

KAVOUSI

The Results of the Excavations at Kavousi in Eastern Crete

directed by

Geraldine C. Gesell, Leslie Preston Day,
and William D.E. Coulson

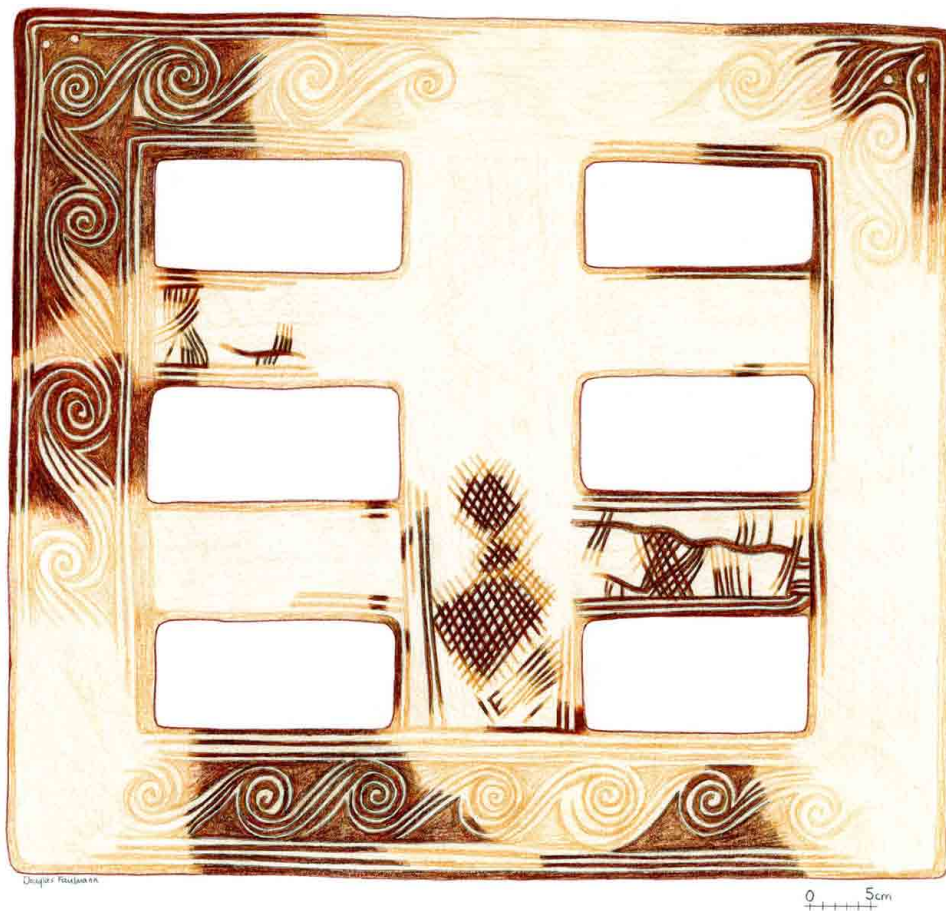
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Terracotta window frame (**B8 TC1**) from Building B, Room B8. Drawing by Douglas Faulmann.

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KAVOUSI IIA

The Late Minoan IIIC Settlement at Vronda The Buildings on the Summit

by

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contributions by

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edited by

Geraldine C. Gesell and Leslie Preston Day



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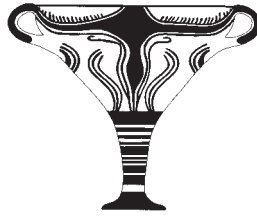
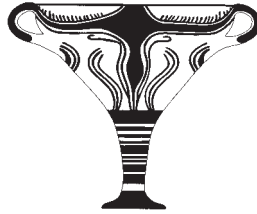


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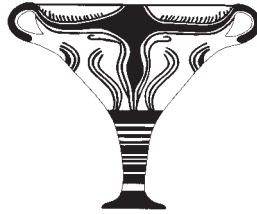
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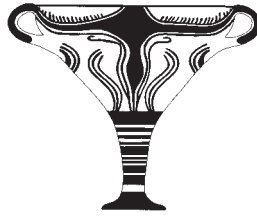


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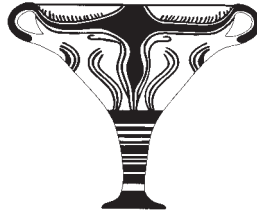
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Preface

Kavousi IIA: The Late Minoan IIIC Settlement at Vronda. The Buildings on the Summit is the second in the series of final reports on the work of the Kavousi Project and the first volume on the cleaning (1982–1984) and excavations (1987–1992) at the sites located above the modern village of Kavousi in eastern Crete. The final report on the survey of the Kavousi area can be found in *Kavousi I: The Archaeological Survey of the Kavousi Region* (Haggis 2005), along with further information on the history of archaeological investigation in the Kavousi area, including a fuller description of the chronology of the Kavousi Project.

The sites in the Kavousi area, first explored by Harriet Boyd (Hawes) in 1900, originally elicited the interest of the project directors because of their potential to shed light on the Early Iron Age, the transitional period in Cretan history known popularly as the Dark Ages. At the time the Project began, this period was not well understood, particularly on Crete, where archaeological activity had understandably focused on the palatial society and the periods leading up to it. What was known of the Early Iron Age came primarily from material excavated from graves by early 20th-century archaeologists, and a few single-period habitation sites like Karphi (Pendlebury, Pendlebury, and Money-Coutts 1937–1938). The last four decades of the century saw a renewed interest in the Dark Ages that included new syntheses of the era (Desborough 1964, 1972; Snodgrass 1971; Coldstream 1977) along with spectacular new archaeological finds, such as those at Lefkandi

(Popham, Sackett and Themelis, eds., 1980; Popham, Calliagas, and Sackett, eds., 1993; Popham and Lemos 1996). On Crete, interest in the period was spurred by the publication of the Karphi pottery in 1960 (Seiradaki 1960) and new excavations at Kastro Palaikastro (Sackett, Popham, and Warren 1965), Prinias (Rizza, Palermo, and Tomasello 1992), Chania (Hallager and Hallager, eds., 2000), and the North Cemetery at Knossos (Coldstream and Catling, eds., 1996). Little work, however, had been done in East Crete at the time.

The Kavousi Project was thus conceived as a multidisciplinary regional study of an important area of East Crete, with a focus on the Early Iron Age mountain sites above Kavousi. The Project was carried out in two phases, beginning in 1978. The first phase included the study of the surviving artifacts and architecture found by earlier investigators at Kavousi. This phase of study of the material from Kavousi indicated that renewed excavations at Vronda and the Kastro, with their settlements and cemeteries that lasted from LM IIIC through the Early Orientalizing period, could provide a unique opportunity to explore the entire Dark Ages and potentially answer questions about the history, chronology, and society of the era. Thus the next phase of the project, which began in 1987, was a five-year program of excavation at Vronda and the Kastro, together with a surface survey of the Kavousi area to place the sites within a broader historical and environmental context. That there were contemporary remains along with those of later periods on the third site of Azoria was not clear until after the surface survey showed the chronological range and geographical extent of that site, and lack of time and resources made investigation impossible there. The subsequent independent excavations at Azoria by Donald Haggis and Margaret Mook, however, have filled in that gap (Haggis et al. 2004; Haggis et al. 2007). This first phase of the project also included a geophysical survey at Vronda, core drilling for pollen samples at Ammoudara in the area of Hagios Nikolaos, and extensive study of the soils and agricultural potential of the Kavousi area and other areas of East Crete. The excavations at Vronda and the Kastro were designed to recover not only the traditional architectural and artifactual remains, but also to include the study of the human and animal bones and palaeobotanical remains recovered through water sieving.

The investigators identified a number of questions which could be answered by the opening of excavations at Kavousi, and new questions naturally arose during the course of the survey, excavation, and analysis. The first goal was to determine the chronological and social relationships among the Early Iron Age settlements in the Kavousi area. It was originally thought that Vronda was the earlier of the two settlements, dating almost exclusively to the LM IIIC period, and that the Kastro began only after the abandonment of the Vronda settlement. The investigators hoped to be able to understand the reasons for the shifting pattern of settlement in the Kavousi area that might help to explain changes observable elsewhere in the island. As it became clear that the Kastro was the earlier inhabitation of the Early Iron Age and that the settlements overlapped in the 12th century, more attention was focused on determining the relationships between the two settlements by a comparison of architecture, pottery, and other objects. Of particular importance was the petrographic analysis of the coarse wares from the two sites to determine the differences and similarities in production and trade both synchronically and diachronically. A second important aim was to discover as much as possible about the lifeways of the people of Kavousi in the period and how these may have changed over time.

Since it became clear that Vronda was predominantly a single-period site, the goal of excavation there was to uncover as much as possible of the settlement of the

LM IIIC period, to recover the buildings and objects used by or left behind by its inhabitants, and to reconstruct the social organization and lives of the people who lived there in the 12th century. At the onset of excavations, Karphi was the only extensively excavated LM IIIC settlement in Crete and only subsequently did other settlements, like nearby Chalasmenos, come to light. For complete recovery of the plan of the settlement at Vronda, trenches were excavated all over the ridge and around the periphery. Work focused on areas where less disturbance had occurred or which were of particular interest, such as the large house on the summit and the religious building on the southwest.

At Kastro, the original goal was to recover what appeared to be a large settlement of the Geometric period, but it was soon apparent that the site was inhabited over a long period of time, from the earliest phase of the LM IIIC period down into the 7th century. The aims of the excavation on the Kastro shifted from the recovery of a single-period settlement to an investigation of the stratified remains that revealed the entire history of the town. This meant excavating more deeply in a smaller number of places, rather than more extensive recovery of the buildings of the last phase. The recovery of stratified floors of continuous habitation have established a ceramic sequence for Kavousi and helped to clarify the pottery chronology in East Crete.

Another goal of the excavations was to explore the cemeteries around the sites at Kavousi to understand better the shifting location of graves and burial practices in the area, to learn something about the health and heredity of the population, and to discover more about the social and political structures and religious beliefs of the inhabitants of the area. Although great effort was expended in trying to locate more tholos tombs around both settlements, only one new tholos was found at Vronda, and that had been completely robbed. The unexpected Late Geometric cemetery of cremation burials at Vronda, however, provided a new type of primary cremation, known before only at nearby Vrokastro, but later paralleled by the cemetery at Eleutherna. Much of the resources of the project went into the careful recovery of these graves.

The results of the excavations at Vronda and the Kastro are presented in six volumes. *Kavousi II* is devoted to the material from the settlement at Vronda. The remainder of the volumes of the Kavousi series include the following: *The Shrine at Vronda*; *The Geometric Cemetery at Vronda*; *The Pottery from the Kastro*; *The Architecture and Stratigraphy of the Kastro*; and *The Early Excavations at Kavousi*.

The publication of the Vronda site appears in three volumes: one on the LM IIIC settlement, one on the LM IIIC shrine, and a third on the Late Geometric cremation cemetery. This first Vronda volume on the LM IIIC settlement is divided into three parts. The first part treats the material from the houses on the summit of the Vronda ridge (Buildings A-B, C-D, J-K, and Q), along with earlier (Building P) and later (Building R) structures around them. The second part, *Kavousi IIB* (Day and Glowacki, forthcoming), presents the material from the structures on the slopes of the Vronda ridge (Buildings E, I-O-N, L-M, the Kiln) and on the periphery. The final part, *Kavousi IIC* (Day et al., forthcoming), is devoted to specialist analyses of the architecture, pottery, finds, and floral and faunal remains.

Briefly, the history of archaeological investigations at Kavousi is as follows. In 1900 Harriet Boyd uncovered some buildings on the summit of the Vronda ridge, which were not given thorough publication, and eight tholos tombs of Subminoan date, for which some photos and lists of contents were published. After Boyd's brief exploration of the Kavousi area, interest in Vronda declined, but in 1951 a local landowner, Giorgos Sekadakis, discovered another tholos tomb (Vronda IX)

in the area. Modern work began on Vronda with the clearing of Boyd's tombs by William Coulson, Leslie Day, and Geraldine Gesell in 1981. The cleaning of the buildings of the Vronda settlement began in 1983 and continued in 1984. When excavations began in 1987, the Vronda settlement was a major focus, and work continued there in all seasons, from 1987 to 1990 and again in 1992. At that time it became clear that the settlement belonged to the Late Minoan IIIC period, and that the area of the settlement had been used in the Geometric period as a cemetery long after its abandonment. Remains of earlier periods (EM II–III, MM I–II, MM III–LM IA) also appeared.

The work on the summit of Vronda was undertaken by many people during the years of excavation. In 1983, the cleaning of Building A-B was conducted by the three directors: Geraldine Gesell, Leslie Day, and William Coulson. In 1984, the investigation at Vronda was supervised by the three directors, with the addition of Margaret Mook, George Rochefort, James Rehard, and Joseph Day. On the summit, parts of Buildings A-B, C-D, and R were cleaned in that season. In 1987 excavations commenced with Leslie Day as field director. Work concentrated on the peripheral areas, and only parts of Buildings B and C-D were explored on top of the ridge by trench supervisors Marina Markantonatos and Susan Springer. In 1988 trench supervisors James Higginbotham, John Lenz, Julia Shear, and Lee Ann Turner excavated the area of Building J-K; Building C-D was investigated in that season by Kevin Baldwin. The 1989 season saw more work in Building C-D by Nancy Klein and Catherine Woolfit and in Building J-K by Lee Ann Turner. In 1990, Deanne Dicer and Nancy Klein continued the work in Building C-D, and Lee Ann Turner in Building J. Finally, in 1992 excavation was carried out in Buildings C-D and J-K by Nancy Klein, and in Buildings A-B and P by Leslie Day. Many student assistants and local workers from Kavousi village devoted much time and effort in the excavations in all years.

This first volume on the Vronda settlement has been jointly authored, and the name of its particular author has been placed at the head of each chapter. Everything within a chapter, including the catalog entries, is the work of this author except for the following: the catalogs and discussions of terracotta figurines are by Geraldine C. Gesell; the discussions and catalogs of stone tools are by Heidi Dierckx; the discussion and tables of vertebrate faunal remains are by Lynn M. Snyder; tables and discussions of marine shells are based on the work of David S. Reese; identifications and discussions of paleobotanical remains are based on the research of Kimberly Flint-Hamilton.

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Staff List

The excavations at Kavousi have been conducted by a staff of archaeologists and scientific specialists supported by artists, architects, conservators, computer specialists, and photographers. A large number of student trainees, student assistants, and volunteers have also participated in various phases of the work. People from the town of Kavousi also helped us in many ways over the years. This publication would not have been possible without them. All these individuals are listed alphabetically below with their positions and dates.

Anthony Abutrab: architect and surveyor (1992); Connie Alanreddoch: student assistant (1991); Jason Aldred: student assistant (1998); Jane Allison: conservator (1989); Philip Ammerman: volunteer (1987–1988); John T. Ammons: soil scientist (1988–1991); Amanda Anders: student assistant (2001); Kristina L. Anderson: trench assistant (1990); Anna M. Andrews: student assistant (1996); Alden Arndt: computer specialist (1984–1985, 1988); John Arndt (1986, 1987); Kevin Baldwin: trench assistant (1987) and trench supervisor (1988); Richard Barden: conservator (1990); Juliana V. Barnea: artist (1996); Robert Barnes: student assistant (1998); Rene Beauchamp: computer specialist (1993); Jacqueline Beebe: trench assistant (1987); Lloyd Beebe: trench assistant (1987); Lisa V. Benson: registrar (1994); Katherine Bentz: student assistant (1991); Andrew Bieberich: assistant paleobotanist (1990); Duane Bingham: photographer (1984, 1987); Ann Blasingham: registrar (1988); Kenneth J. Bohac: trench assistant (1990); Tina Bolotis: artist (1996); Travis Boothby: student assistant (2000); Blythe Bowman: student assistant (1997); Andrew Bradbury: computer specialist (1992); Douglas Bradford: student assistant (1995); Lyla Pinch Brock: artist (1991–1998); Thomas M. Brogan: trench assistant (1987) and trench supervisor (1988); Christopher W. Bryan: student assistant (1993); Donna Bryant: trench assistant (1990); Sarah Bryant: trench assistant (1990); Ann Brysbaert: conservator (1995–1997); Nancy Buschini: conservator (1990); Jane B. Carter: trench supervisor (1990); Melinda L. Carter: trench assistant (1989); Xenia Chiloudaki: conservator (1987–1989); Stefania Chlouveraki: conservator (1994–2002); Janet Colbert: registrar (1987); William D.E. Coulson: co-director (1978–1999) and field director of Kastro (1987–1999); Matthew Crawford: conservator (1993); David Cummins: trench assistant (1992); Jennifer Dan: computer specialist (2000); Megen Dance: student assistant (2001); Martha R. Daura: conservator's assistant (1989); Barry Davis: student assistant (1998); Wesley Davis: student assistant (1991) and registrar (1993); Joseph Day: trench assistant (1984); Leslie P. Day: co-director (1978–2002) and field director of Vronda (1987–2002); Michael Decker: computer specialist (1998); Deanne Dicer (Toye): trench assistant (1989), trench supervisor (1990), and registrar (1992); Heidi Dierckx: lithics specialist (1992–2002); Roxana Docsan: artist (1994–2002); Quentin R. Dodd: student assistant (1993); Eve J. Dorman: student assistant (1993); Anne Ellenberger: trench assistant (1987); Bradley C. Engle: computer specialist (1996); Stuart Evans: trench assistant (1988) and trench supervisor (1989–1990); Teresa Faulkner: artist (1990); Gina Ferris: student assistant (1996); Elizabeth Fisher: trench supervisor (1987); Kimberley Flint-Hamilton: paleobotanist (1987–1989, 1992–2002); John Foss: soil scientist (1987–1988); Pedar Foss: trench assistant (1987) and trench supervisor (1988); Mark Gehl: student assistant (1997); Geraldine C. Gesell: co-director (1978–2002) and executive director (1987–2002); Kevin T. Glowacki: trench supervisor (1987–1992) and area specialist (1994–2002); Michael Goss: trench assistant (1989); Yvonne

Greenleaf: camp manager (1987); Amy Hackney: trench assistant (1990); Donald C. Haggis: trench supervisor (1987–1992) and area specialist (1993–1995); Charles Hall: architect (1988); Steven Hamilton: photographer (1989); Barbara Hamman: conservator (1988–1989); Roswell Edmond Hamrick III: architect (1991); Kiri Hanson: student assistant (2002); Richard Hebda: paleobotanist (1984); Carol Hershenson: registrar (1989–1990); James Higginbotham: trench supervisor (1988); Louise Hitchcock: trench supervisor (1989); Michael Hoff: architect (1987–1988); Katherine Holbrow: conservator (1992); Lyle T. Hubbard Jr.: trench assistant (1989); Darrin E. Humbard: student assistant (1992, 1994) and registrar (1995); Michael Inman: assistant paleobotanist (1989); Gerald W. Johnson: surveyor (1978); Shay L. Johnson: student assistant (1996); Robert A. Johnston: trench assistant (1988); Irini Karousas: conservator (1995–1998); Tassos Karousas: conservator (1995–1998); Shae Kelly: student assistant (2000); Helen Kingsley: conservator (1987–1988); Nancy L. Klein: trench supervisor (1989–1992) and area specialist (1993–2002); John P. Kline: trench assistant (1989); Walter Klippel: zooarchaeologist (1988–2002); Elizabeth Knudsen: assistant registrar (1990); Ralph Krisher: computer specialist (1990); Ingrid Lacy: assistant paleobotanist (1992); Linda L. Landry: conservator (1994); Elizabeth Langridge: trench supervisor (1990); Mark L. Lawall: trench assistant (1988) and trench supervisor (1989); Roberta Lawson: trench assistant (1988); Patti Lee: computer specialist (1995); John R. Lenz: trench supervisor (1988); Maria A. Liston: physical anthropologist (1987–2002); Susan B. Lucas: trench assistant (1988); Andrew Luckey: student assistant (1991); John McCarron: trench assistant (1989–1990); Jeremy McInerney: trench supervisor (1989–1990); Louise McInerney: computer specialist (1989); LaDelle Mackeban: trench assistant (1988); K. Wendy McLaughlin: trench assistant (1989); Michael McMillin: computer specialist (1997–1998); Catherine Magee: conservator (1993); Lisa Mahoney: student assistant (1991); Adrienne Malcolm: student assistant (2002–2004); Marina Markantonatos: trench supervisor (1987); George Martin: trench assistant (1988–1990); Shannon S. Meyer: trench assistant (1988); Andrew Mikelson: assistant architect (1990); Julie P. Miller: trench assistant (1989); Michele Miller: artist (1989); Heidi C. Mittelstadt: trench assistant (1988); Margaret S. Mook: trench assistant (1984), trench supervisor (1987–1992), and area specialist (1992–2002); Stephen T. Mooney: artist (1987–1988); Drew Moore: student assistant (1995); Michael Morris: soil scientist (1991); Karen Moukheiber: photographer (1988); J.D. Myers: student assistant (2001–2002); Marilisa Nelson: trench assistant (1989); Son Nguyen: student assistant (1993); Katherine Nightingale: conservator (1991); Albert Nyboer: conservator (1986–1987); Paulette Opegard: trench assistant (1987); Caroline Paddock: assistant conservator (1991); Stavros Papamarinopoulos: geophysicist (1986–1988); Virginia Parks: trench assistant (1989); Neil Patel: student assistant (1993); Christina Paterakis: photographer (1990–1991); Judith A. Patterson: computer specialist (1994); Douglas H. Pierce: assistant architect (1989); Michael Pierce: trench assistant (1989); Melissa Pinsley: architect (1987); Faye C. Polillo: architect (1989–1990); J. Patrick Polley: camp manager (1994–1995); Joanne Polley: photographer (1994–1995); D. Sydnor Pugh: trench assistant (1990); Amy Raymond: trench assistant (1989); James Rehard: architect (1984); Jonathan Reynolds: trench assistant (1987–1988, 1990) and camp manager (1989); George Rochefort: trench assistant (1984, 1986) and camp manager (1988); Elizabeth Rodenbeck: artist (1995); Vanessa Rousseau: assistant architect (1990); Eric Rowland: architect (1989); Sylvia Ruud: artist (1981); Elizabeth Safran: artist (1985); Timothy Schultz: student assistant (1991); Scott Seay: camp manager (1990); Julia Shear: trench supervisor (1988);

Janusz Siewierski: trench assistant (1990); Noël Siver: conservator (1988–1995); David Skoog: trench supervisor (1990); Julie A. Smith: photographer (1996); Lynn Snyder: zooarchaeologist (1989–2002); Rajshree K. Solanki: student assistant (1996) and registrar (1997); Jeffrey S. Soles: trench supervisor (1987); Susan Springer: trench supervisor (1987); Katerina Stamoudi: trench supervisor (1990); Kirsten Svenson-Taylor: conservator (1992); Christine Thede: conservator (1994); Christopher Tillquist: trench assistant (1990); Michael E. Timpson: soil scientist (1987–1989); Jennifer Tobin: trench supervisor (1990) and area specialist (1991–2002); David L. Toye: trench supervisor (1989–1990) and camp manager (1992); Katerina Triantafylla: conservator (1991); Brian Tucker: student assistant (1998); Lee Ann Turner: trench supervisor (1988–1990) and area specialist (1991–2002); Markham Tyler: trench assistant (1988); Katherine Untch: conservator (1989); Anne Van Dyne: architect (1993); Benjamin Venable: trench assistant (1990); Sheilagh Wall: zooarchaeologist (1981–1984); Christina Watkins: student assistant (1993); Antoinette E. Way: trench assistant (1988); Vicki Weaver: trench assistant (1992); Charles Stanton Webster: student assistant (2002); Matt Weidenhammer: computer specialist (2002); Morris Weiss: trench supervisor (1987); Terry Weiss: trench assistant (1987); Gayle Wever: conservator (1984); Christopher White: student assistant (1995–1996) and assistant conservator (1997); Jerard White: student assistant (1998, 2001); Barry A. Williams: trench assistant (1990); Steven Williamson: trench assistant (1990); Christopher Wimberley: student assistant (1997) and registrar (1998); Nancy Wood: trench assistant (1987); Catherine Woolfit: trench supervisor (1989); Joshua Wright: trench assistant (1989); Claire Zimmerman: artist (1985); and John Zimmerman: photographer (1992–1993).

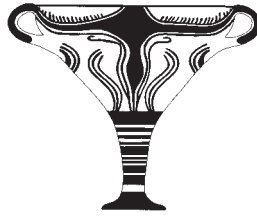
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List of Abbreviations

The following chronological abbreviations are used (Final Neolithic and Bronze Age dates are based on Warren and Hankey 1989 and Nowicki 2003):

FN	Final Neolithic (ca. 4000–3200 B.C.)	G	Geometric (ca. 900–700 B.C.)
EM	Early Minoan (ca. 3200–2100 B.C.)	LG	Late Geometric (ca. 760–700 B.C.)
MM	Middle Minoan (ca. 2100–1600 B.C.)	EO	Early Orientalizing (ca. 700–660 B.C.)
LM	Late Minoan (ca. 1600–1100 B.C.)	V	Venetian (12th–17th century A.D.)
SM	Subminoan (ca. 1100–1000 B.C.)	Ott.	Ottoman (17th century–1900 A.D.)
PG	Protogeometric (ca. 1000–900 B.C.)	Mod.	Modern (1900 A.D.–present A.D.)

The following abbreviations are also used:

AMSL	above mean sea level	d.	diameter
cf.	comparable to (in faunal analyses)	dim.	dimension
cm	centimeter	E	east
cont.	continued	est.	estimated

F	figurine	N	north
ext.	exterior	NE	northeast
FM	Furumark motif (based on Furumark 1972)	NW	northwest
FS	Furumark shape (based on Furumark 1972)	NISP	number of identified specimens
g	gram	P	pottery
h.	height	pers. comm.	personal communication
HM	Herakleion Museum number	PMD	Peter M. Day
IM	Ierapetra Museum number	pres.	preserved
int.	interior	S	south
kg	kilogram	S	stone object
L.	length	SE	southeast
M	metal	ST	stone tool
m	meter	SW	southwest
max.	maximum	TC	terracotta
mm	millimeter	th.	thickness
MNI	minimum number of individuals	W	west
		w.	width
		wt.	weight



Glossary

The text uses the following terms, which are specialized terminology or do not have exact English equivalents:

<i>aloni</i>	threshing floor with stone-built border, usually round
<i>Aves</i> sp.	unspecified species of bird
<i>Bos</i> sp.	unspecified species of domestic cow or ox
<i>Canis familiaris</i>	domestic dog
<i>Capra aegagrus</i>	agrimi, Cretan wild goat
<i>Capra hircus</i>	domestic goat
dint	thumb impression on pottery, generally at the attachment of handle or leg
<i>Equus</i> sp.	unspecified species of horse, donkey, or mule
lekane	basin
<i>Lepus/Oryctolagus</i>	hare or rabbit
<i>Meles meles</i>	badger
<i>metochi</i>	rural hamlet or field house
nodulus	a small lump of clay with one or two seal impressions but without any means of attachment to another object

<i>Ovis aries</i>	domestic sheep
pitharaki	small pithos or storage jar
<i>Sus scrofa</i>	domestic pig
<i>tsakali</i>	soft marl bedrock that can easily be cut; also called <i>kouskouras</i>
umbo	lateral prominence just above the hinge of a bivalve shell
<i>Vierpasse</i>	a design that includes four interlocking spirals
<i>zembili</i>	a large rubber basket with two handles used for carrying dirt and stones; approximate capacity of 25 liters.