I, FEBRUARY 1967

	PAGE
GREGSON, J. D. Observations on the movement of fluids in the vicinity of the mouthparts of naturally feeding <i>Dermacentor andersoni</i> Stiles. (With 2 Plates)	1
HORTON, R. J. The route of migration of <i>Eimeria stiedae</i> (Lindemann, 1865) sporozoites between the duodenum and bile ducts of the rabbit. (With 4 Figures in the Text)	9
ANGEL, L. MADELINE. The life-cycle of <i>Echinoparyphium hydromyos</i> sp.nov. (Digenea: Echinostomatidae) from the Australian water-rat. (With 6 Figures in the Text)	19
NORTON, C. C. <i>Eimeria duodenalis</i> sp.nov. from English covert pheasants (<i>Phasianus</i> sp.). (With 5 Figures in the Text)	31
WILSON, R. A. The structure and permeability of the shell and vitelline membrane of the egg of <i>Fasciola hepatica</i> . (With 1 Plate)	47
WAGLAND, B. M. and DINEEN, J. K. The dynamics of the host-parasite relationship. VI. Regeneration of the immune response in sheep infected with <i>Haemonchus contortus</i> . (With 1 Figure in the Text)	59
JAMES, B. L. and BOWERS, E. A. The effects of parasitism by the daughter sporocyst of <i>Cercaria bucephalopsis haimaena</i> Lacaze-Duthiers, 1854, on the digestive tubules of the cockle, <i>Cardium edule</i> L. (With 8 Figures in the Text).	67
JAMES, B. L. and BOWERS, E. A. Histochemical observations on the occurrence of carbohydrates, lipids and enzymes in the daughter sporocyst of <i>Cercaria bucephalopsis haimaena</i> Lacaze-Duthiers, 1854 (Digenea: Bucephalidae)	79
REES, GWENDOLEN. The histochemistry of the cystogenous gland cells and cyst wall of <i>Parorchis acanthus</i> Nicoll, and some details of the morphology and fine structure of the cercaria. (With 5 Plates and 8 Figures in the Text)	87
SMYTH, J. D. Studies on tapeworm physiology. XI. <i>In vitro</i> cultivation of <i>Echinococcus granulosis</i> from the protoscolex to the strobilate stage. (With 1 Plate and 8 Figures in the Text)	111
TRIGG, P. I. <i>Eimeria phasiani</i> Tyzzer, 1929—a coccidium from the pheasant (<i>Phasianus colchicus</i>). I. The life cycle. (With 4 Figures in the Text)	135
TRIGG, P. I. <i>Eimeria phasiani</i> Tyzzer, 1929—a coccidium from the pheasant (<i>Phasianus colchicus</i>). II. Pathogenicity and drug action. (With 2 Figures in the Text)	147
KEARN, G. C. The life-cycles and larval development of some acanthocotylids (Monogenea) from Plymouth rays. (With 6 Figures in the Text)	157
MERCER, E. H. and NICHOLAS, W. L. The ultrastructure of the capsule of the larval stages of <i>Moniliformis dubius</i> (Acanthocephala) in the cockroach <i>Periplaneta americana</i> . (With 2 Plates).	169

	PAGE
ESCH, GERALD W. Some effects of cortisone and sex on the biology of coenuriasis in laboratory mice and jackrabbits	175
WARHURST, DAVID C. Cultivation <i>in vitro</i> of <i>Endolimax blattae</i> Lucas, 1927 from the cockroach hind gut. (With 4 Figures in the Text)	181
THURSTON, JUNE P. The morphology and life-cycle of <i>Cephalochlamys namaquensis</i> (Cohn, 1906) (Cestoda: Pseudophyllidea) from <i>Xenopus muelleri</i> and <i>X. laevis</i> . (With 11 Figures in the Text)	187

PART 2, MAY 1967

DOBSON, COLIN. Changes in the protein content of the serum and intestinal mucus of sheep with reference to the histology of the gut and immunological response to <i>Oesophagostomum columbianum</i> infections. (With 7 Figures in the Text)	201
CANNON, L. R. G. <i>Caryospora demansiae</i> sp.nov. (Sporozoa: Eimeriidae) from the Australian snake <i>Demansia psammophis</i> (Elapidae). (With 1 Figure in the Text)	221
CANNON, L. R. G. New coccidia from Australian lizards I. <i>Isospora</i> . (With 3 Figures in the Text)	227
CANNON, L. R. G. New coccidia from Australian lizards. II. <i>Eimeria</i> . (With 5 Figures in the Text)	237
STEBBENS, W. E. and JOHNSTON, M. R. L. The ultrastructure of a haemogregarine parasitic in <i>Gehyra variegata</i> (Duméril & Bibron, 1836). (With 4 Plates)	251
DONALD, A. D. Population studies on the infective stage of some nematode parasites of sheep. I. The frequency distribution of strongyloid infective larvae in random samples of pasture. (With 1 Figure in the Text)	263
BOWERS, E. A. and JAMES, B. L. Studies on the morphology, ecology and life-cycle of <i>Meiogymnophallus minutus</i> (Cobbold, 1859) comb. nov. (Trematoda: Gymnophallidae). (With 20 Figures in the Text).	281
ARME, C. and OWEN, R. WYNNE. Infections of the three-spined stickleback, <i>Gasterosteus aculeatus</i> L., with the plerocercoid larvae of <i>Schistocephalus solidus</i> (Müller, 1776), with special reference to pathological effects. (With 2 Plates and 3 Figures in the Text).	301
YINON, U., SHULOV, A. and MARGALIT, J. The hygroreac-tion of the larvae of the Oriental rat flea <i>Xenopsylla cheopis</i> Rothsch. (Siphonaptera: Pulicidae). (With 2 Figures in the Text)	315
JEFFRIES, L. and HARRIS, MARGARET. Observations on the maintenance of <i>Trichomonas vaginalis</i> and <i>Trichomonas foetus</i> ; the effects of cortisone and agar on enhancement of severity of subcutaneous lesions in mice	321
OGILVIE, BRIDGET M. and JONES, VALERIE E. Reaginic antibodies and immunity to <i>Nippostrongylus brasiliensis</i> in the rat. I. The effect of thymectomy, neonatal infections and splenectomy. (With 4 Figures in the Text)	335
LONG, P. L. Studies on <i>Eimeria praecox</i> Johnson, 1930, in the chicken. (With 1 Plate and 1 Figure in the Text)	351

	PAGE
ROSE, M. ELAINE. Immunity to <i>Eimeria brunetti</i> and <i>Eimeria maxima</i> infections in the fowl. (With 1 Plate)	363
DOWDING, VALERIE M. The function and ecological significance of the pharyngeal ridges occurring in the larvae of some cyclorrhaphous Diptera. (With 7 Figures in the Text)	371
CROMPTON, D. W. T. Studies on the haemocytic reaction of <i>Gammarus</i> spp., and its relationship to <i>Polymorphus minutus</i> (Acanthocephala). (With 18 Figures in the Text)	389

PART 3, AUGUST 1967

KASSAI, T. and AITKEN, I. D. Induction of immunological tolerance in rats to <i>Nippostrongylus brasiliensis</i> infection. (With 6 Figures in the Text)	403
MARSHALL, ADRIAN G. The cat flea, <i>Ctenocephalides felis felis</i> (Bouché, 1835) as an intermediate host for cestodes. (With 10 Figures in the Text)	419
THRELFALL, WILLIAM. Studies on the helminth parasites of the herring gull, <i>Larus argentatus</i> Pontopp., in Northern Caernarvonshire and Anglesey. (With 6 Figures in the Text)	431
CALLOW, L. L. Sterile immunity, coinfectious immunity and strain differences in <i>Babesia bigemina</i> infections	455
DASGUPTA, B. A new malarial parasite of the flying squirrel. (With 3 Plates)	467
HAMMOND, R. A. The fine structure of the trunk and praesoma wall of <i>Acanthocephalus ranae</i> (Schrank, 1788), Lühe, 1911. (With 3 Plates and 3 Figures in the Text)	475
KNUTSON, L. V., NEFF, S. E. and BERG, C. O. Biology of snail-killing flies from Africa and southern Spain (Sciomyzidae: <i>Sepedon</i>). (With 26 Figures in the Text)	487
COX, F. E. G. Monocystid gregarines of Nigerian earthworms. I. <i>Adelphocystis aeikineta</i> gen.nov., sp.nov. from the coelom of <i>Keffia variabilis</i> Clausen, 1963. (With 4 Figures in the Text)	507
WAKELIN, D. Acquired immunity to <i>Trichuris muris</i> in the albino laboratory mouse. (With 2 Figures in the Text)	515
COTTON, M. J. and WATTS, C. H. S. The ecology of the tick <i>Ixodes trianguliceps</i> Birula (Arachnida: Acarina; Ixodoidea). (With 5 Figures in the Text)	525
GIBSON, T. E. and EVERETT, G. The ecology of the free-living stages of <i>Trichostrongylus colubriformis</i> . (With 7 Figures in the Text)	533
SPRENT, J. F. A. and McKEOWN, ANN. A study on adaptation tolerance; growth of ascaridoid larvae in indigenous and non-indigenous hosts. (With 1 Figure in the Text)	549
SINHA, D. P. and HOPKINS, C. A. Studies on <i>Schistocephalus solidus</i> . 4. The effect of temperature on growth and maturation <i>in vitro</i> . (With 7 Figures in the Text)	555
ROSE, M. ELAINE. Immunity to <i>Eimeria tenella</i> and <i>Eimeria necatrix</i> infections in the fowl. I. Influence of the site of infection and the stage of the parasite. II. Cross-protection	567

KEARN, G. C. Experiments on host-finding and host-specificity in the monogenean skin parasite <i>Entobdella soleae</i> . (With 8 Figures in the Text) . . .	585
---	-----

PART 4, NOVEMBER 1967

JAMES, B. L. and BOWERS, E. A. Reproduction in the daughter sporocyst of <i>Cercaria bucephalopsis haimeana</i> (Lacaze-Duthiers, 1854) (Bucephalidae) and <i>Cercaria dichotoma</i> Lebour, 1911 (non Müller) (Gymnophallidae). (With 16 Figures in the Text)	607
GALLAGHER, S. S. E. and THREADGOLD, L. T. Electron-microscope studies of <i>Fasciola hepatica</i> . II. The interrelationship of the parenchyma with other organ systems. (With 5 Plates)	627
THREADGOLD, L. T. Electron-microscope studies of <i>Fasciola hepatica</i> . III. Further observations on the tegument and associated structures. (With 3 Plates)	633
HALTON, D. W. Observations on the nutrition of digenetic trematodes. (With 2 Plates)	639
RAO, K. HANUMANTHA and GANAPATI, P. N. Observations on <i>Transversotrema patialensis</i> (Soparkar, 1924) (Trematoda) from Waltair, Andhra Pradesh (India). (With 1 Plate)	661
THORSELL, WALBORG. The <i>in vitro</i> effect of hexachlorophene on some enzymes in the liver fluke, <i>Fasciola hepatica</i> L. (With 1 Figure in the Text)	665
WILLIAMS, M. O. Studies on the adult and diplostomulum of <i>Diplostomum (Dolichorchis) leonensis</i> (Strigeida: Trematoda). (With 8 Figures in the Text)	673
PIKE, ALAN W. and ERASMUS, D. A. The formation, structure and histochemistry of the metacercarial cyst of three species of digenetic trematodes. (With 1 Plate and 1 Figure in the Text)	683
GILL, HARDEV SINGH and RAO, B. VENKATESWARA. On the biology and morphology of <i>Echinococcus granulosus</i> (Batsch, 1786) of buffalo-dog origin. (With 3 Figures in the Text)	695
HOPKINS, C. A. and YOUNG, R. A. L. The effect of dietary amino acids on the growth of <i>Hymenolepis diminuta</i> . (With 1 Figure in the Text)	705
HAJELA, K. P. and TANDAN, B. K. Two new species of <i>Ardeicola</i> Clay, 1935 (Mallophaga, Ischnocera), from African ibises. (With 18 Figures in the Text)	719
PIKE, ALAN W. Some stylet cercariae and a microphallid type in British freshwater molluscs. (With 27 Figures in the Text)	729
BISHOP, ANN. Resistance to primaquine in <i>Plasmodium gallinaceum</i> , and the problem of resistance to quinoline compounds in malaria parasites	755
Proceedings of the British Society for Parasitology	1 P
Index of Authors.	i
Index of Subjects	vi