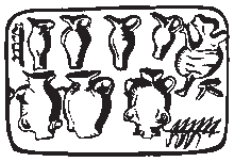
CRETAN BRONZE AGE PITHOI

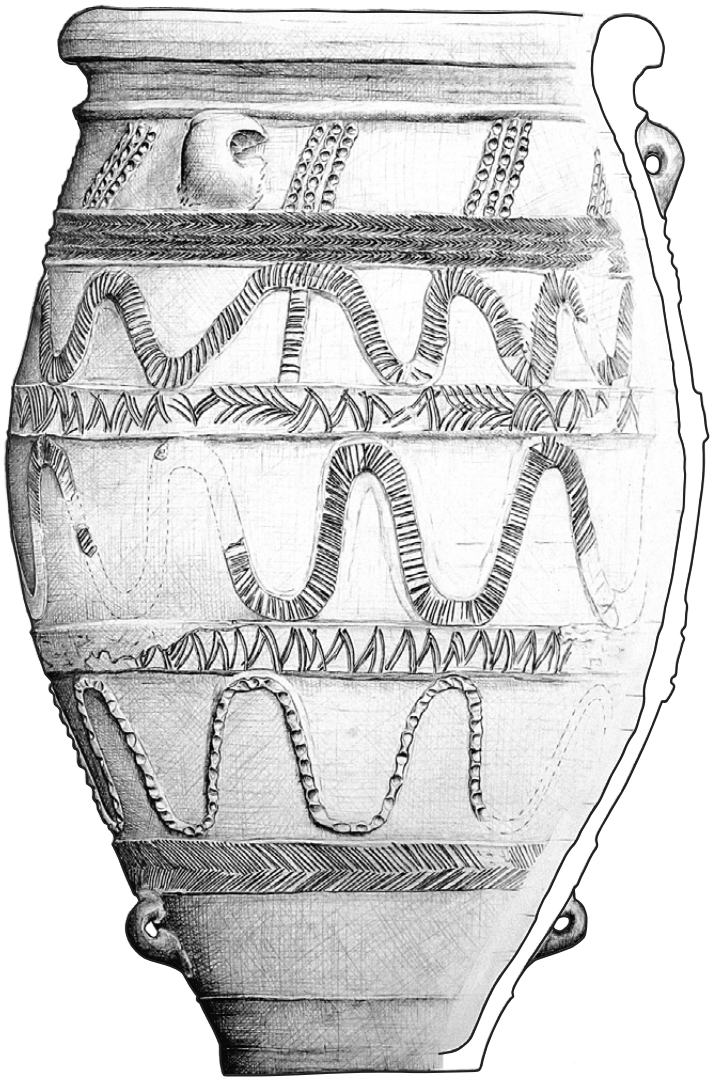
Traditions and Trends in the Production and Consumption of Storage Containers in Bronze Age Crete





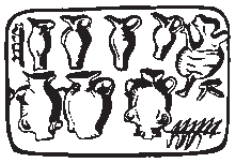
CRETAN BRONZE AGE PITHOI

Traditions and Trends in the Production and Consumption of Storage Containers in Bronze Age Crete



Frontispiece. Pithos from Magazine VI in the West Magazine Complex at the palace of Knossos. Drawn by Nikoletta Ntolia.

PREHISTORY MONOGRAPHS 18



CRETAN BRONZE AGE PITHOI

Traditions and Trends in the Production and Consumption of Storage Containers in Bronze Age Crete

by

Kostandinos S. Christakis



Published by
INSTAP Academic Press
Philadelphia, Pennsylvania
2005

Design and Production
INSTAP Academic Press

Printing

CRWGraphics, Pennsauken, New Jersey

Binding
Hoster Bindery, Inc., Ivyland, Pennsylvania

Library of Congress Cataloging-in-Publication Data

Christakis, Kostandinos S., 1966-
Cretan Bronze Age Pithoi : traditions and trends in the production and consumption of storage containers in Bronze Age Crete / by Kostandinos S. Christakis.
p. cm. — (Prehistory monographs ; 18)
Includes bibliographical references and index.
ISBN 1-931534-15-2 (hardcover : alk. paper)
1. Crete (Greece)—Antiquities. 2. Pottery, Minoan—Greece—Crete. 3. Storage jars—Greece—Crete. I. Title. II. Series.
DF221.C8C47 2005
738.3'82093918—dc22

2005030292

Copyright © 2005
INSTAP Academic Press
Philadelphia, Pennsylvania
All rights reserved
Printed in the United States of America

Peter Warren χάρην

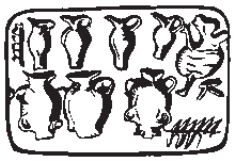


Table of Contents

LIST OF TABLE AND FIGURES ix

LIST OF PLATES xi

ACKNOWLEDGMENTS xiii

ABBREVIATIONS xv

INTRODUCTION 1

CHAPTER 1. A Formal Typology For Pithoi 5

CHAPTER 2. Decorative Patterns and Style 23

CHAPTER 3. The Use of Pithoi 45

CHAPTER 4. Traditions and Trends in the Production and Consumption of Pithoi 71

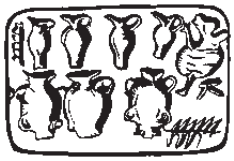
BIBLIOGRAPHY 87

INDEX 101

TABLE

FIGURES

PLATES



List of Table and Figures

Table 1. Functional performance characteristics and use of Cretan Bronze Age pithoi.

All figures are drawn by Nikoletta Ntolia.

1. Ovoid pithoi with wide mouth and low/without collar: Forms 1–3 (scale 1:10).
2. Ovoid pithoi with wide mouth and low/without collar: Forms 4–6 (scale 1:10).
3. Ovoid pithoi with wide mouth and low/without collar: Forms 7–9 (scale 1:10).
4. Ovoid pithoi with wide mouth and low/without collar: Forms 10–12 (scale 1:10).
5. Ovoid pithoi with wide mouth and low/without collar: Forms 13–15 (scale 1:10).
6. Ovoid pithoi with wide mouth and low/without collar: Forms 16–18 (scale 1:10).
7. Ovoid pithoi with narrow mouth and low/without collar: Forms 19–25 (scale 1:10).
8. Ovoid pithoi with narrow mouth and low/without collar: Forms 26–33 (scale 1:10).
9. Ovoid pithoi with narrow mouth and low/without collar: Forms 34–40 (scale 1:10).
10. Ovoid pithoi with narrow mouth and low/without collar: Forms 41–43 (scale 1:10).
11. Ovoid pithoi with narrow mouth and low/without collar: Forms 44–48 (scale 1:10).
12. Ovoid pithos with narrow mouth and high collar: Form 49 (scale 1:10).
13. Ovoid pithos with narrow mouth and high collar: Form 50 (scale 1:10).
14. Globular pithoi with narrow mouth and high collar: Forms 51–53; and piriform pithoi with narrow mouth and high collar: Forms 54 and 55 (scale 1:10).
15. Piriform pithoi with narrow mouth and high collar: Forms 56–62 (scale 1:10).
16. Piriform pithoi with narrow mouth and high collar: Forms 63–68 (scale 1:10).
17. Piriform pithoi with narrow mouth and high collar: Forms 69–76 (scale 1:10).
18. Piriform pithoi with narrow mouth and high collar: Forms 77–84 (scale 1:10).
19. Piriform pithoi with narrow mouth and high collar: Forms 85–88 (scale 1:10).

20. Piriform pithoi with narrow mouth and high collar: Forms 89–92 (scale 1:10).

21. Piriform pithoi with narrow mouth and high collar: Forms 93–97; and piriform pithoi with wide mouth and high collar: Forms 98–101 (scale 1:10).

22. Barrel pithoi with narrow mouth and high collar: Forms 102 and 103; barrel pithos with narrow mouth and low/without collar: Form 104; and barrel pithos with wide mouth and low/without collar: Form 105 (scale 1:10).

23. Conical pithoi: Forms 106–110 (scale 1:10).

24. Conical pithoi with vertical upper/middle sides: Forms 111–114 (scale 1:10).

25. Conical pithoi with vertical upper/middle sides: Forms 115–117; and conical pithos with convex side: Form 118 (scale 1:10).

26. Conical pithoi with convex sides: Forms 119–121; and tub pithos: Form 122 (scale 1:10).

27. Rope patterns: 1–5 and 7 (scale 1:1).

28. Rope patterns: 8–13 (scale 1:1).

29. Rope patterns: 14–16 and 18 (scale 1:1).

30. Rope patterns: 22–24 (scale 1:1).

31. Rope patterns: 26–28 (scale 1:1).

32. Rope patterns: 29–32 (scale 1:1).

33. Rope patterns: 33–36 (scale 1:1).

34. Raised band patterns: 1–3 (scale 1:1).

35. Raised band patterns: 4–7 (scale 1:1).

36. Raised band patterns: 8–11 (scale 1:1).

37. Raised band patterns: 12, 21, 23, and 24 (scale 1:1).

38. Raised band patterns: 25–28 (scale 1:1).

39. Raised band patterns: 32, 34, and 36 (scale 1:1).

40. Raised band patterns: 39–41 (scale 1:1).

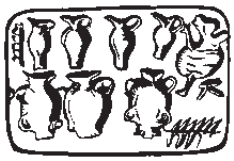
41. Raised band patterns: 42, 46, and 47 (scale 1:1).

42. Raised band patterns: 48–51 (scale 1:1).

43. Raised band patterns: 66, 67, 69, and 71 (scale 1:1).

44. Raised band patterns: 73, 78, and 82–84 (scale 1:1).

45. Undulation of wavy ropes/bands in Arrangements 5, 19, 20, and 22–24.



List of Plates

All photos were taken by Christos Mbeltes unless otherwise credited.

1. Incised lines for the attachment of ropes/raised band patterns.
2. Rope patterns: 1, 4, 6, 8, 17, and 18 (K.S. Christakis).
3. Rope patterns: 19–21 and 24 (K.S. Christakis).
4. Rope patterns: 25–27 (K.S. Christakis).
5. Rope patterns: 29–32 and 37.
6. Raised band and rope patterns: Rope 11 and Bands 1, 13–15.
7. Raised band patterns: 16–18, 57, 60, and 68.
8. Raised band patterns: 19 and 20 (K.S. Christakis).
9. Raised band patterns: 22, 24, 25, and 29–31.
10. Raised band patterns: 33, 35, 37, 38, 43, and 44.
11. Raised band patterns: 45, 47, and 52–55.
12. Raised band patterns: 56–59.
13. Raised band patterns: 61–65.
14. Raised band patterns: 70–72 and 75–77.
15. Raised band patterns: 79–81 and 85.
16. Decorative patterns with raised band patterns of Group XI (K.S. Christakis).
17. Circle, concentric circle, and flower-like stamp impressions from Raised Band Pattern Group XII.
18. Various decorative patterns on pithoi from the West Magazines Complex of the palace of Knossos.
19. Reed and flower-like stamp impressions on raised bands and medallions on pithoi from Knossos.
20. Decorative patterns on pithoi from (a) the Royal Villa, Knossos and (b) Magazine XII in the West Magazines Complex of the palace of Knossos.
21. Decorative patterns on pithoi from (a) the palace and (b) House 2 at Galatas.

22. Decorative patterns on pithoi from (a) the Magazines of the Giant Pithoi, (b) Magazine IX, and (c) Magazine VI in the West Magazines Complex of the palace of Knossos.

23. Decorative patterns on the base of pithoi from (a) the palace of Galatas and (b) the Magazines of the Giant Pithoi from the palace of Knossos.

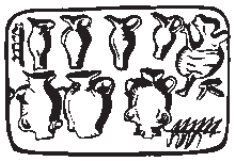
24. Pithoi from (a) the Room of the Giant Pithos, (b and c) Magazines X and IX in the West Magazines Complex, and (d) the South Propylaeum of the palace of Knossos.

25. Pithoi from (a and c) Magazines IV and V in the West Magazines Complex and (b and d) the South Propylaeum of the palace of Knossos.

26. Pithoi from (a and c) Magazine VIII, (b) Magazine IX, and (d) Magazine IV in the West Magazines Complex of the palace of Knossos.

27. Pithoi from (a, b, and d) Magazine IX and (c) the Long Corridor in the West Magazines Complex of the palace of Knossos.

28. Pithos from Magazine X in the West Magazines Complex of the palace of Knossos.



Acknowledgments

The pithos is one of the most distinctive utilitarian forms of the Cretan Bronze Age ceramic repertoire. Because of its use as a storage container, a pithos is the foremost parameter for the evaluation of the economic organization of palatial and domestic sectors of Cretan Bronze Age society. The pithoi as pottery and their significance for the understanding of Cretan Bronze Age economy has been the focus of a research project carried out from 1989 to 1999. The initial impetus for this study came in 1988 at the suggestion of C. Davaras to whom I would like to express my thanks. This book presents the results of the research on the patterns of production and consumption of storage containers. The importance of pithoi in understanding Cretan Bronze Age economy is discussed elsewhere (Christakis forthcoming).

Many institutions and excavators gave me permission to study unpublished and published material: the Greek Ministry of Culture, the Archaeological Society at Athens, the Italian Archaeological School at Athens, the American School of Classical Studies at Athens, the French School at Athens, M. Andreadaki-Vlazaki, E. Banou, the late W. Coulson, C. Davaras, L. Day, N. Dimopoulou, G. Gesell, L. Godart, E. and B. Hallager, D. Hatzi-Vallianou, S. Hood, A. Kanta, A. Karetsou, V. La Rosa, A. Lembesi, A. MacGillivray, S. Mandalaki, V. Ninou-Kindeli, N. Panagiotakis, L. Platon, the late N. Platon, the late M. Popham, J.-C. Poursat, G. Rethemiotakis, H. Sackett, I. Serpetsidaki, M. Tsipopoulou, Y. Tzedakis, A. Vasilakis, P. Warren, and A. Zois. Thanks are due to the Council of the British School at Athens for the permission to study and publish pithoi and selected ceramic deposits excavated by Sir Arthur Evans at Knossos.

A generous award from the Institute for Aegean Prehistory helped cover the expenses of drawing and photography. The research in the archaeological museums and sites of Crete has been facilitated by different individuals who served/serve as directors of the division for Prehistoric and Classical Antiquities for the Greek Ministry of Culture: M. Andreadaki-Vlazaki (22nd Ephoreia of Prehistoric and Classical Antiquities), A. Karetsou, E. Grammatikaki and N. Dimopoulou (23rd Ephoreia of Prehistoric and Classical Antiquities and the Herakleion Museum), the late N. Papadakis (24th Ephoreia of Prehistoric and Classical Antiquities). Special thanks are due to the Curators of the 23rd Ephoreia of Prehistoric and Classical Antiquities, V. Marsellou and I. Serpetsidaki, and to P. Sinadinakis, the chief conservator of the Herakleion Museum, for facilitating my study in the Herakleion Museum, the successive Knossos Curators, C.

Macdonald, E. Hatzaki, and D. Evely, and the guards of the archaeological site of Knossos.

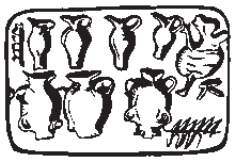
My debt is great to N. Ntolia for the drawings and for being generous with her time and to C. Mbeltes for the photographs. Thanks are due to the staff of INSTAP Academic Press, particularly to S. Ferrence, for their patience, perseverance, and faith in the final outcome. My deep thanks are also due to Phil Betancourt and the anonymous reviewers of this book who offered many valuable suggestions.

I would like to thank F.M. Carinci who has substantially contributed to an initial stage of this research and M. Tsipopoulou for introducing me to pottery studies. I am deeply indebted to G. Rethemiotakis for his generosity and fruitful discussions about Bronze Age Crete. R. Evershed has contributed to this research through analyses of organic residues, and K. Ploumakis, I. Telakis, and I. Xatzinikolakis, potters from Thrapsano, provided crucial information on technological issues and patterns of production and distribution of storage containers in pre-industrial Crete.

My research over the years benefited from stimulating discussion with I. Andonakaki, M. Andreadaki-Vlazaki, E. Banou, C. Beedel, P. Betancourt, H. Blitzer, K. Branigan, T. Brogan, F.M. Carinci, L. Day, P. Day, N. Dimopoulou, R. Harrison, I. Hatzakis, B. Hayden, S. Hood, V. Karageorghis, A. Karnava, C. Knappett, K. Kopaka, D. Kringa, V. La Rosa, A. Lembesi, C. Macdonald, S. Mandalaki, P. Metaxa-Muhly, D. Mitilinaiou, N. Momigliano, M. Mook, W. Niemeier, E. Nodarou, N. Panagiotakis, G. Pantou, L. Platon, J.-C. Poursat, L. Rahmstorf, D. Rousioti, I. Serpetsidaki, A. Simandiraki, the late S. Spanakis, S. Spiliotopoulos, M. Tsipopoulou, Z. Tsitsroni, A. van de Moortel, A. Vasilakis, V. Watrous, M. Wiener, and M. Zeimbeki. Special thanks are due to E. Hatzaki for discussing questions on production and consumption of Knossian ceramics, I. Nikolakopoulou for discussion on storage containers excavated at Akrotiri, Thera, and K. Archondaki for sharing her knowledge of eastern Cretan pottery matters. Last but not least, M. Panagiotaki and D. Evely offered useful advise and critiques. As always, none of the people mentioned above should be held accountable for any deficiencies or obscurities in this study.

Above all, I should like to express my greatest debt of gratitude to P. Warren, who has been a constant source of sound advice and inspiration, and whose critical comments contributed substantially to this study. This work is dedicated to him as a small token of my gratitude.

Herakleion, August 2004

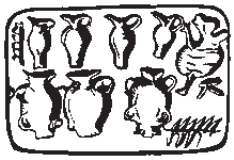


Abbreviations

AE/NB	Evans, A. *Manuscript Daybooks on the Excavations at Knossos*, Knossos Archives, Ashmolean Museum, Oxford.
Βασιλικά	Zepos, I., ed. 1910–1912. *Βασιλικά* I–V, Athens.
DM/NB	Mackenzie, D. *Manuscript Daybooks on the Excavations at Knossos*, Knossos Archives, Ashmolean Museum, Oxford.
F/NB	Fyfe, T. *Manuscript Notebooks (Sketchbooks) on the Excavations at Knossos*, Knossos Archives, Ashmolean Museum, Oxford.
Geoponica	Beckh, H., ed. 1895. *Geoponica Sive Cassiani Bassi Scholastici de Re Rustica, Ecologae*, Lepsia.
Gorgias	Hermann, C.F., ed. 1885. *Platonis. Charmides, Laches, Lysis* III, Lepsia.
PG	Migne, P., ed. 1857–1866. *Patrologiae Cursus Completus, Series Graeca*, Paris.
PM I	Evans, A.J. 1921. *The Palace of Minos at Knossos* I, London.
PM II	Evans, A.J. 1928. *The Palace of Minos at Knossos* II, London.
PM III	Evans, A.J. 1930. *The Palace of Minos at Knossos* III, London.
PM IV	Evans, A.J. 1935. *The Palace of Minos at Knossos* IV, London.
Σχόλια Θεοκρίτου	Wendel, C., ed. 1914. *Scholia in Theocritum,* Lepsia.

ANM	Agios Nikolaos Archaeological Museum
CHM	Chania Archaeological Museum
HM	Herakleion Archaeological Museum
IM	Ierapetra Archaeological Collection
KSM	Knossos Stratigraphical Museum
SM	Siteia Archaeological Museum

AK	Akrotiri, Thera inventory number
GSM	Kastelli Chania inventory number
SMP	Knossos Stratigraphical Museum pot inventory number
EM	Early Minoan
MM	Middle Minoan
LBA	Late Bronze Age
LC	Late Cycladic
LM	Late Minoan



Introduction

Scholars concerned with Cretan Bronze Age ceramics have paid great attention to fine decorated ware. Its variation in morphology and style provides a sensitive tool for establishing chronological sequences and patterns of provenance. Fine ware thus became the main focus of interest while coarse ware, with a few exceptions, was almost entirely neglected. In the last few years, innovative approaches to pottery, benefiting from scientific analytical methods, have increased our awareness of the amount of information we can obtain from studies of coarse ware. Utilitarian pottery is now being used for understanding complex regional and inter-regional patterns of ceramic production and consumption and their relationship to Cretan Bronze Age economic, political, and cultural conditions.

The most distinctive utilitarian form in the Cretan Bronze Age ceramic repertoire is the pithos, a large container used for storage and occasionally for burial purposes. Despite their frequency in most archaeological contexts and their importance for the investigation of economic organization of Cretan Bronze Age society our knowledge of pithoi is rather limited. The contribution of Evans in establishing the first chronological sequence of Knossian pithoi (*PM* I–IV), the exemplary discussions of Levi and Carinci on pithoi from Phaistos (Levi and Carinci 1988) and that of Warren on pithoi from Myrtos Phournou Koriphi (Warren 1972), and the petrographic work carried out by Day on Neopalatial pithoi (Day 1988; 1991) are the main "landmarks" in the study of Cretan Bronze Age storage containers. These studies provided crucial information on the pithos assemblages under consideration and increased our awareness of the patterns of production and distribution of storage containers.

The present study adopts a wider perspective: it discusses an extensive and varied—in time, space, and context—body of data from most of the known Bronze Age sites of Crete that date from EM I to LM IIIC. The book is not a pithos handbook in the narrow sense: although the study offers a typological division of the data, with comments on chronology and spatial distribution, it prefers to integrate stylistic considerations with broad fabric and technological observations in order to understand the production and consumption of pithoi.

Morphological, decorative, and technological features, as well as physical performance characteristics, are used to isolate potting traditions in the production of storage containers within the different regions of Crete and functional differences between the various types of pithoi. The contextual associations of these parameters are also considered in order to highlight patterns of consumption behavior of storage containers within the framework of Cretan Bronze Age society. Increasing our awareness of ceramic regionalism in pithos production and highlighting functional differentiations can be considered a substantial approach to discuss this important utilitarian form.

What is a pithos? The answer to this question is not as straightforward as it might seem. If one reviews the literature on Cretan Bronze Age pottery, one will note how many terms are used for describing pithoi. Generally speaking, pithoi have been categorized as very bulky pots, made of coarse fabric and decorated with trickle-painted patterns and/or appliqué rope/raised band patterns. Confusion arises with the definition of less bulky pots, made of semi-coarse fabric and decorated with elaborate, painted patterns. The terms used to describe these are "pithoid jar," "jar," "stamnos," "amphora," "pithoid amphora," "pithoid crater," and "palace style amphora/jar."

I would argue that this perplexity has resulted from a number of factors: the terminology and classification of Cretan Bronze Age pottery are based on superficial criteria, the employed terms are too general, and there is influence from aesthetic predilections. The term "jar," for instance, is used to describe a wide range of pots with different morphological attributes and the term "amphora" for pots with more than two handles (cf. Betancourt 1985, 156).

In my view, differences in size, decoration, and fabric are not valid criteria for typological differentiation when the main morphological and functional attributes are the same. Small pithoi are simply reduced versions of large pithoi. They have the same morphological features as the large pithoi but on a different scale, and they were also used for short and long-term storage. It is self-evident, however, that size does affect some functional properties such as the capacity, accessibility of the contents, and transportability.

Discrimination made on the basis of decoration recalls some practices influenced by the aesthetic predilections of the early 20th century when scholars adopted "art historical" perspectives. I would argue that diversity in decorative traits does not seem to affect utilitarian modes, as the underlying organizational principles concerning use are the same (Curet 1997). Elaborate decoration, however, assumes a semantic role as a means of negotiating personal and social identity, and thus provides information on groups, boundaries, and interaction.

As far as fabric is concerned, variability in its coarseness is related to the size of the pithos and not to its essential morphological and decorative features. The large pithoi, which were subject to greater mechanical stresses, have a higher proportion of aplastic inclusions. The coarse fabric increases resistance to breakage during the forming, drying, and firing processes. Small pithoi with morphological and decorative features similar to large specimens were usually made of a semi-coarse fabric because of their reduced dimensions.

In the present study, pithoi are defined as pots in which the shape is varied—namely ovoid, globular, piriform, barrel, conical, and tub. Ovoid and piriform shapes could be elongated or depressed. The mouth is restricted or unrestricted. Restricted mouths usually have a collar. The handles are generally arranged either in two rows on the upper and lower parts of the body or in a single row on the upper. Pithoi were made of coarse or semi-coarse fabric. The decoration varies from simple to extremely elaborately painted, and in its appliqué and incised compositions. I define as pithoi pots taller than 50 cm in height, while pots below this are classified as small pithoi or pitharakia.

The ceramic record of the study covers a very large assemblage of entirely and partly preserved pithoi and smaller fragments (4,235 pieces) derived from most of the known Bronze Age sites of Crete and dated from EM I to LM IIIC. The record is varied in time and space. At Knossos, for instance, although a considerable number of LM pithoi have been preserved, only a few are known from the previous periods. The opposite situation is observed at Phaistos, where the most important assemblage of MM pithoi is found. Generally speaking, the LM periods are better represented than EM and MM.

Most pithoi come from central, east-central, and east Crete, while the evidence from the west is rather limited. The continuous occupation of archaeological contexts and the limited exploration of some

areas of the island are the main factors affecting the quantitative and qualitative characters of the record. The unequal distribution of data inevitably creates gaps in any conclusions. The minimization of this "pitfall" is partly possible through a critical and representative selection process of the information.

The data are described and discussed in terms of shape and decoration, temporal and spatial distribution, and finally find context. Discerning variation in pithos fabrics is limited to visual observations without the aid of ceramic petrography. When approaching the body of evidence, the principal shortcoming one faces is that the morphological and decorative features vary in an infinite manner. The discussion is necessarily selective: it is not intended to offer a complete corpus of Cretan Bronze Age pithoi. Rather, the most representative and relevant cases are presented: such selection, however, reflects the pattern of existence of the corpus through time and space.

Emphasis is also given to the technological profile of each pithos inferred from its appropriate attributes—such as standardization in morphological, decorative, and forming features, labor investment, and skill (Costin and Hagstum 1995). Analyses of these attributes are required for characterizing the organization of pithos production and consumption. These issues have been widely discussed in the relevant literature, and no attempt is made here to review the theoretical constructions and the relevant criticisms (for seminal discussions see van der Leeuw 1977; Rice 1987; Costin 1991; Costin and Hagstrum 1995; Clark 1995; Skibo and Feinman 1999; Loney 2000). Even so, some definitions are offered below in order to make clear the methodology followed here.

Standardization refers to a lack of variation in composition, form, and style within a particular category of artifacts and to the process of achieving it (Rice 1987, 482; Blackman et al. 1993). It may be due to the effects of habit, when the potter unintentionally introduces certain attributes into the work. It could also reflect an intentional action when the potter, following specific social and/or functional needs, consciously introduces and standardizes certain attributes (Costin and Hagstrum 1995). *Labor investment* refers to the time spent in the production of an artifact. This factor is particularly informative for investigating the social function of pottery. Artifacts where the input is high are means of negotiating personal and social identity. *Skill* reflects the craftsperson's experience, proficiency, and talent in the production of an artifact. The skill can be manifested in technologically complex paste preparation, in forming techniques and elaborate decorative trends, and lastly through control of the firing processes. Skill is also required in the production of standardized artifacts. Metrical, compositional, and technological indices as well as ethnographic information are generally used to establish quantified measurements of these technological attributes (Blackman et al. 1993; Feinman et al. 1981; Costin and Hagstrum 1995). It is argued here that such detailed evaluations are not required if it is only the "relative" character of these issues that is being discussed. In this study, therefore, I will use broader terms such as "high," "moderate," and "low."

How can one evaluate standardization, labor investment, and levels of skill? The occurrence of similar attributes—morphological (shape of body, rim, base, arrangement of handles, surface treatment, and decorative patterns) and technological (forming techniques and fabric)—in a pithos assemblage from a given context of consumption or within the limits of a geographical region provide the main indices of standardization. Assessing standardization, however, requires caution as pithoi within the same consumption context may have been made at different times and places.

As far as the labor investment is concerned, the size of the pithos, the kind and complexity of decoration, the surface treatment, and the forming techniques are the indices to be considered. Because of their size, pithoi require considerable investment of labor and skill in the preparation of the raw materials, the forming process, the firing, and the transport of finished vessels to their place of consumption (Voyatzoglou 1972; 1984; Vallianos and Padouva 1986; Giannopoulou 2002). Moreover, large pithoi require more investment of labor and skill for their manufacture than do small ones. In large pithoi, the lower part of the pot tends to sag due to gravity, the weight of the upper coils, and the pressure applied by the potter. The problem is not so accentuated in small pithoi. Potters, therefore, have to pay considerably more attention to the manufacture of a large specimen than to a small one.

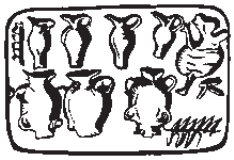
Pithoi with painted or appliqué decorative patterns also point to a considerable investment of

labor: the special surface treatments beforehand, the preparation of paints, slips, and special clay mixtures, the different steps involving the actual decorative composition, and the accuracy in its execution. Labor input will also vary according to the potter's skill and priorities. One potter, for instance, may be careful in the clay preparation and forming procedure but less so in the execution of decorative patterns; another may show the opposite concerns.

As far as skill is concerned, the manufacture of pithoi presents a major test of any potter's skill. The ancient proverb "εν τω πίθω την κεραμείαν επιχειρείν μανθάνειν," meaning "they try to learn the potter's art by making pithoi"—used to refer to those who skip the first basic lessons and immediately attempt greater things (to run before one can walk)—shows how skillful and complex the manufacture of pithoi was considered to be (*Gorgias*, 514E). The level of skill is here inferred from the accuracy in the execution of morphological and decorative features, the size of the pithos itself, the potters' ability to use the wheel (mostly for LM III pithoi), and the level of standardization achieved.

Particular attention is also paid to the isolation of similar micro-finishing details in the manufacturing process. The way of building the coils for the manufacture of the pithos, the techniques of attaching rims, handles, and spouts, the smoothing of the surface, and the execution of painted, impressed, and incised decorative patterns can all provide the sort of detailed and particular information to highlight manufacturing processes shared among potting groups active in a certain contextual framework. These observations are of crucial importance in order to distinguish potting groups in a regional setting, where discrimination on the basis of fabric is often difficult. Identical manufacturing idiosyncrasies observed in the production of limited assemblages of pithoi may be interpreted as a presence of the same potter or group of potters.

As far as a temporal classification of pithoi is concerned, a detailed chronology, such as that proposed for fine ware, is meaningless. The morphological and decorative features of pithoi just do not vary through time as much as those of fine ware. Indeed, they may persist unchanged for long periods. There are raised band patterns, for instance, that are reported throughout the LBA. The use-life of pithoi, also, is considerably longer than that of smaller pots (David 1972; Shott 1996), which are more often exposed in their daily use to opportunities for breakage. Pithoi, because of the sturdy physical properties of their fabric that provide major resistance and durability, combined with their relative immobility in use, lasted considerably longer. Even damaged, pithoi were restored and re-used (e.g., Theocharis 1952, 148; Mbakirtsis 1989, 119). Consequently, pithoi can be found in contexts much later than the date of their manufacture (e.g., Levi 1969; Alexiou et al. 1968, 40; Shaw and Shaw 1993, 144). Therefore, the dates used here tend to such forms as LM III, eschewing finer divisions like LM IIIA, LM IIIB, or LM IIIC. Detailed chronological designations are given only in cases where there are sound grounds for doing so. Detailed dates are also given for the find context of each pithos.



1

A Formal Typology for Pithoi

Several different approaches to constructing a classification exist (Adams and Adams 1991). A choice depends partly on the existing conventions within the area of study and partly on the aims of that study. In either case, a successful classification should take into consideration two fundamental principles. First, entities belonging to the same type should share similar features, and second, types should be defined with precision to allow others to duplicate the classification. The isolation of pithos types proposed here is based on their shape. Shape, besides being a practical and easily applied tool of classification, can also be made to define functional properties such as stability, capacity, accessibility, and manipulation of content and graspability (for these functional properties see Chap. 3). Variability in these attributes sheds light onto perceived differences in storage behavior (Christakis 1999a; 1999b; forthcoming). Other attributes such as the fabric, surface treatment, and decoration, although important parameters of division, are not considered here. This ware-based system of classification cannot be applied meaningfully to a ceramic corpus so varied in time, space, and context.

The data are sorted on the basis of the ratios of height to maximum diameter and of mouth diameter to maximum diameter and then on the presence and height of a collar. These parameters define the pithos shape. Smaller details such as the shape of the rim, handles, base, and arrangement of handles are not taken into account. For each typological entity (*type*), several of the most representative and frequently attested pithoi are given. To discuss all the pithoi recovered in Cretan Bronze Age contexts is not the focus of this study—only those cases that highlight basic regional trends in production and consumption are scrutinized. These selected pithoi, used for the representation of each type, are conventionally called *forms*: each form includes many members. The members are similar in their basic morphological features, but occasionally minor details will differ from specimen to specimen.

The image of each form, illustrated in the figures, is very schematic: attention is paid only to the essential morphological and decorative attributes omitting impressed, incised, or painted decorative patterns. In some cases, the drawings do not reflect actual existing pithoi: rather they are based on an

ideal form as envisaged from the combination of the basic morphological and decorative features of the pithoi that belong to this typological entry (Forms 4, 6, 14, 17, 18, 22, 24–26, 29, 35, 37, 40, 53, 55, 84, 85, 88, 92, 105, 108, 109, 113, 116, 121). In other cases, they are inspired by photographs (Forms 1, 5, 13, 15, 16, 21, 23, 27, 28, 47, 49–52, 54, 56, 59, 61, 62, 64, 67, 70–72, 75–77, 79, 81, 89, 93–101, 103, 104, 107, 111, 114, 122) and adapted from line-drawings published in the relevant literature (Forms 2, 3, 19–21, 30–34, 36, 38, 39, 48, 57, 58, 65, 66, 73, 74, 78, 80, 82, 83, 86, 87, 90, 96, 102, 106, 110, 112, 119, 120). The images of Forms 7–12, 41–46, 60, 63, 68, 91, 115, 117, 118 are based on drawings of pithoi from the Knossian palace.

Pithos Types, Dates, and Spatial Distribution

Ovoid Pithoi

The ovoid types are the most frequently found pithoi. The maximum diameter is at or slightly below the middle of the pot's height. The resultant profile of the body varies: it may be ovoid, ovoid-depressed, ovoid-elongated, or ovoid low-bellied. The most common types have either wide mouths and low/no collars or narrow mouths and low/no collars. The combination of a narrow mouth and high collar is rare. The ovoid types are first seen in the EM I period. During MM I and MM II, pithoi with ovoid and ovoid-depressed bodies are very popular all over Crete, while in the course of the MM III and LM I periods, ovoid-elongated pithoi come to dominate. Ovoid and ovoid-depressed types are found in LM III contexts, while ovoid-elongated types seem rare. Ovoid low-bellied pithoi are found throughout west Crete from the LM I period onward and occasionally at Knossos during the LM IIIA period. The most representative types are listed in the following categories.

Ovoid Pithoi with Wide Mouth and Low/Without Collar

FORMS 1–3 (Fig. 1)

The profile of the body is ovoid, the rim is thick, out-curving, and joined directly to the body, and the vertical handles are arranged in two rows. These pithoi were used in the area of south-central Crete during the MM II and MM III periods. Pithoi with similar morphological features are occasionally reported from the area of north-central Crete: the main body of evidence comes from Knossos, and it is very fragmentary. The pithoi recovered at Phaistos are distinctive because of the many vertical handles on the shoulder (from four to eight handles), the narrow base decorated with rope patterns or incised X/zigzag lines and the complex painted patterns. The high standardization observed in the morphological and decorative features, forming techniques, and paste technology in Phaistian pithoi points to a local potting tradition dated to MM II and MM III. These forms were mostly found in palatial contexts, but occasionally in ordinary domestic units too.

FORM 4 (Fig. 2)

The profile here is ovoid, the rim is thick with a squared/rounded section, and there are two rows of vertical handles. The decoration consists of rope patterns arranged in horizontal rows below/above the handles and arcade/diagonal ropes between the handles. Occasionally more complex arrangements may occur (wavy ropes and medallions). The base is projecting, and it is usually decorated with zigzag, herringbone, and X-incised patterns. This form is produced in the area of north-central Crete (especially in the area of Knossos and Archanes) during the MM III period. Similarities in the main morphological and decorative features and the construction techniques argue for a regional potting tradition. The pithoi recovered in the area of the Pediada, although similar in morphological and decorative features to the pithoi from Knossos and Archanes, are made in local clays of the region. The main body of evidence comes from palatial and elite contexts with very little from ordinary domestic units.