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Edited by Rosalie David  
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## EGYPTIAN MUMMIES AND MODERN SCIENCE

Egyptian mummies have always aroused popular and scientific interest; however, most modern studies, although significantly increased in number and range, have been published in specialist journals. Now, this unique book, written by a long-established team of scientists based at the University of Manchester (England), brings this exciting, cross-disciplinary area of research to a wider readership. Its main aim is to show how this team's multidisciplinary, investigative methods and the unique resource of the Egyptian Mummy Tissue Bank are being used for new major international investigations of disease evolution and ancient Egyptian pharmacy and pharmacology. It also assesses the current status of palaeopathology and ancient DNA research and the treatments available for conserving mummified remains. Descriptions of the historical development of Egyptian mummifications and medicine and detailed references to previous scientific investigations provide the context for firsthand accounts of cutting-edge research by prominent specialists in this field, demonstrating how these techniques can contribute to a new perspective on Egyptology.

Rosalie David is KNH Professor and Director of the KNH Centre for Biomedical Egyptology at the University of Manchester. She was awarded the Order of the British Empire (OBE) in the New Year Honours List of 2003 for her services to Egyptology, and she is the author and editor of twenty-seven books, most recently *Religion and Magic in Ancient Egypt*.

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*Edited by*

**ROSALIE DAVID**

University of Manchester



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## Contributors

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immunocytochemistry as a diagnostic tool for detecting the presence of schistosomiasis in mummified tissue.

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With a background in engineering, and a career in sales for major companies manufacturing industrial endoscopes, optical measuring equipment and microscopes, he has pioneered and developed the application of endoscopic techniques for Egyptian mummies since he joined the Manchester Mummy Project in the 1980s.

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Formerly Head of the Unit for Art in Medicine, University of Manchester (UK), and now Senior Lecturer, Wellcome Unit, University of Dundee (UK). Her pioneering work on techniques of scientific facial reconstruction for both forensic and archaeological purposes has received wide media coverage.

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Rosalie David  
Manchester, December 2006

## Preface

*Rosalie David*

The main aims of this book are to show how biomedical and scientific techniques have led to a new understanding of some aspects of ancient Egyptian society, and to demonstrate how the focused, multidisciplinary research of one team, working continuously in this area for more than thirty years, has been able to contribute to this field.

There has been a remarkable and significant increase in the number and range of scientific studies undertaken on mummies over the past couple of decades, and people are now aware of the information that can be derived from such investigations, in terms of explaining the cultural context of human remains and in adding to knowledge of how disease has evolved and developed from ancient to modern times. Much of this work, however, is published in scientific journals or conference papers, and is not readily accessible to the reader who has a general interest in the field.

The Manchester Egyptian Mummy Research Project, established at the University of Manchester in 1973, has conducted pioneering research on the methodology of using scientific techniques to investigate ancient Egyptian mummified remains. It has run the longest continuous research programme in the field of biomedical Egyptology, and this has led to the establishment (in 2003) of a university specialisation and a dedicated facility – the KNH Centre for Biomedical Egyptology in the Faculty of Life Sciences at the University of Manchester (UK).

The earliest phase of this project was published in A. R. David (ed.), *The Manchester Museum Mummy Project* (1979). The team has made major advances since then, and mummy studies in general have progressed and taken advantage of the many new techniques that can contribute to this field. This book provides the first opportunity to present the complete picture of the Manchester team's more recent studies. The contributors have not adopted a uniform approach: some chapters provide detailed descriptions

of techniques, others concentrate on the significance of results, and some assess the current role and status of the various fields of interest. Taken as a whole, we hope this book will demonstrate how scientific studies on mummies can provide new insight into the ancient Egyptians' attitudes to life and death.

The book is divided into five parts. The first, *An introduction to the scientific study of mummies*, considers the aims, methods and development of the Manchester Mummy Project within the wider context of scientific studies on Egyptian mummies; it also provides a brief introduction to the prehistory and history of ancient Egypt and a summary of why and how Egyptian mummies were produced.

The second part, *Diet, disease and death in ancient Egypt: diagnostic and investigative techniques*, describes the Manchester studies on human and animal remains, with particular reference to disease, and demonstrates how a wide range of scientific techniques can be developed and used as diagnostic tools in this research.

The third section, *The treatment of disease in ancient Egypt*, uses information derived from the Manchester studies to explore the ancient Egyptian medical system and the role of medical practitioners, and to assess the extent to which these analytical studies can confirm the ancient literary evidence. It also considers the ancient Egyptian use of narcotics and pain relief in religious, medical and social contexts, and presents the latest research on the scope and possible therapeutic efficacy of their pharmaceutical treatments.

The fourth part, *Resources for studying mummies*, describes the establishment and role of the International Ancient Egyptian Mummy Tissue Bank, and surveys the conservation methods available for the treatment of Egyptian mummified remains. The final section, *The future of biomedical and scientific studies in Egyptology*, provides a summary of the contributions that biomedical and scientific techniques can make to the study of ancient Egypt, and considers some of the directions that this field of research might take in the future.

Each chapter is written by an expert in the relevant field, scientists at the cutting edge of this research who, working together as members of the Manchester Mummy Project, have conducted this original work themselves. Although this is primarily a firsthand account of the group's own research and results, the investigations are described within the wider context of mummy studies, and an extensive list of references to other work in this field is included.



## Preface

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Much of the research undertaken at Manchester in recent years has involved the application of new techniques. To provide sufficient space in the book for explanation and discussion of these new techniques, we have decided to omit techniques (such as serology and finger-printing) described in our earlier publications that are no longer part of mainstream mummy research.