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Susan Scott and Christopher J. Duncan
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Biology of Plagues: Evidence from Historical Populations

The threat of unstoppable plagues, such as AIDS and Ebola, is always with us. In Europe, the most devastating plagues were those from the Black Death pandemic in the 1300s to the Great Plague of London in 1665. For the last 100 years, it has been accepted that *Yersinia pestis*, the infective agent of bubonic plague, was responsible for these epidemics. This book combines modern concepts of epidemiology and molecular biology with computer modelling. Applying these to the analysis of historical epidemics, the authors show that they were not, in fact, outbreaks of bubonic plague. *Biology of Plagues* offers a completely new interdisciplinary interpretation of the plagues of Europe and establishes them within a geographical, historical and demographic framework. This fascinating detective work will be of interest to readers in the biological and social sciences, and lessons learnt will underline the implications of historical plagues for modern-day epidemiology.

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They previously co-authored *Human Demography and Disease* (1998) and have published many papers on population dynamics and historical epidemiology.

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SUSAN SCOTT AND CHRISTOPHER J. DUNCAN

*School of Biological Sciences
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Preface

When studying the population dynamics of northwest England for our earlier book *Human Demography and Disease* (also published by Cambridge University Press) we became interested in the biology of the plagues that beset Europe after the Black Death. A plague struck this part of England and spread rapidly in 1597–98 and it was obvious from a basic training in zoology that this was not an outbreak of bubonic plague. By making a full family reconstitution study of the community at Penrith in Cumbria (where some 40% of the population died) it was possible to trace the spread of the disease between named individuals in the same family and between households. From this starting-point, we have made an interdisciplinary study of the epidemiology and biology of the plagues that have afflicted western Europe, concentrating on the outbreaks from the Black Death, which began in 1347, to the Great Plague of London. We have combined modern epidemiological concepts, computer modelling of epidemics, recent molecular biology studies, spatial analysis techniques, time-series analysis of the epidemics and the careful analysis of the sequence of infections in selected epidemics. We hope that our monograph will be of interest to a wide variety of readers who will come to look at historical plagues with different eyes.

Once again we thank Dr S. R. Duncan, of the University of Oxford, for introducing us to the intricacies of time-series analysis and for developing the mathematical models that we have used.

We are grateful to members of the Cheshire Parish Register Transcription project, in particular Mr and Mrs C. D. Leeming and Mr and Mrs J. R. Fothergill, for providing unpublished data. Mrs J. J. Duncan also provided invaluable assistance in reading documents in Secretary Hand and in translating original articles.

We salute the pioneering work of Dr G. Twigg and gratefully acknowledge his generous help in the early stages of this project.

S.S.
C.J.D.

Conversion table for imperial to metric units

Imperial unit	Metric equivalent
1 inch	25.4 millimetres
1 foot	0.3048 metre
1 yard	0.9144 metre
1 mile	1.609 kilometres
1 acre	0.405 hectare
1 square mile	259 hectares