Palaeopathology

Paleopathology is designed to help bone specialists with diagnosis of diseases in skeletal assemblages. It suggests an innovative method of arriving at a diagnosis in the skeleton by applying 'operational definitions'. The aim is to ensure that all those who study bones will use the same criteria for diagnosing disease, which will enable valid comparisons to be made between studies. This book is based on modern clinical knowledge and provides background information so that readers understand the natural history of bone diseases, which will enable them to draw reliable conclusions from their observations. Details of bone metabolism and the fundamentals of basic pathology are also provided, as well as a comprehensive and up-to-date bibliography. A short chapter on epidemiology provides information on how best to analyze and present the results of a study of human remains.

Professor Tony Waldron teaches paleopathology at the Institute of Archaeology, University College London. The author of about 300 peer-reviewed papers in medical, scientific and archaeology journals, as well as books on occupational medicine and paleoepidemiology, Waldron is co-founder of the *International Journal of Osteoarchaeology* and served as co-editor for its first decade. He is a Fellow of the Royal College of Physicians of London, the Royal Society of Medicine, the Institute of Biology and the Royal Anthropological Institute.

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Palaeopathology

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CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE UNIVERSITY PRESS
Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo, Delhi

Cambridge University Press
32 Avenue of the Americas, New York, NY 10013-2473, USA

www.cambridge.org
Information on this title: www.cambridge.org/9780521678551

First published 2009

Printed in the United States of America

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

Library of Congress Cataloging in Publication Data

Waldron, T. (Tony)
Palaeopathology / Tony Waldron.
p. ; cm. – (Cambridge manuals in archaeology)
Includes bibliographical references and index.
ISBN 978-0-521-86137-3 (hardback) – ISBN 978-0-521-67855-1 (pbk.)
1. Paleopathology. I. Title. II. Series.
[DNLM: 1. Paleopathology. QZ 11.5 W167p 2009]
R134.8.W354 2009
616.07–dc22 2008018710

ISBN 978-0-521-86137-3 hardback
ISBN 978-0-521-67855-1 paperback

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PREFACE

I entered palaeopathology via a very circuitous route, having previously had a background in anatomy, toxicology and epidemiology, although an interest in pathology was always present, having been greatly stimulated by the subject during my time as a medical student. My first hands-on experience with bones, however, was in collecting specimens for lead analysis when I was working at the University of Birmingham. We undertook the analysis of many hundreds of specimens until it became clear that the variation in lead levels that we were finding owed much more to contamination from the soil than to exposure during life, and I formed the view that it would be more profitable to see what information could be obtained from the bones themselves. When I moved to London to work at the London School of Hygiene and Tropical Medicine (LSHTM), I became very active in examining skeletal assemblages and some mummified material, and I had the good fortune to become acquainted with Don Brothwell at the Institute of Archaeology, which was just a few minutes walk around the corner from the LSHTM. He not only kindly gave me a corner of a desk, but invited me to take part in the teaching of the undergraduates and post-graduates at the Institute. I have had the great pleasure of teaching at the Institute now for many years, and this book is based very largely on the course of lectures in palaeopathology that I give to those taking the master's courses.

Perhaps I should try to explain what this book is *not*. It is not a review of the palaeopathological literature, although, of course, references to this source are made as appropriate. Rather, the purpose of the book is to provide enough information to those who have no medical training to enable them to understand the nature and natural history of those diseases that they may encounter when they examine a collection of skeletons or other human remains. The book ought also to help them to recognise at least the majority of these conditions and perhaps allow them to categorise the most common. The text is firmly based on clinical evidence, because this is the only reliable source of information that permits us to differentiate normal

from abnormal. I do not subscribe to the view of some of my medical colleagues that those without medical training have no business dabbling in bone pathology, even in those long dead, but I do consider that medical training is not actually a hindrance in doing so. There are, however, great differences in arriving at a diagnosis in those long dead, compared with the living, and it is my experience that the significance of this difference is not always appreciated by those who come from non-medical backgrounds. I have tried to emphasize these difficulties and to suggest that it might be best if palaeopathologists were guided in their attempts at diagnosis by so-called operational definitions. These are more often used by epidemiologists than clinicians – although the latter use other guides such as flow charts or algorithms to help them. In the text I discuss, and attempt to justify, the use of operational definitions and, where possible, propose some which I consider helpful. I am not so naïve as to believe that bone specialists will fall on these operational definitions with relief if not with joy, and I am perfectly willing to discuss moderations of those that I have proposed and consider new definitions for some of the conditions that presently lack them. The definitions must, of course, be based on clinical evidence. Those who think otherwise are seriously in error, for if we do not use the signs that clinicians use to formulate disease states, what are we to fall back on? A disease that exists only in the mind of a particular palaeopathologist cannot really be said to exist anywhere else.

Many of my students and colleagues have helped to moderate or change my views over the years. One of the pleasures of teaching the young is that they come with uncluttered minds and are generally willing to be challenging and to question dogma; in this way both student and teacher learn. It was Harry S Truman who said that 'the only things worth learning are the things you learn after you know it all', and this is certainly true of most university lecturers, some more than others. I have learnt much from my students and from many colleagues but most especially from the late Dr David Birkett; Professors Don Brothwell, Simon Hillson and Don Ortner; and Dr Ann Stirland; I must reserve particular thanks for the late Dr Juliet Rogers with whom I had the very great pleasure of working and collaborating until her untimely death in 2001. I must also express my gratitude to Dr Don Resnick, whom I regret I have met only once, but whose monumental work on bone and joint radiology[1] has seldom been on my shelves while writing this book. It is one of the three very best textbooks that I have ever read,[2] and many unattributed opinions in this book have their origin in his pages. On this account, I would like to say that he is responsible

[1] D Resnick and G Niwayama, *Diagnosis of bone and joint disorders*. Philadelphia, WB Saunders, 1988.
[2] The other two are Bradford Hill's *Principles of medical statistics* and Donald Hunter's *Diseases of occupations*.

for the errors that appear in *these* pages but lack the courage, and so I will have to do the decent thing and accept responsibility for them myself. Perhaps there may be an opportunity to correct them in the future.

I must also thank my long-suffering family, whose home life was – again – interrupted to an unconscionable degree while I was writing the book, despite assurances that it would never happen again. Virtually every flat surface in the house was covered with piles of paper, which increased in size as time went on, and dark mutterings were the normal means of communication for several months. At last, normality has returned, and we can all eat around the dining table again. I am grateful to my son Richard who has taken time out from his burgeoning career as a pop star to draw two illustrations for me, and special thanks, as always, go to Gill, who valiantly read every word, who found a good deal of amusement from the draft and who corrected spelling and grammar assiduously. She also gamely supported the author through dark patches and always encouraged and stimulated; I dedicate this book to her with all my love.

London, 2008