

PARASITOLOGY

A SUPPLEMENT TO THE JOURNAL OF HYGIENE

EDITED BY

GEORGE H. F. NUTTALL, F.R.S. Quick Professor of Biology in the University of Cambridge

AND

A. E. SHIPLEY, F.R.S. Reader in Zoology in the University of Cambridge



CAMBRIDGE AT THE UNIVERSITY PRESS

LONDON: FETTER LANE, C. F. CLAY, MANAGER
AND H. K. LEWIS, GOWER STREET
EDINBURGH: 100, PRINCES STREET
EBRILIN: A. ASHER & CO.
LEIPSIC: BROCKHAUS
NEW YORK: G. P. PUTNAM'S SONS
BOMBAY AND CALCUTTA: MACMILLAN & CO., LTD.

Price Seven Shillings net

[Issued March 31, 1911]

ROYAL COLLEGE OF PHYSICIANS OF LONDON

The Weber-Parkes Prize and Medals PRIZE OF 150 GUINEAS AND TWO SILVER MEDALS

The competition is open to members of the Medical Profession in all countries.

The next award will be made in 1912, and the Adjudicators have selected as the subject of the Essay for that occasion-

The Influence of Mixed and Secondary Infections upon Pulmonary Tuberculosis in Man, and the Measures, Preventive and Curative, for dealing with them.

"The Essay must be based on original work and observations (experimental or other) of the author, and must include a detailed exposition of the methods employed and their mode of application."

All Essays, together with any preparations made in illustration of them, must be transmitted to the Registrar of the College during the last week of May, 1912, in accordance with the Regulations relating thereto, copies of which will be forwarded from the College on application.

The award will be made on some day previous to the 18th October in that year.

J. A. ORMEROD, M.D., Registrar.

Pall-mall East, S.W.

THE JOURNAL OF AGRICULTURAL SCIENCE

Edited by

Professor R. H. BIFFEN, M.A., Cambridge, A. D. HALL, M.A., F.R.S., Rothamsted, and Professor T. B. WOOD, M.A., Cambridge.

The Journal of Agricultural Science is issued in quarterly parts of about 100 pages, with plates and figures, four parts constituting a volume.

Volumes I, II and III now ready. In Four Parts, paper covers, 15s. net per volume. Bound in Buckram, 18s. 6d. net per volume.

The subscription price, payable in advance, is 15s. per volume (post free); single numbers 5s. net. Subscriptions may be sent to any Bookseller, or to Mr C. F. CLAY, Manager, Cambridge University Press, Fetter Lane, London, E.C.

TICKS

A Monograph of the Ixodoidea

By GEORGE H. F. NUTTALL, M.D., Ph.D., Sc.D., F.R.S., CECIL WARBURTON, M.A., F.Z.S., W. F. COOPER, B.A., F.Z.S., F.L.S. and L. E. ROBINSON, A.R.C.Sc. (London)

> Now ready. PART I. THE ARGASIDAE. With 116 text figures and 3 plates. Royal 8vo. 5s. net

This book will deal with the Classification, Structure and Biology of Ticks, the study of the group having occupied the authors for several years. Practically all that has been published on the subject has received adequate consideration.

The book will be issued in about four parts, which will be complete in themselves but are designed to form a volume of about 500 pages when all the parts have been published. Each part will be issued in a stiff paper cover and will include a bibliography printed on one side of thin paper so that the references can be conveniently cut out and gummed on index cards. A complete bibliography, including all the publications cited in each part, will conclude the volume.

N.B. Part II is in the press and will appear shortly.

CAMBRIDGE UNIVERSITY PRESS, FETTER LANE, LONDON

PARASITOLOGY

CAMBRIDGE UNIVERSITY PRESS

London: FETTER LANE, E.C. C. F. CLAY, MANAGER



Coinburgh: 100, PRINCES STREET

London: H. K. LEWIS, 136, GOWER STREET, W.C.

Berlin: A. ASHER AND CO.

Leipzig: F. A. BROCKHAUS New York: G. P. PUTNAM'S SONS

Bombay and Calcutta: MACMILLAN AND CO., LTD.

All rights reserved

PARASITOLOGY

A SUPPLEMENT TO THE JOURNAL OF HYGIENE

EDITED BY

GEORGE H. F. NUTTALL, F.R.S. Quick Professor of Biology in the University of Cambridge AND

A. E. SHIPLEY, F.R.S. Reader in Zoology in the University of Cambridge

Volume IV 1911

Cambridge at the University Press Cambridge:

PRINTED BY JOHN CLAY, M.A.

AT THE UNIVERSITY PRESS

CONTENTS

No. 1 (March).

GILRUTH, J. A., SWEET, GEORGINA, and DODD, SYDNEY. Observations on the occurrence in the blood of various animals (chiefly monotremes and marsupials) of bodies apparently identical with	PAGE
Anaplasma marginale Theiler, 1910. (With Plate I)	1
HUFFMAN, O. V. and Wherry, Wm. B. A description of four Filaria loa from the same patient. (With Plate II)	7
Drew, G. Harold. A note on the application of Giemsa's Romanowsky stain to the blood and tissues of marine invertebrates	19
PORTER, Annie. Some remarks on the genera Crithidia, Herpetomonas and Trypanosoma	22
HINDLE, EDWARD. The passage of Trypanosoma gambiense through mucous membranes and skin	24
Mackinnon, Doris L. On some more protozoan parasites from Trichoptera. (Plate III and 8 Text-figures)	28
Nuttall, George H. F. and Merriman, G. The process of copulation in Ornithodorus moubata. (With 1 Text-figure)	39
Nuttall, George H. F. On the adaptation of ticks to the habits of their hosts. (With 26 Text-figures)	46
Bacot, A. W. The persistence of <i>Bacillus pyocyaneus</i> in pupae and imagines of <i>Musca domestica</i> raised from larvae experimentally infected with the bacillus	68
HIERMAN OTTO V. The embryos of Filaria loa. (With Plate IV).	75

No. 2 (June).

DARLING, S. T. The probable mode of infection and the methods used	PAGE
in controlling an outbreak of equine trypanosomiasis (Murrina) in	
the Panama Canal zone	83
Sant' Anna, José F. On a disease in man following tick-bites and	
occurring in Lourenço Marques	87
NUTTALL, GEORGE H. F. On symptoms following tick-bites in man .	89
SEIDELIN, HARALD. An iron-haematein stain. With remarks on the Giemsa stain. (With Plate V)	94
SWELLENGREBEL, N. H. and STRICKLAND, C. Some remarks on Dr Swingle's paper "The transmission of <i>Trypanosoma lewisi</i> by rat fleas," etc	104
Swellengrebel, N. H. Note on the morphology of <i>Herpetomonas</i> and <i>Crithidia</i> , with some remarks on "physiological degeneration." (With 12 Diagrams)	108
WOOLLEY, PAUL G. and HUFFMAN, OTTO V. The ova of Schistosoma	
japonicum and the absence of spines	131
HINDLE, EDWARD. The transmission of Spirochaeta duttoni	133
WOODCOCK, H. M. A reply to Miss Porter's note entitled "Some remarks on the genera Crithidia, Herpetomonas and Trypanosoma"	150
PORTER, Annie. Further remarks on the genera Crithidia, Herpetomonas and Trypanosoma, and Dr Woodcock's views thereon.	154
HOWARD, C. W. An experiment in fumigation of ticks	164
MERRIMAN, GORDON. The geographical distribution of Ornithodorus	
moubata (Murray, 1877). (With a Map)	168
MAXWELL-LEFROY, H. Notes on entomological boxes	174
No. 3 (October). Nuttall, George H. F. Notes on Ticks. I. (1) Ixodes caledonicus, description of male, together with considerations regarding the structure of the foot in male Ixodes. (2) Types of parasitism	
in ticks, illustrated by a diagram, together with some remarks upon longevity in ticks. (3) Regarding the loss of life in ticks occurring on wandering hosts. (With 2 Figures)	175

Contents

	PAGE
HINDLE, EDWARD. The relapsing fever of Tropical Africa. A Review. (With 2 Maps and 1 Chart)	183
Wells, R. T. Aerial contamination as a fallacy in the study of amoebic infections by cultural methods. (With Plate VI)	204
McCov, George W. A microfilaria (<i>Microfilaria rosenaui</i> n. sp.) from the California ground squirrel (<i>Citellus beecheyi</i>). (With Plate VII)	220
STRICKLAND, C. Description of a <i>Herpetomonus</i> parasitic in the alimentary tract of the common green-bottle fly, <i>Lucilia</i> sp. (With Plates VIII and IX and 2 Text-figures)	222
PORTER, Annie. The structure and life history of Crithidia pulicis, n. sp., parasitic in the alimentary tract of the human flea, Pulex irritans. (With Plate X)	237
Acton, Hugh W. and Harvey, W. F. The nature and specificity of Negri bodies. (With Plate XI and 2 Text-figures)	255
Wenyon, C. M. Oriental sore in Bagdad, together with observations on a gregarine in <i>Stegomyia fasciata</i> , the haemogregarine of dogs and the flagellates of house flies. (With Plates XII-XVI and 36 Text-figures)	273
No. 4 (December).	
SWELLENGREBEL, N. H. The life-history of <i>Pleistophora gigantea</i> Thélohan (<i>Glugea gigantea</i> Thél.). (With Plates XVII and XVIII and 20 Diagrams)	345
Johnstone, James. Tetrarhynchus erinaceus van Beneden. I. Structure of larva and adult worm. (With Plates XIX-XXIV and 9 Text-figures)	364
LEBOUR, MARIE V. A review of the British marine Cercariae. (With Plates XXV-XXIX)	416
Huffman, Otto V. The Kurloff-body, a spurious parasite. (With 11 Text-figures)	457
HINDLE, E. On the life-cycle of Spirochaeta gallinarum. Preliminary Note. (With 5 Figures and Diagram in Text)	463
Robinson, L. E. New species of ticks (Haemaphysalis, Amblyomma). (With 4 Text-figures)	478
INDEX OF AUTHORS	405
	485