

Cambridge University Press

978-0-521-67539-0 - Parasites and Infectious Disease: Discovery by Serendipity, and Otherwise

Gerald W. Esch

Frontmatter

[More information](#)

Parasites and Infectious Disease

Discovery by Serendipity, and Otherwise

This series of entertaining essays provides a unique insight into some of the key discoveries that have shaped the field of parasitology. Based on interviews with eighteen of the world's leading parasitologists and infectious disease epidemiologists, the stories of their contributions to discovery in contemporary parasitology and infectious disease are told. Taken together, the essays represent a beautifully written account of the development of the field and provide a real insight into the thought processes and approaches taken in generating breakthrough scientific discoveries, ranging from immunology to ecology, and from malaria and trypanosomiasis to schistosomiasis and Lyme disease. Some of these discoveries were made serendipitously and others only after relentless effort pointed to a specific solution. This engaging and lively introduction to discovery in parasitology will be of interest to all those currently working in the field and will also serve to set the scene for future generations of parasitologists.

GERALD W. ESCH is the Charles M. Allen Professor of Biology at Wake Forest University, Winston-Salem, North Carolina, U.S.A. He is Editor of the *Journal of Parasitology*, the author of *Parasites, People and Places: Essays on Field Parasitology* (2004) and coauthor of the textbook *Parasitism* (2001). He is a recipient of the Louis T. Benezet Distinguished Alumnus Award from his undergraduate alma mater, Colorado College, in 1992, and of the Clark P. Read Mentor Award from the American Society of Parasitologists in 1999.

Cambridge University Press

978-0-521-67539-0 - Parasites and Infectious Disease: Discovery by Serendipity, and
Otherwise

Gerald W. Esch

Frontmatter

[More information](#)

Parasites and Infectious Disease

Discovery by
Serendipity, and
Otherwise

GERALD W. ESCH

*Wake Forest University,
Winston-Salem, North Carolina*



CAMBRIDGE
UNIVERSITY PRESS

Cambridge University Press

978-0-521-67539-0 - Parasites and Infectious Disease: Discovery by Serendipity, and
Otherwise

Gerald W. Esch

Frontmatter

[More information](#)

CAMBRIDGE UNIVERSITY PRESS

Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo

Cambridge University Press

The Edinburgh Building, Cambridge, CB2 8RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org

Information on this title: www.cambridge.org/9780521858823

© G. W. Esch 2007

This publication is in copyright. Subject to statutory exception
and to the provisions of relevant collective licensing agreements,
no reproduction of any part may take place without
the written permission of Cambridge University Press.

First published 2007

Printed in the United Kingdom at the University Press, Cambridge

A catalog record for this publication is available from the British Library

ISBN 978-0-521-85882-3 hardback

ISBN 978-0-521-67539-0 paperback

Cambridge University Press has no responsibility for the persistence or
accuracy of URLs for external or third-party internet websites referred to
in this publication, and does not guarantee that any content on such
websites is, or will remain, accurate or appropriate.

Cambridge University Press

978-0-521-67539-0 - Parasites and Infectious Disease: Discovery by Serendipity, and
Otherwise

Gerald W. Esch

Frontmatter

[More information](#)*Contents*

<i>Preface</i>	<i>page vii</i>
Prologue	1
Introduction	1
Dick Seed	3
Keith Vickerman	6
Bob Desowitz	9
K. Darwin Murrell	12
Bill Campbell	18
Richard Tinsley	25
Sidney and Margaret Ewing	28
Don Bundy	37
Peter Hotez	42
David Rollinson	48
John Hawdon	53
Mark Honigsbaum	61
Roy Anderson	65
Steve Nadler	77
Jim Oliver	86
Pat Lord	95
J. P. Dubey	100
1 African trypanosomes and their VSGs	108
2 Malaria: the real killer	128
3 The HIV-AIDS vaccine and the disadvantage of natural selection: the yellow fever vaccine and the advantage of artificial selection	150

Cambridge University Press

978-0-521-67539-0 - Parasites and Infectious Disease: Discovery by Serendipity, and
Otherwise

Gerald W. Esch

Frontmatter

[More information](#)

vi Contents

4	Lyme disease: a classic emerging disease	164
5	The discovery of ivermectin: a ‘crapshoot’, or not?	175
6	“You came a long way to see a tree”	188
7	Infectious disease and modern epidemiology	203
8	The ‘unholy trinity’ and the geohelminths: an intractable problem?	219
9	Hookworm disease: insidious, stealthily treacherous	236
10	The spadefoot toad and <i>Pseudodiplorchis americanus</i> : an amazing story of two very aquatic species in a very dry land	254
11	The schistosomes: split-bodied flukes	265
12	<i>Dicrocoelium dendriticum</i> and <i>Halipegus occidualis</i> : their life cycles and a genius at work	282
13	Trichinosis and <i>Trichinella</i> spp. (all eight of them, or is it nine?)	299
14	Phylogenetics: a contentious discipline	315
15	<i>Toxoplasma gondii</i> , <i>Sarcocystis neurona</i> , and <i>Neospora caninum</i> : the worst of the coccidians?	328
	Summary	345
	Index	348

Cambridge University Press

978-0-521-67539-0 - Parasites and Infectious Disease: Discovery by Serendipity, and
Otherwise

Gerald W. Esch

Frontmatter

[More information](#)

Preface

Any book of the present sort requires a large number of sources, and I sought as many as I could. First, there were those folks who took the time to sit and talk with me. Without exception, they all opened up and answered every question I asked. But far more than this, they helped lead me into areas that I did not know about or might not have otherwise probed. Second, I want to thank them for all of the reprints they generously provided so that I could ‘bone up’ on their areas of interest before the interview was consummated. Third, there are several books that describe the fascinating history of parasitology. I am confident I have given appropriate credit for all that I used as I went along. There are, however, several special authors and books that I want to emphasize and from which I drew invaluable information. These of course include Bob Desowitz and all of his popular tomes, but especially those that dealt with the history of malaria and its treatment, primarily *The Malaria Capers*. Mark Honigsbaum’s *The Fever Trail* was an extraordinary account of the history of quinine and the cinchona tree from which this herbal remedy comes. It should be read by anyone with an interest in malaria. I also read a large number of general historical accounts dealing with our discipline. The best was *A History of Human Helminthology*, by D. I. Grove. This is a really excellent encyclopedia of human helminthology and should be in any university library.

I want to thank several folks who read various sections of the book along the way. This included a ‘bunch’ of my general parasitology students who were involuntarily cajoled into reading several of the essays as I wrote them. My good and treasured friend, Herman Eure, read several for me. Dan Johnson, a nonparasitologist colleague here at Wake Forest consented to read several of the essays and I appreciate his interest. Ralph Amen, my personal ‘editor’, read the entire book and offered invaluable input, in his own inimical way. One of my graduate

Cambridge University Press

978-0-521-67539-0 - Parasites and Infectious Disease: Discovery by Serendipity, and
Otherwise

Gerald W. Esch

Frontmatter

[More information](#)

viii Preface

students, Nick Negovetich, read several of the essays and parts of the Prologue. He had some very good suggestions. Another old friend, Ron Hathaway, at Colorado College, read the entire book as well. I sort of ‘conned’ him into doing it so that he could be my ‘shill’ when I gave a presentation to the Rocky Mountain Conference of Parasitologists meeting in September 2006.

My friend Ward Cooper was my original Commissioning Editor at Cambridge University Press. He helped get things started at the outset, but then moved to Blackwell, where he is now a Senior Commissioning Editor. Katrina Halliday stepped in to take Ward’s place and actually got the contract through the ‘dons’ at Cambridge. I really owe her a huge thank you! There were four reviewers who took the time to provide some excellent comments on the proposal. I know two of them and have thanked them personally. I don’t know the other two, but I thank them now. I also want to thank Mrs. Vickie Hennings for helping in the *Journal of Parasitology* office. It made writing a whole lot easier! I also had the great pleasure of working with Clare Georgy, Assistant Editor at Cambridge University Press; she was most helpful while I was trying to get the final version completed. Janice Robertson was my copy-editor and she was very supportive as well – I might add, she was as thorough as any copy-editor with whom I have worked during my career. I also want to thank Jeanette Alföldi for her help in guiding me through the new indexing process.

When I was thinking about a cover for *Parasites, People, and Places* I recalled a photograph of Slapton Ley I had taken back in 1987 during my second visit to the University of Exeter and Clive Kennedy. Of course, this is the site where Clive spent 35 years doing research. I persuaded my daughter Lisa to paint it and my good friend, the late Charlie Allen, to photograph the painting so I could use it as the cover for the book. That cover has received some really nice compliments from a wide range of readers. For the cover of the present book, I searched and searched for an idea. I had thought about a photo from the Chelsea Physic Garden, or the front of the Natural History Museum, both in London. Then, I recalled a couple of photographs I had taken from a moving train as we passed through the Midlands along the western side of England in May 2004. My wife, Ann, and I were returning to London from Glasgow where we had gone so I could interview Keith Vickerman for the present book. An old, nineteenth-century train trestle that stands in the middle of a really beautiful green valley grabbed my attention and, as the train passed by, I snapped off a couple of what turned out to be really good shots. But, you say, what is the connection between an old train trestle

Cambridge University Press

978-0-521-67539-0 - Parasites and Infectious Disease: Discovery by Serendipity, and
Otherwise

Gerald W. Esch

Frontmatter

[More information](#)

Preface ix

and discovery in my discipline of parasitology? I know it is a 'stretch', but throughout the book, I have attempted to link the past and the present. This train trestle represents the bridge I am trying to capture in the new book. As I said, this is a 'stretch', but I thought the photographs were really quite striking. So, I asked Lisa if she would paint me a new cover and she agreed. She has a real talent for capturing things like this on canvas. I think she has done a very good job again, and I thank her for her contribution.

Finally, I thank Ann for sticking with me while I was doing my thing over all these years, 47 to be exact. By the time this book is in print, I trust it will be 48!