ISTHMIA

VOLUME IX

THE ROMAN AND BYZANTINE
GRAVES AND HUMAN REMAINS
ISTHMIA
RESULTS OF EXCAVATIONS CONDUCTED UNDER THE AUSPICES OF
THE AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS

I  Oscar Broneer, *Temple of Poseidon* (1971)
II  Oscar Broneer, *Topography and Architecture* (1973)
III Oscar Broneer, *Terracotta Lamps* (1977)
VIII Catherine Morgan, *The Late Bronze Age Settlement and Early Iron Age Sanctuary* (1999)
ISTHMIA

EXCAVATIONS BY THE UNIVERSITY OF CALIFORNIA AT LOS ANGELES
AND THE OHIO STATE UNIVERSITY
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THE AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS

VOLUME IX

THE ROMAN AND BYZANTINE
GRAVES AND HUMAN REMAINS

BY

JOSEPH L. RIFE

THE AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS
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MATRI CARISSIMAE

γειναμένωι χάριταις, γαμέται λέχος, ύει φάμαν
ἀψογον ἐς πυμάταν ὢ ς ἐνεγκαμέναι
PREFACE

The study of the graves and human remains from the Isthmian Sanctuary and Fortress has had a long history. Since the 1950s, excavations at Isthmia by the American School of Classical Studies at Athens (ASCSA) have uncovered over 150 graves and over 100 skeletons. Apart from a few isolated interments and a scattering of disarticulated bones, these burials were investigated by the team sponsored by the University of California at Los Angeles (UCLA) under the direction of the late Paul Clement. The analysis and publication of this material has been undertaken by his successor, Timothy E. Gregory, who directs the team sponsored by the Ohio State University (OSU). The known burials were nearly all located in two separate areas representing disparate periods in the history of the site: the West Cemetery on the edge of the modern village of Kyras Vrysi, and the Fortress adjoining the Hexamilion just northeast of the Temple of Poseidon. The Late Archaic and Classical burials at the West Cemetery are the subject of a future volume that will describe the pottery, small finds, and bones from the graves and discuss the historical and social context of their interment.1 The present volume covers the graves and human remains belonging to the local community in Roman to Byzantine times, particularly the inhabitants of the fortifications and the ruins of the Sanctuary from the end of the 4th to the 7th or 8th centuries.

The study of the graves and their contents has been an important component in the research program of the OSU project almost since its inception. At the invitation of Gregory, Myra Giesen conducted a preliminary examination of human bone from the site in 1989–1990. She was the first person to collate the pertinent records, to try to make sense of their depositional context, and to generate an inventory.2 I assumed responsibility for the publication of the human remains in 1995 as a part of my larger study of the historical setting of the graves. I completed a new comprehensive analysis of the mortuary and skeletal remains during two long study seasons at Kyras Vrysi in 1996 and 1997, and during shorter visits in 1998 and 2000 to 2004.3 John Robb, who at the time was teaching at Southampton but has since moved to Cambridge, joined me in 1998 to observe and to report on paleopathology. The introduction and many descriptions and identifications of lesions in Chapter 7 reflect his contribution. My lively dialogue with him has steered me away from many methodological and interpretive pitfalls, for which I am very grateful.

Although I began the composing this book in 1997, various professional and personal distractions, beyond the vicissitudes of compiling and analyzing complex data that reside

1. For preliminary reports, see Clement 1969, pp. 142–143; 1970, p. 119; 1974, pp. 102–105; Clement and Thorne 1974. The West Cemetery previously was called Lambrou Field after the surname of the former landowner. Note that the graves discovered to the south across the modern road on the Filis property belong to the same necropolis. The author and Martha Risser are preparing the volume on the West Cemetery.
overseas, delayed its submission until 2005. At that point, recognizing that scholarship in related fields, particularly Late Antique archaeology, had increased dramatically in recent years and being aware of the duration of revision, editing, and production to come, I made the decision to stop incorporating new publications. Therefore, I have not cited works published after 2005, even though certain important studies have now appeared that complement the present volume in interesting ways.

Graves and bones, particularly those of post-Classical date, are frequently encountered during excavation; almost all major sites, and many of secondary importance, have produced them. Yet one of the greatest challenges I faced in preparing this book was the absence of a clear precedent in published scholarship on Greek remains. This book brings a new perspective in various ways: it applies current theoretical approaches to the study of burial and society; it fully integrates the study of funerary ritual with the study of skeletal biology; it employs a contextual approach to understanding graves and human remains within the larger frameworks of a community and a region; it explores life and death in the Greek countryside; and it investigates social history during the transition from ancient to medieval times. Since this project contributes to an emerging scholarly discourse and the subjects it covers will not be familiar to many readers in the fields of classical archaeology and ancient history, I have considered it important to adopt a wide scope. Accordingly, I have explained my data and techniques in detail, have compiled a generous bibliography, and have tried to situate the Roman and Byzantine graves and human remains from the Isthmus in relation to published evidence from elsewhere in Greece as well as other regions of the world. This will, I hope, provide a more useful and meaningful study for a larger audience than a simple catalogue and commentary. I hope, too, that it will highlight the dire need for the standardized collection, description, and publication of the abundant mortuary and osteological records of Greece.

I conducted the research for this book under the auspices of the American School of Classical Studies at Athens and with permission granted by the former Fourth Ephoria of Classical and Prehistoric Antiquities at Nafplio and the Sixth Ephoria of Byzantine Antiquities at Patras. For their interest and support I gratefully acknowledge Zoë Aslamatzidou and Panayiota Kasimis, archaeologists for the Ephoria; William D. E. Coulson, James B. Muhly, and Stephen Tracy, successive directors of the American School; and Scott Pike, former interim director of the Wiener Laboratory of the American School. The directors of the excavations at Isthmia, Timothy E. Gregory and Elizabeth R. Gebhard, have permitted my work and generously assisted in the preparation of this publication. In particular, I thank Gregory for recognizing the significance of the graves and human remains and for enabling my study over the long term.

In undertaking this study and preparing its publication I have enjoyed the technical aid and intellectual counsel of several people. Nancy Buschini, Blanche Kim, and Steve Koob offered their expert advice concerning the conservation and storage of the bones in 1995 and 1996. I acknowledge the able assistance of several students in biological anthropology and Mediterranean archaeology, including Heather Heersen (Kenyon College, 1995), Sarah Kielt (Bryn Mawr College, 1995), Victoria Semos (University of Texas-Austin, 1998), Nancy Tang (Cornell University and the University of London, 2000), and Dhruva Jaishankar (Macalester College, 2002). Tang and Jaishankar diligently tabulated the taphonomic and osteological data. I thank Nina Loney and especially Nora Dimitrova for translating publications in Bulgarian, Russian, and Serbo-Croatian during my research. All graphic material in this book appears by courtesy of the Isthmia Excavations. Many individuals have helped with the visual documentation of the graves and their contents. The line art is the work of several

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architects, illustrators, and excavators with the Chicago, UCLA, and OSU projects over the years, including myself. Many photographs of the site, the graves, and the human remains in situ, along with a few photographs of the artifacts, were taken by Emile Serafis and Paul Clement. Almost all photographs of the bones, several of the artifacts, and a few of the site and graves were taken by Daniel M. Curtis. He has also prepared all drawn and photographic images for digital reproduction and printing. I sincerely thank him for his skill and professionalism in completing this most important part of the project.

I also owe my gratitude to many teachers, colleagues, and friends. The success of any interdisciplinary endeavor depends on the constructive collaboration of people with diverse viewpoints. I warmly acknowledge the following individuals for their help during the course of my research and writing, without burdening them with complicity in any errors or disparities that remain in this book. Gregory offered his unconditional encouragement and astute criticism at all stages. I have learned much about archaeology, history, religion, and the natural environment from discussion and correspondence with N. N. Ambraseys, William Caraher, Kevin Clinton, John Coleman, Florin Curta, Archibald Dunn, John V. A. Fine Jr., Ann Ellis Hanson, George Kacandes, P. Nick Kardulias, Paul Legutko, John Mansfield, Charles Pazdernik, David Potter, Raymond Rogers, Guy D. R. Sanders, John Shean, Alice-May Talbot, Thomas Tartaron, Lita Tzortzopoulou-Gregory, and Fikret Yegul. On topics of specialized scope and on classes of artifacts I have consulted individuals pursuing related research in the Corinthia: Professor Gregory, John Hayes, Jeanne Marty, Melissa Moore Morison, Dr. Sanders, and Kathleen Warner Slane on Roman and Byzantine pottery; Birgitta Lindros Wohl on lamps; Liane Houghtalin and Orestes Zervos on coins; and Richard K. Dunn and Jay Stratton Noller on geology and geomorphology. I thank them for furnishing unpublished evidence and valuable observations. In osteological study I have profited from the advice of anthropologists Sandra Garvie-Lok, Kenneth A. R. Kennedy, Clark Spenser Larsen, and Douglas H. Ubelaker, who have discussed the project at various stages and assiduously reviewed drafts of Chapters 5 through 7. Finally, Mireille Lee has been my deepest source of intellectual guidance and personal support, for which I owe more than I can express.

This book would not have been possible without the generous financial and administrative support of several institutions and offices. My study overseas in 1997 and 1998 was aided by grants from the Horace H. Rackham School of Graduate Studies of the University of Michigan. I completed the basic research and writing while I was James Rignall Wheeler Fellow at the American School of Classical Studies (1995–1996) and Townsend Assistant Professor of Classics at Cornell (1999–2002). The Department of Classics and Olin Library at Cornell provided the necessary resources and a conducive atmosphere for the completion of much of this book. The library staff of Macalester College, particularly Aaron Albertson, assisted greatly with interlibrary loan acquisitions. Lastly, I am grateful to the editorial staff of the ASCSA Publications Office, under the sure guidance of Charles Watkinson and Andrew Reinhard, for their hard work, high standards, and broad vision in exploring new avenues for scientific publication.

I dedicate this book to my mother, Pat Rife (1943–2000). She made me a sandwich in Kyra Vrysí to nourish my work and bought me a computer in White Bear Lake to facilitate my writing. During the completion of this project, when I was far away, she developed leukemia. Like Prima at Corinth, the radiant woman survives in the memory of the living so long as the living preserve her glorious memory. She will be with me, and I will continue to learn from her, for a long time.

Macalester College
St. Paul, Minnesota
During the final preparation of this volume for production, I have not fundamentally altered the content or expanded the argument. This decision was motivated by a concern to preserve the study’s integrity and to ensure its rapid publication. I have, however, slightly enhanced the bibliography predating 2005 and have very selectively added citations of more recent publications pertaining to the northeastern Peloponnese and to human skeletal remains from Greece, Cyprus, and Asia Minor. Andrew Reinhard, Carol Stein, and Timothy Wardell at the ASCSA Publications Office deserve my sincere gratitude for the timely and careful attention they have given this manuscript. Publication of this book was aided by financial support from the offices of the Vice Provost for Research and the Executive Dean of the College of Arts and Sciences at Vanderbilt University, as well as from the von Bothmer Publication Fund of the Archaeological Institute of America, the Packard Humanities Institute, and the Ohio State University Excavations at Isthmia.

Vanderbilt University
Nashville, Tennessee
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Agora = The Athenian Agora: Results of Excavations Conducted by the American School of Classical Studies at Athens, Princeton


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<td>AA</td>
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<td>Acta sanctorum, 71 vols., Turnhout 1643–1940; repr. 1966–1971</td>
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<tr>
<td>ActaArchHung</td>
<td>Acta archaeologica Academiarum scientiarum Hungaricae</td>
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<td>AIN</td>
<td>Annali dell’Istituto italiano di numismatica</td>
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<td>American Journal of Archaeology</td>
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<td>American Journal of Human Biology</td>
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<td>AJPA</td>
<td>American Journal of Physical Anthropology</td>
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<td>AM</td>
<td>Mitteilungen des Deutschen Archäologischen Instituts, Athenische Abteilung</td>
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<td>Antiquity</td>
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<td>BBS</td>
<td>British School of Archaeology, International Series</td>
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<td>E. L. Leutsch and F. G. Schneidewin, eds., Corpus paraphraseorum Graecorum, 2 vols., Gottingen 1839–1851</td>
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<td>Yearbook of Physical Anthropology</td>
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### ABBREVIATIONS FOR TERMS IN THE TEXT

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<td>AC</td>
<td>alveolar crest</td>
</tr>
<tr>
<td>AMTL</td>
<td>antemortem tooth loss</td>
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<tr>
<td>ATFL</td>
<td>anterior talofibular ligament</td>
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<tr>
<td>C</td>
<td>canine(s) (often followed by superscript or subscript number[s]); or cervical vertebra/-ae (often followed by number[s])</td>
</tr>
<tr>
<td>CEJ</td>
<td>cementum-enamel junction</td>
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<tr>
<td>cm</td>
<td>centimeters</td>
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<td>d.</td>
<td>died</td>
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<td>D.</td>
<td>depth/deep</td>
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<td>Diam.</td>
<td>diameter</td>
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<td>H.</td>
<td>height/high</td>
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<tr>
<td>km</td>
<td>kilometers</td>
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<tr>
<td>I</td>
<td>incisor(s) (often followed by superscripted or subscripted number[s])</td>
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<tr>
<td>L.</td>
<td>left, when referring to bones or teeth</td>
</tr>
<tr>
<td>L.</td>
<td>lumbar vertebra/-ae (often followed by number[s])</td>
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<tr>
<td>M</td>
<td>molar(s) (often followed by superscript or subscript number[s])</td>
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<tr>
<td>m</td>
<td>meters</td>
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<tr>
<td>masl</td>
<td>meters above sea level</td>
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<td>max.</td>
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<td>millimeters</td>
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<tr>
<td>mos.</td>
<td>months</td>
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<tr>
<td>NB</td>
<td>notebook (i.e., primary record of fieldwork)</td>
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<tr>
<td>P</td>
<td>premolar(s) (often followed by superscript or subscript number[s])</td>
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<td>p.</td>
<td>preserved</td>
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<td>R</td>
<td>right, when referring to bones or teeth</td>
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<td>S</td>
<td>sacral vertebra/-ae (often followed by number[s])</td>
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<tr>
<td>sd</td>
<td>standard deviation</td>
</tr>
<tr>
<td>T</td>
<td>thoracic vertebra/-ae (often followed by number[s])</td>
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<tr>
<td>Th.</td>
<td>thickness/thick</td>
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<tr>
<td>TMJ</td>
<td>temporomandibular joint</td>
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<tr>
<td>W.</td>
<td>width/wide</td>
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</table>
THEMES, PROCEDURES, AND MATERIALS

This study describes and interprets the graves and human remains of Roman and Byzantine date in the area of the Panhellenic Sanctuary$^1$ and the succeeding fortifications on the Isthmus of Corinth, which were excavated under the auspices of the American School of Classical Studies between 1954 and 1976 (Figs. 1.1–1.3). These burials belonged to local residents during several phases in the long history of their settlement. Most date to the Late Roman and Early Byzantine periods (end of the 4th to late 7th or 8th centuries), but a few date to the Early to Middle Roman (mid-1st to 4th centuries) and the Middle to Late Byzantine eras (12th to 15th centuries) or later. The 30 graves$^2$ found in 11 separate locales in the central, northern, eastern, and far western$^3$ areas of the archaeological site called Isthmia contained the bodies of at least 69 individuals$^4$ and an assortment of artifacts. Bones from at least four other skeletons were found in secondary contexts to which they seem to have been moved during ancient building activities. Besides the much earlier burials in the West Cemetery, these remains comprise the largest body of mortuary and skeletal evidence so far recovered at the Isthmus.$^5$

The graves are spare and mundane in form and content. They were built mostly from reused materials and were partially sealed, were seldom marked at the surface and apparently never displayed epitaphs, and infrequently contained objects, such as small vessels, lamps, coins, and articles of clothing and adornment. In contrast to the paucity and simplicity of the graves, the surviving hard tissues of the bodies were relatively well preserved, especially those from enclosed interments that were not extensively disturbed. Several large graves contained multiple bodies that had been added over a short period. Both men and women, adults and children were interred in the graves. For the most part the inhabitants led healthy lives, but suffered ailments that were not uncommon in ancient Mediterranean society, such as tooth loss, broken arms, and arthritic joints.

1. The word “Sanctuary” refers to the entire area associated with the Isthmian cults and festivals, whose exact limits remain unknown; see *Isthmia* II, p. 5, n. 10. Within the Sanctuary, the “central area” is the area occupied by the precincts of Poseidon and Palaimon and all contiguous structures (Figs. 1.2, 2.76).

2. This total includes one unexcavated feature near Tower 14 that was probably a grave (pp. 71–72).

3. One grave was found at the West Foundation ca. 2 km west of the Temple of Poseidon (pp. 88–91).

4. Significant portions of 65 skeletons were available for study, although two subadults were represented only by teeth (NEG 69-009A, 69-010A). The remains of at least two more subadults had completely or almost completely disintegrated before the graves were discovered (NEG 69-008, DEC 69-902). Skeletons in two other graves (T13 54-001, PAL 56-001) were recorded in situ but not recovered.

5. On the West Cemetery, see p. vii, n. 1. In addition, excavations in trench GW2 over the Mycenaean Wall directly south of the central area (NB JGH, p. 356 [Oct. 3, 1959]) uncovered portions of one human right lower leg and foot (bone lots 83+89+97: metatarsals I, II, III, and V, first proximal phalanx, calcaneus, distal and shaft fragments of tibia and fibula). These remains, which were mixed with ovicaprid and canine bones, seem to represent undifferentiated refuse from an early period at the Sanctuary.
 THEMES AND APPROACHES

These graves and human remains furnish valuable evidence concerning society, religion, economy, and biology in the Corinthian countryside from Roman to Byzantine times, particularly for the Late Roman and Early Byzantine periods. When considered together with associated traces of habitation, the mortuary and skeletal remains bear vivid testimony not only to how these people died but also to how they lived. The graves, their contents, and their locations were used by the local community in an intentional and meaningful manner. When men, women, and children participated in the ritual process of mourning, interment, and commemoration, they identified themselves according to social relationships and expressed their beliefs concerning life and death. A close examination of the material remains of these funerary rituals can therefore reveal the social, economic, and religious character of the community and its composition by gender, age, descent, and status. Furthermore, study of the human bones and teeth can reveal the demographic structure, diet, occupational hazards, and health of local residents.

The larger significance of the graves, the human remains, and the settlement emerges when they are considered within the frame of regional trends. The full variability of mortuary

6. For approaches to mortuary and biological variability on a regional scale, see, e.g., O’Shea 1984, Beck 1995a, and Silverman and Small 2002.
behavior within a region can only be traced through intersite comparison. Since separate communities within a geographic area live in proximity, share resources and natural conditions, and often interact with one another, their burial practices usually exhibit basic similarities. But the material and spatial dimensions of funerary ritual also reflect the structural or ideological variation between contemporary, contiguous groups. Likewise, the examination of biological diversity within a region can reveal differences in life experiences and population boundaries stemming from locally distinct economic and subsistence strategies, settlement patterns, and familial relations.

The evidence from the Isthmus has therefore been examined within the regional context of the Corinthia. During the Roman and Byzantine eras, the regional center was the city of Corinth, which controlled two nearby ports, Lechaion and Kenchreai, and maintained a dependence on the surrounding countryside (Fig. 1.1). The urban community at Corinth
themes and approaches

furnishes the most significant point of comparison to the community in its hinterland at the Isthmus. While the two places were variously linked by the movement of traffic, regional military strategy, and systems of production and trade, they display different scales and complexities of settlement. Thus, an understanding of the Isthmus is dependent on an understanding of Corinth, and vice versa. It has been worthwhile, as well, to consider evidence from locales elsewhere in the northeastern Peloponnese but still within the Corinthian orbit of communication, travel, and exchange. Although the publication of mortuary, skeletal, and habitational remains of Roman and Byzantine date from this large region has been inconsistent, particularly in peripheral areas, the evidence from several major sites in addition to Corinth, such as Nemea and Argos, has been documented extensively. When compiled for comparison, the published record provides an adequate basis for beginning to outline general patterns of variation across the northeastern Peloponnese.

Such a contextual approach to the graves, human remains, and settlement at the Isthmus sheds light on several essential developments in the transformation of Greek society from classical antiquity to the Byzantine middle ages. These include the demise of pagan cults and the evolution of Christianity, the implementation of Imperial defensive schemes involving massive fortification, the diverse effects of plague, earthquake, and invasion on local communities, and the changing face of rural economy and settlement. The Greeks who lived and died at the Isthmus during these centuries saw their world fundamentally change. Although their settlement diminished, they survived during the Byzantine “dark age.” Throughout this transitional era, they were hardly confined by rustic isolation, cultural stagnation, or material destitution. They continued to encounter frequent travelers and to interact with neighboring settlements. Their shifting lifeways and funerary rituals speak to a capacity for adaptation and innovation.

While the overarching goal of this study is to investigate these historical developments, the line of inquiry has been organized in order best to record and to interpret two rather different types of evidence, graves and human remains. To this end, the book is divided into four sections. The first section, the present chapter, introduces the main themes, the procedures, and the materials under study. The second section, which is comprised of three chapters (Part I: Chaps. 2–4), addresses the graves within their archaeological, historical, and social contexts. Chapter 2 describes the physical remains of the graves, including their form, contents, and associations. Chapter 3 discusses the historical and topographical setting of these physical remains by surveying long-term changes in settlement. Chapter 4 reconstructs the funerary rituals that led to the creation of the graves and examines the relationship between those rituals and the social structure and ideology of the local community. The third section, which also comprises three chapters (Part II: Chaps. 5–7), addresses the human remains in their osteological and bioarchaeological contexts. Chapter 5 discusses the morphological and demographic composition of the skeletal sample, including sex, age at death, living stature, and metric and nonmetric traits. Chapter 6 examines teeth as evidence for oral development and health. Chapter 7 addresses the paleopathology of the bones and the paleoepidemiology of the skeletal sample. The fourth and final section (Chap. 8) summarizes the mortuary and skeletal evidence from the settlement at the Isthmus and evaluates its significance for understanding the transformation of the Greek countryside.

Although the description and analysis of the two primary data sets requires divided treatment, the mortuary and osteological sections of this study are integrated, so that discussion in one often depends on information presented in the other. Therefore, the descriptions

7. Recent scholarship on center-periphery interactions in Late Antique Greece and Asia Minor (e.g., Mitchell 1993, Lavan 2001b) has demonstrated the importance of viewing urban and rural communities as dual components in regional networks of settlement, production, and exchange.
of individual graves (Chap. 2) include summaries of skeletal traits (Chaps. 5–7), and the discussion of funerary rituals, social structure, and ideology (Chap. 4) takes into account the age, sex, and genetic character of the dead (Chap. 5). Likewise, the investigation of oral health and paleopathology (Chaps. 6–7) refers back to a reconstruction of the local settlement and its living community (Chap. 4). This repetition of information and conclusions in separate sections is intended to aid the reader by consolidating relevant evidence and assembling a composite picture of life and death in a changing world.

PROCEDURE OF STUDY

It is important to outline the procedure of study at the outset. The basic goal was to document the graves and human remains as accurately and precisely as possible using standard techniques in funerary archaeology and physical anthropology. The procedure was also designed in such a way as to derive information that would be pertinent to the central themes outlined above. Finally, measures were taken both to facilitate the comparative analysis of the graves and bones at the Isthmus with those from other sites and to permit ready access to the remains for future investigation.

The study began with the collection of all materials and primary records in the storerooms and workspaces at Kytras Vrysi, the modern village on the ancient site. These include the artifacts and bones recovered from the graves and the field notes, reports, drawings, and photographs recording their excavation. Inventoried and lotted artifacts and textual and visual records had been shelved and catalogued in the usual manner. The bones had remained since excavation in the storeroom of the Isthmia Museum (Fig. 1.4), in some cases for nearly three decades, in wooden crates and trays with handwritten labels. It was evident from references to the graves in notes, reports, and labels that the excavators had not systematically identified them. Sometimes they were numbered sequentially by area (e.g., “Tower 14 #2”), sometimes they were designated by an associated feature (“Roman Bath drain skeletons”), and sometimes they were given no identification at all. When numbers were assigned, those numbers were often used in field notes, on storage boxes for lotted pottery and bones, on plans and detail drawings, and in artifactual and photographic inventories. The old grave numbers have also appeared in previous publications, namely, the annual field reports in Αρχαιολογικόν Δελτίον and the description of the fortifications in Ισθμία V.

It was necessary to devise a new system for identifying burials from across the site that not only preserves the old numbers but also uniquely designates single graves and skeletons. These new burial numbers consist of five digits separated after the first two by a hyphen and followed by a letter. The first two digits indicate the year of excavation, the second three indicate the old number, and the letter indicates a single skeleton. For example, 69-004C is the third of at least three skeletons (A–C) from a grave called “Grave #4” that was excavated in 1969. If the excavators had not assigned a grave number, or had repeated a number already used at another locale in the same year, the second three digits of the new number were arbitrarily assigned. Thus, for example, the four graves that were the first ones discovered in four separate areas during the 1969 campaign, two of which had been designated “Grave #1” and two of which were nameless, were renamed 69-001, 69-801, 69-901, and 69-991. The assignment of letters was determined by the order in which the bones from one grave were examined, not the order in which they were either interred or excavated. Bones in multiple burials that could not be associated with individual cranial or pelvic remains were designated collectively by the grave number followed by a question mark (e.g.,
One important class of information the new numbering scheme does not encode is the locale of excavation. Therefore, abbreviated names for the areas where human remains were found have been prefixed to the burial numbers (e.g., RB 76-002B). The abbreviations for areas are given in Table 1.1.

In addition to the new numbering scheme, the study adopted a consistent terminology for referring to mortuary practices and to periods in the history of the local settlement. “Grave” and “interment” refer to the physical presence of a space containing one or more bodies and other objects. “Burial” refers to either the intentional, often ritual, act of interment or the product of that act, that is, one or more dead individuals and any funerary items placed in a grave. Archaeologists and historians sometimes use the term “cist” to refer to an unprotected hole in which a burial is made (like Modern Greek λάκκος). In this study, “cist” designates the cutting for the interment, without implying the form of either the cutting or its enclosure.

In retracing the history of the settlement and its burials, it was necessary to identify remains according to periods of habitation. This periodization is defined by major historical events, artifactual developments, and architectural phases at the Isthmus, which will be

8. In one unusually complex grave containing ten bodies (70-902), no bones could be identified with a single skeleton (pp. 85–86). Therefore, separate skeletal elements (e.g., ulnae, femora) were given randomly assigned serial numbers after an altered form of the standard burial number (e.g., 70-902Z3).
discussed in Chapter 3. The periodization of local settlement from Roman to modern times is given in Table 1.2. Two major eras in the history of the site are commonly identified by a phrase linking sequential periods. “Late Roman to Early Byzantine” designates the era of most intensive, continuous occupation of the fortifications from the years just preceding their construction in ca. 410–420 through their renovation under Justinian, the Slavic incursions of the late 6th to early 7th centuries, and the “dark age” occupation that ended in the late 7th or 8th century. In this study, “late antiquity” will be synonymous with the Late Roman period,9 while the term “Early Christian” has been eschewed.10 “Middle to Late Byzantine” will designate the second era of dense habitation at the Fortress, beginning with the revival of the local settlement in the 10th century, reaching its apogee during the 12th to 14th centuries, and declining during successive military operations in the 15th century.

The next stage in the study was the close examination of the artifacts, bones, teeth, and primary records in order to establish the original state of the graves. This required a reconstruction of how the graves had changed since the time of interment, as discussed below. The study of the mortuary remains involved the collection and recording of all relevant depositional, artifactual, and structural data from the early excavations. It proved helpful to return to several burial sites for further exploration to clarify their form and associations.11 The study of the human remains was a two-part process. The first was an inventory of all skeletal elements and an evaluation of their state of preservation. The second was an examination of the remains in order to establish sex and age at death, to collect metric and nonmetric data, and to document paleopathology.

During the examination, special attention was devoted to the handling of the human remains and to their long-term storage.12 Before inspection, many bones and teeth had to be cleaned. Several retained soil matrix in cavities and fissures, and a few were coated with

9. The elusive term “late antiquity” has had a varied usage in past and current scholarship; see Bowersock, Brown and Grabar (1999, pp. ix–x) for a useful formulation.
10. Although the designation “Early Christian period” is still used (e.g., Nemet III, p. xxx), the author considers it a misnomer for general historical phasing. It is chronologically incorrect (the early phase of Christianity was the 1st century), politically inaccurate (Imperial, military, and local administration was in many respects neither distinctly nor uniquely Christian), and culturally biased (Christianity was only one factor in the development of Late Antique Mediterranean religion and culture). Furthermore, as a historical designation, it identifies one period by a single religion, even though that religion existed both earlier and later, during periods identified by ruling regimes (“Roman” and “Byzantine”).
TABLE 1.2. PERIODIZATION OF THE EARLY ROMAN TO EARLY MODERN SETTLEMENT

<table>
<thead>
<tr>
<th>Period</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Roman</td>
<td>Mid-1st to early 2nd centuries</td>
</tr>
<tr>
<td>Middle Roman</td>
<td>Mid-2nd to late 4th centuries</td>
</tr>
<tr>
<td>Late Roman</td>
<td>End of the 4th to mid-6th centuries</td>
</tr>
<tr>
<td>Early Byzantine</td>
<td>Late 6th to 7th or 8th centuries</td>
</tr>
<tr>
<td>Middle Byzantine</td>
<td>10th to 12th centuries</td>
</tr>
<tr>
<td>Late Byzantine</td>
<td>13th to 15th centuries</td>
</tr>
<tr>
<td>Ottoman</td>
<td>16th to early 19th centuries</td>
</tr>
<tr>
<td>Early Modern</td>
<td>Mid-19th to early 20th centuries</td>
</tr>
</tbody>
</table>

a calcareous shell from environmental moisture. Once the bones and teeth were clean, they were conserved as needed. None was so friable that it required chemical consolidation. Many, however, were broken and marred by postmortem degradation in their depositional context, by damage during excavation, by crowded and unpadded packing in boxes and bags, and by occasional handling. Furthermore, during the 1970s and 1980s some fragmentary bones had been rejoined using masking tape, which caused staining and exfoliation, and several postmortem breaks had been mended with Elmer’s Glue, a poly(vinyl) acetate emulsion which discolored the bones and stripped contiguous surfaces after only a few years in storage. To rectify these earlier measures, the masking tape and white glue were carefully removed and selectively replaced with Acryloid B-72 in a 10% acetone solution. Since its initial application in 1995 and 1996, Acryloid has proven to be an optimal adhesive.

The cleaned and restored remains were treated for clearer identification and better preservation. Burial numbers were written on all major bones, all skeletal elements that could be identified with individuals were segregated, and all elements from the same skeleton were bagged by type or anatomical region. Some bones had been wrapped by the excavators or their successors in newspaper or toilet tissue. These products had served well for cushioning in the short term, but in places the newsprint had bled onto the bones and the tissue had stuck to irregular surfaces, leaving tiny shreds in narrow crevices and cancellous tissue. These materials were removed and selectively replaced with Ethafoam, a polyethylene packing medium that is pliable, acid-free, and shock-absorbent. Finally, the remains were assigned by grave to numbered crates with the contents clearly marked. Rectangular wooden crates were chosen because they are sturdy, easy to lift and transport, can be repaired at minimal cost, and stack tightly but do not completely seal off the bones. They permit the circulation of air but prevent intrusion by the common denizens of the apothiki, lizards and rats.

One of the most important components in the study of the graves and human remains was their visual documentation in drawings, photographs, and digital images. Drawing and photography are essential to archaeological research because they preserve visual data of a

13. These elements were washed in warm water without additives and dried in a shaded, protected location away from direct sunlight and blowing sediment. Dental instruments and soft-bristle brushes, both dry and moist, aided finer cleaning. Lime concretions were removed from bones using a brush dipped in a 5% acetone solution of hydrochloric acid and from teeth using wooden picks and a sparing wash in a 15% acetone solution of acetic acid. Special care was taken so as not to gouge the cortex or enamel, to erase pathological features, or otherwise to alter osseous or dental surfaces.


contextual or material nature and allow for independent evaluation and comparative study. While traditional methods of photography have served these purposes well, digital technology offers a more versatile medium for recording and sharing visual data. In the study of the mortuary and skeletal remains at the Isthmus we have implemented new techniques for capturing, manipulating, and storing visual information bridge the transition from traditional photography to digital imaging.

The visual documentation of the material was a three-stage process beginning with the initial drawing and photography of graves and funerary artifacts. The excavators in the 1950s to 1970s always plotted graves on actual-state plans but seldom prepared formal drawings of them. They always photographed the interments, which preserved crucial information, but procedures varied. The excavators stored the human remains without study or photography but photographed funerary artifacts on 35 mm or medium format black-and-white film using a copy stand indoors. Many of these inventory photographs were publishable with only slight modifications. The excavators stored all negatives and prints in filing drawers and albums on site. Over the years many negatives have been destroyed or lost, but in each case a high-quality print from the damaged or lost negative has survived.

The second stage in the visual documentation of the mortuary and skeletal remains was conducted by Daniel M. Curtis over roughly six weeks in Kyras Vrysi during the summers of 1996, 1998, and 2000. His goal was to complete the photographic record for publication and archival storage. He visited several burial sites to capture features that had not been previously documented and shot new photographs of several funerary artifacts. Most of his efforts were devoted to photographing the human remains for the first time. He photographed the bones on Kodak TMAX ISO 100 and Ilford FP4 ISO 125 black-and-white film with a 35 mm SLR camera (Nikon 8008S or Canon A2) with a 50 mm lens for macro-focusing. The camera was mounted on a Hama 6229 copy stand with four rotatable 100-watt tungsten bulbs. The subject was placed on a plate of nonglare glass suspended 5.5 cm over a sheet of black cloth. The direction of lighting and orientation of the subject followed scientific convention. Due to financial and temporal constraints, Mr. Curtis did not compile a visual record of the total skeletal assemblage but did photograph many more elements than appear in this volume. Elements were chosen in order to create a primary visual archive of the bones and teeth and to illustrate published discussions of those remains.

The third and final stage in the visual documentation of the mortuary and skeletal remains was completed by Curtis in the United States between 1998 and 2002. This involved the digitization of all photographs, the manipulation of those digital images, and provision for the long-term preservation of the visual record. All black-and-white negatives pictur-

20. Several photographs show the graves after the displacement or removal of their walls or bones: Figures 2.6, 2.46, 2.50, 2.54, 2.59. The correct procedure for photographing graves is discussed in several manuals: Dillon and Verano 1985, pp. 145–146; Dorrell 1994, pp. 132–133; Ubelaker 1999, p. 14; White 2000, pp. 284–286 (photography by Pieter Arend Folkens); Roskams 2001, pp. 130–131, pl. 23.
22. Apart from the work of Curtis, Andrew Reinhard photographed the fragmentary long bones in Fig. 2.9, and John Robb photographed the pathological specimens in Figs. 7.1, 7.10, and 7.26.
24. See the recommendations of Buijstra and Ubelaker 1994, pp. 10–11.
25. The following photographs were taken: all adult skulls, regardless of preservation, in the anterior, lateral, and posterior views; all upper and lower dental impressions in the occlusal view; noteworthy details of the teeth, such as severe caries, attrition, or dental trauma; pubic symphyses and auricular surfaces, which are used to estimate age at death; all congenital defects, infectious lesions, trauma, and neoplasia; a representative sample of cases of cribra orbitalia and joint disease; and examples of postdepositional alteration to bones.
26. Besser 2003 is an introduction to digital image capture and digital asset management.
ing the graves, artifacts, and human remains were scanned to Kodak Photo CD and Kodak Pro Photo CD master disks, which served as an excellent storage medium in terms of affordability and quality. All preserved line drawings of graves and artifacts, as well as the prints of negatives that had been destroyed or lost, were scanned at high resolution (800 dpi for drawings; 300 dpi for prints). Once all hard copies of visual data had been translated into 8-bit grayscale images, they were adjusted using Adobe Photoshop (versions 4.0 to 7.0) on a Macintosh computer. This involved the application of standard tools, the regularization of sizes, and the insertion of scales and arrows. These modifications have not distorted or erased original visual information essential to the subject; such adjustments are the same as those made during the traditional printing and retouching of photographs and the drafting and copying of drawings. After preparing the digital images, Curtis archived the visual record in a way that would promote long-term stability and easy accessibility. The original negatives, prints, and drawings were catalogued, cleaned, relabeled, and returned to the site in improved storage spaces.

THE CREATION OF THE MATERIAL RECORD

Once these procedures had been established, it was possible to investigate the graves, artifacts, bones, and teeth as evidence for funerary rituals and skeletal biology. The gradual transformation of graves and bodies over time after death and burial can filter or even erase traces of both the osteological character of the deceased individual and the activities surrounding that individual’s death. The biological interpretation of human remains requires the assessment of the diachronic impact of natural and cultural agents. The osteologist must distinguish postmortem changes from ante- or perimortem disease and trauma. Moreover, understanding the state of preservation is necessary in order to examine the distribution and prevalence of pathological conditions in a skeletal sample. It is also important to determine the depositional and postdepositional pathways, or formation processes, by which the material components of mortuary behavior have moved from a cultural to an archaeological context. Reconstructions of burial chronology and settlement history, along with interpretations of funerary custom and social identity, rely on the evaluation of formation processes. The natural environment and human activity were primary factors in the creation of the osteological and mortuary records at the Isthmus. These factors are summarized in Table 1.3. The calculation of the relative survival and preservation of the bones (Table 1.3, right two columns) will be discussed in Chapter 5.

The lithologic sequence and natural topography of the site of the Isthmian Sanctuary and Fortress constitute the depositional environment of the Roman and Byzantine graves. A bed of fine-grained, compact but soft marl is exposed on the north side of the Fortress and outside the circuit in the defensive ditch. A coarse limestone conglomerate bed overlying the marl crops out on the north edge of the enceinte. The soil overlying the conglomerate

27. Taphonomy is the study of the postmortem change of biomatter, especially bone and tooth, within a particular environment. White (2000, pp. 407–424) and Mays (1998, pp. 15–37) offer useful introductions; Lyman (1994) and Martin (1999) present definitive surveys of taphonomy; Haglund and Sorg (1997a) provide a collection of introductory essays on forensic taphonomy. The author thanks Thomas Tartaron and Raymond Rogers for informative discussions about taphonomy in general and depositional conditions at the Isthmus in particular.

28. Wells 1967 is a classic essay on “pseudopathology”; see more recently Ubelaker 1991; Außerheide and Rodríguez-Martín 1998, pp. 15–18; and Lovell 2000, p. 236.


31. On local geology, see Isthmia VIII, pp. 3–4; on local topography, see Isthmia II, pp. 1–3; Isthmia V, p. 9; Isthmia VIII, p. 15. The author thanks Jay Noller for discussing the geomorphology of the Isthmus.
### Table 1.3. Factors in the Preservation of the Graves and Human Remains

<table>
<thead>
<tr>
<th>Area and Grave No.</th>
<th>Burial Design</th>
<th>Environmental Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Covering</td>
</tr>
<tr>
<td>NEG 69-103</td>
<td>2</td>
<td>Complete</td>
</tr>
<tr>
<td>NEG 69-004</td>
<td>5</td>
<td>Complete</td>
</tr>
<tr>
<td>NEG 69-008</td>
<td>1?</td>
<td>Partial?</td>
</tr>
<tr>
<td>NEG 67-001</td>
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<td>HO 70-902</td>
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<tr>
<td>RB 76-002</td>
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<td>Complete</td>
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<tr>
<td>WF 62-001</td>
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<tr>
<td>PAL 56-001</td>
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</tr>
<tr>
<td>TC 60-001</td>
<td>1</td>
<td>None</td>
</tr>
</tbody>
</table>

¹ This includes only those graves in which damage to bones, artifacts, and graves could be confidently attributed to compression. Numerous teeth and ribs were also affected by sedimentary compression.

² This includes only those graves in which bones or artifacts had clearly moved after deposition. Gravity affected all graves to a certain degree.

³ This only includes surficial damage that can be confidently identified as having occurred during excavation.

⁴ This includes only those graves from which bones were recovered after their initial excavation.

is a fine, clayey to sandy matrix containing a fraction of calcium carbonate and decomposed organic matter, with a neutral to slightly alkaline pH (7–8). The local terrain is dominated by the Rachí, a prominent ridge lying just south of the Temple of Poseidon, and by the Great Ravine, which borders the site on the north and defines the course of the Hexamilion. Three roughly parallel tributaries cut across the site from the high ground in the south toward the Great Ravine (Fig. 1.2). The drainage of the Sanctuary was facilitated not only by
deep gullies but also by artificial drains, several of which passed through the fortifications near the Northeast Gate and Tower 2. Once these channels were no longer maintained, run-off collected at the base of the ramparts and in the steep taphros (defensive ditch), eventually burying them under accumulating sediment.

Microvariations in the local landscape generated small differences in the preservation of human remains. A few cists were cut into the marl and conglomerate, but most were cut into the soil above the conglomerate (Table 1.3). In general, this slightly alkaline,
well-drained soil and the semiarid, temperate climate favored the preservation of skeletal material.\textsuperscript{33} However, interment in calcareous strata promoted infiltration by soil water and the precipitation of salts; moisture then dissolved and leached out the organic and mineral constituents of hard tissues. As a result, surviving bones and teeth are sometimes fragile and display a thin encrustation or discoloration.\textsuperscript{34} A secure covering and lining in a grave could mitigate, but not prevent, the deleterious effects of these natural agents on the remains inside. It is, therefore, not surprising that the decomposition of hard tissues was most rapid in drainage zones, especially in partly or completely uncovered graves on the north side of the Fortress.\textsuperscript{35} Bones and teeth in cists that were poorly sealed and exposed to draining water have completely or almost completely disappeared.\textsuperscript{36} In contrast, the best-preserved skeletons were found in mostly sealed graves in the well-drained area on the west side of the Fortress.

The flora and fauna of the Isthmus had a negligible impact on the preservation of human remains. In most areas of excavation, vegetation is grassy with shallow roots, but bushes and trees grow here and there, especially alongside buried or exposed architecture where water tends to collect. Roots of varying sizes had penetrated cists that were especially shallow and unshielded (Table 1.3). Invading roots sometimes marked the surface of bones, displaced them, or broke them down. There are scattered traces of burrowing rodents at the Isthmus, but earthworms and molluscs are frequent in the moister areas on the north edge of the site, in the gullies, and near the marl exposures. The most common terrestrial snails in cists exposed to moisture were typical Mediterranean species of turriculate and discoid gastropods (\textit{Rumina decollata} and \textit{Eobania vermiculata}; Table 1.3). Since these snails are not sarcophagous, they must have moved into the graves well after the decomposition of soft tissues, either burrowing to estivate or entering through worm action and erosional crevices. Although there is no sign that molluscs directly destroyed the human bodies, their presence implies that other factors, such as air, water, organic matter, and shallow depth, affected the burial environment.\textsuperscript{37}

Natural processes also influenced the preservation of graves at the Isthmus. Gravity had a long-term effect on the position of the bodies after interment and skeletonization.\textsuperscript{38} It was not uncommon for bones to shift over time into unnatural positions once soft tissues had dissolved. Jaws that had been closed or tied shut for burial sometimes dropped open with the decay of the temporomandibular ligaments (see Fig. 2.56).\textsuperscript{39} The small bones of hands that had been placed over the chest, abdomen, or pelvis of the deceased often migrated to the floor of the cist with the decay of soft tissues (see Fig. 2.47). Chemical decay, sedimentary compression, and gravity determined the preservation and location of the funerary artifacts. The condition of these objects at the time of discovery depended on several factors, including material, soil chemistry and composition, and moisture.\textsuperscript{40} Nearly all iron objects are severely corroded (see Figs. 2.100, 2.104, 2.108–2.110, 2.112), and bronze objects often display green corrosion or have disintegrated (see Figs. 2.98, 2.113), while objects in gold,
lead, stone, bone, and shell remain intact (see Figs. 2.101–2.103, 2.107, 2.111, 2.114). Terracotta lamps and vessels that had been buried intact were found in near perfect condition (see Figs. 2.88, 2.89, 2.91–2.94), but the condition of glass varies dramatically (see Figs. 2.7, 2.90). Textiles played an integral part in the funerary ritual, but did not survive to the time of the grave’s discovery. Not unlike bones and teeth, small, round artifacts such as buckles and beads sometimes moved from their original positions. Artifacts that had been worn on the torsos of the dead during the funeral and deposition, such as necklaces and pendants, remained over the chest until the skin and internal organs had dissolved, at which point they passed through the thoracic cavity and settled near the scapulae or vertebrae.41 In three graves, earrings were found where they had come to rest after the earlobes to which they were once attached had disappeared (see Figs. 2.21, 2.80, 2.81).

Environmental agents did not significantly alter the form of the interments. Lined and covered cists typically incorporated durable materials in sturdy designs. One exception was the disintegration of the coffin or bier in the grave cut into the Palaimonion (56-001), which left behind only splinters and nails. Gravity had little effect on the form of the graves. Covering and lining elements shifted most when they were not supported by soil, stones, or mortar around the edges. The depth of sedimentation over the graves, especially those on the north side of the site, tended to enhance stability by encasing them. In some cases, however, the overburden displaced, cracked, or compressed coverings, particularly those using large flat tiles (see Fig. 2.62), which could crush bones.42 Downslope movement and soil creep did not affect the graves because most were interred in static deposits.43 Burrowing animals did not disrupt the graves, but tree roots dislodged the stones sealing the slabs over one grave (see Fig. 2.42), and smaller roots cracked and slightly displaced the tiles over another (see Figs. 2.62, 2.63).

Successive phases of human activity in earlier burial areas significantly affected the condition of bones, teeth, and graves at the Isthmus (Table 1.3). During the early 5th century, the builders of the Hexamilion interrupted earlier graves south of the Northeast Gate and inside Tower 2. Workers attempted to preserve these interments by setting the foundation blocks around them, but during the excavation of the footing trench they could not avoid opening graves and often altering their form and contents (see Figs. 2.7–2.9). During the initial occupation of the Fortress in the early 5th to mid-6th centuries, local residents commonly added bodies to preexisting graves rather than digging fresh cists. This practice produced several multiple interments with as many as 10 or 11 bodies. Continued inhumation in single graves is evident in the purposeful modifications to the designs of the graves and the relative positions of the skeletons (see Figs. 2.12, 2.16, 2.18–2.20, 2.66, 2.70). These activities affected not only the situation but also the survival and preservation of the human remains. The displacement of bones led to breakage, the disruption of the original grave design often exposed bones to weathering, and occasionally bones were removed. Local residents also practiced secondary burial, the removal of human remains from one place and their redeposition in another, during late antiquity. The transplanting of remains led to a lack of protection over the new grave, an unconventional orientation of burial, the dense collection of bones, and the incomplete representation of skeletons. The process of secondary burial caused the loss of numerous small bones and damage to those that remained.

41. NEG 69-009, 69-010, T14 69-002, 69-991, RB 76-002, HO 70-002, PAL. 56-001. Note, however, that the pocket of coins in NEG 67-001 was discovered somewhat higher in the cist, closer to where it had originally been placed (Figs. 2.12, 2.13).
43. The surface markers above NEG 69-009, 69-010, T2 68-002, and 68-006 were found in their original state, even though the first two had been erected on an incline (Figs. 2.27, 2.28, 2.31–2.33, 2.37, 2.40).
Construction and secondary burial also affected earlier burials during later phases in the occupation of the site (Table 1.3). The erection of small houses near Tower 14 during the Late Byzantine era cut into underlying Early Byzantine cists. As in earlier times, these building activities altered the design of graves and led to both the partial destruction and the selective extraction of skeletal remains (see Figs. 2.45, 2.46, 2.49, 2.54). The two latest graves from the site also reflect unusual burial conditions. In the first case, the skeleton might have been moved to the cist from another locale before the decomposition of the ligaments, and the extended legs were folded back over the chest (see Figs. 2.59, 2.60). In the second case, the body was already skeletonized when only the skull and a few other bones were re-deposited in a cave above the ancient Theater, together with various animal bones (see Fig. 2.83). The modern residents of Kyras Vrysi have had no significant impact on the graves. Most interments are situated northeast of the village, buried well below modern ground level and protected within the archaeological site. However, olive cultivation south of the Fortress and bulldozing northeast of Tower 2 has disturbed the tops of three graves.

Another important anthropogenic factor in the preservation of the mortuary and skeletal remains at the Isthmus was the method of excavation and recovery. The decisions and actions of archaeologists determined the data that were collected from burial contexts. The early excavators were unusually systematic and meticulous for the discipline of classical archaeology during the 1950s–1970s, but of course they did not attain the high standards set by archaeologists and anthropologists today. They had no expertise in the documentation and analysis of mortuary or osteological evidence and did not fully comprehend its historical and biological importance. One important class of evidence that did not receive adequate attention was stratigraphic context. The excavators recorded depositional units, but in many cases had difficulty defining graves because the walls of the cists were indistinct at the top. Depositional sequences in most of the burial areas can be retraced with confidence from a combination of elevations, written accounts, photographs, and artifacts. The lots from the early campaigns typically contained representative samples of finds from discrete excavated units, but excavators retained on average more material from graves than from other contexts. Occasionally they discarded small finds, but in most cases they saved well over half the sherds, and in some cases a total sample. Moreover, they almost always maintained the integrity of burial deposits, even when digging at the Northeast Gate and Tower 14, where habitational remains were dense and the risk of contamination high. The return to selected burial sites for inspection or cleaning in recent years has resulted in the recovery of crucial information concerning the stratigraphic contexts and designs of graves.

In recording graves and saving their skeletal contents, the excavators were veritable pioneers during a time when their colleagues at other classical sites usually neglected burials of Roman and Byzantine date and discarded human bones. Their method of excavating graves involved opening the cist, clearing the fill to the level of the skeleton, and removing the bones. Frequent references in the notebooks show that sieving was a regular practice. But the excavators did not always recover and store the bones from individual skeletons separate-
rately, particularly when they came from complex multiple interments (Fig. 1.4). Sometimes they did not recover all of the bones that survived in the graves, either out of disinterest or on practical grounds (Table 1.3). More frequently, they missed bones because they simply did not recognize them. Their main goal in excavating the total fill in each grave was to recover small artifacts, such as coins and jewelry, not diminutive or irregular bones, which are easily mistaken for rocks by the inexperienced.

Some postmortem damage to the bones can be attributed to excavation and handling (Table 1.3). A comparison of the photographs of bones in situ to those of bones in the laboratory reveals that certain elements were drastically broken at some point after discovery. In one instance, a partially exhumed skeleton was left exposed over the Easter holiday and the skull was crushed, purportedly by vandals (see Figs. 2.46, 2.47). Certain fragile bones were inadvertently destroyed during recovery. Numerous crania exhibit damage caused by excavation and storage. Some have perforations and gouges with clean, sharp edges and no soil adhering, which indicate forceful contact by digging implements. The relatively high frequency of such damage on the crania can be variously explained. First, this part of an extended and supine skeleton often rests at the highest elevation in the grave and is therefore the first element encountered when digging. Second, the excavators at the Isthmus transported and stored skulls in square or rectangular boxes, crates, and trays that did not always accommodate their form as tall, thin-shelled, spheroid structures. This led to the abrasion or compression of the bones when containers were stacked and shelved. Finally, skulls are handled more often than other bones during excavation because, unlike any other element in the human skeleton, they fascinate the imagination and signify the mortal condition. One cranium that could be reconstructed from around 60 pieces had perhaps at some point shattered when it was accidentally dropped (see Figs. 2.83, 5.40).

The cumulative impact of environmental and anthropogenic factors on the creation of the material record at the Isthmus was not so profound that meaningful mortuary and osteological evidence was irretrievable. The varied remains that have been documented provide a broad basis for reconstructing funerary ritual and skeletal biology, as long as the effects of formation processes are taken into account. It is impossible to know how accurate such reconstructions are without excavating all graves and recovering all bones and teeth that exist at the site. Numerous graves belonging to the settlement around the Roman Sanctuary, the Late Roman fortifications, and the Byzantine community have yet to be discovered. The paucity of graves from the Middle Roman and Late Byzantine periods undoubtedly results from the selective nature of exploration. Archaeologists have not systematically investigated much of the area on the periphery of the Sanctuary where Roman graves are to be expected, or inside the Fortress where Byzantine graves are to be expected. Although the number of graves so far discovered at the Isthmus is small compared to other major Corinthian cemeteries, these 30 graves and their contents represent the mortuary interests and skeletal biology of over twice as many individuals, which is a significant total. The compiled mortuary and osteological evidence for the local settlement and its inhabitants contributes greatly to our understanding of the Greek countryside during a pivotal era in its history.

51. Another mishap at Easter two years later crushed the fragmentary cranium (69-9999a) found in a secondary context at the Northeast Gate (NB NEG 1969 I, p. 123).

52. For a more specific discussion of such damage, see p. 239.