Ticks: biology, disease and control

EDITED BY A. S. BOWMAN AND P. A. NUTTALL

CO-ORDINATING EDITOR L. H. CHAPPELL

Preface

Ticks hold a special place in the field of parasitology. The revolutionary idea of diseases being transmitted to mammals by invertebrates was introduced by Smith and Kilbourne's discovery that ticks transmitted babesiosis to cattle, ushering in the discipline of vector-borne diseases. Information garnered by parasitologists about the biology of the tick and the pathogen led to effective control strategies and the eradication of babesiosis from the United States – the first time a disease had been wiped out from such a vast area and a great success for parasitologists. More recently, a vaccine against a tick gut protein became the first and, to date, only commercially successful recombinant vaccine against any parasite. Nevertheless, ticks and tick-borne diseases remain a major concern. It is estimated that 80% of the world's cattle are infested with ticks. As a result, ticks are the most economically important ectoparasite for global livestock production. Vast regions are unable to sustain viable livestock production without active tick or tick-borne disease control measures. Within the medical arena, tick-borne diseases are of increasing importance with Lyme disease the most common vector-borne disease in Europe and the North America.

For the majority of scenarios, ticks *per se* are not a major problem; the pathogens they transmit are the real threat. The underlying reason for tick and tick-borne pathogen research is to develop improved control strategies through a better understanding of their biology. As such, the papers in this volume fall into the three distinct, but related, areas: tick biology, tick-borne pathogens and tick control. Contributions to this volume are from leading experts in their field – from Africa, Australia, Europe and North and South America – working in academia, government institutes and the animal health industry sector. The authors review recent advances and provide their views on the outstanding questions remaining and on future directions. The papers in this volume are valuable to all workers and students involved in ticks and tick-borne diseases. Additionally, other parasitologists should find the various aspects of these fascinating ectoparasites, their devastating pathogens and the state of play of modern and future control strategies of relevance.

In the production of such a comprehensive supplement there have been many people who have contributed to its realisation. Thanks are due to the editors of *Parsitology* for the invitation and opportunity to compile this Supplement. In doing so they have done a great service to the tick and tick-borne disease research community. We gratefully acknowledge the assistance of the anonymous referees who gave freely of their valuable time and expertise in reviewing and commenting on these substantial manuscripts. We also thank the co-ordinating editor, Dr Les Chappell, for his expert guidance and advice throughout the whole project from its conception to its delivery.

Finally, this volume is dedicated to Prof John R. Sauer on his recent retirement for his contributions to the field of tick physiology and for generating an interest and passion for these strange creatures in researchers who passed through his laboratory.

A. S. BOWMAN and P. A. NUTTALL
August 2004

Parasitology (2004), **129**, S1.
DOI: 10.1017/S0031182004006560 Printed in the United Kingdom