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The Archaeology of Food in Athens: The Development of an Athenian Urban Lifestyle

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The Archaeology of Food in Athens:

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Abstract

Athenian material culture is particularly well represented by ceramic vessels, the majority of which were used in association with food and drink. This thesis aims to explore food practices– how the Athenians stored, cooked, and consumed food– as revealed through ceramic material evidence. Athenian food practices directly relate to the economy, political system, cultic practices, and urbanization of the city itself.

The topic of Athenian food practices is divided into four sections: 1) the control and use of water, 2) the supply and storage of food, 3) the processing and cooking of food, and 4) the consumption of food and drink. Athenian food practices are primarily revealed through the evidence of ceramic vessels; however, food practices are also revealed through Athenian architecture, iconography, and texts of the period. Over the course of the Classical period, Athenian food practices changed dramatically. Domestic storage of food and water became less important as urban infrastructure insured the regular availability of food and water in the urban environment. Athenian cuisine also changed dramatically. An increase in the variety of Athenian cookpots reveals the different food preparation methods utilized. An increase in the variety of Athenian food and drink consumption vessels suggests different food consumption practices. Overall, Athenian food practices are shown to be interrelated and reveal the processual development of an Athenian urban lifestyle in the Classical period.

The urbanization of the city-center, the Athenian Agora, is revealed through the construction of urban infrastructure: drainage, fountains, roads, and commercial structures. The development of the Athenian Agora created a new environment to which daily activity adapted. The construction of urban space is directly related to the ceramic vessels used daily for food practices in Athens. Only through juxtaposing these two classes of evidence is the development of the Athenian urban lifestyle traced.

Acknowledgments

The topic of food in urban Athens has dominated my life for almost a year. I owe a great debt of gratitude to many individuals. First and foremost I thank my colleague and friend Kathleen Lynch. Kathleen has been by my side from the beginning to the end of this work. Her enthusiasm in the topic of Athenian life helped awaken my own interests. My thesis truly owes a great debt to Kathleen's instructional methods, published works, and casual comments. I worry she has read this work more closely than I, and without her effort it would not be as well-researched, reasoned, or written as it is.

I would also like to thank Eleni Hatzaki for her advice, encouragement, and comments. Eleni was the first to spark my interest in plain pottery. In particular, I share her prehistoric mindset and believe context and function to hold primacy in archaeological study. Her constant encouragement has kept me moving even when I did not want to. In addition, I would like to thank Steven Ellis, Gisela Walberg, Barbara Tsakirgis, Getzel Cohen, Joey Lillywhite, Bill Weir, Bea Peruzzi, Lynne Kvapil, and Sarah Lima for advice and encouragement during this process.

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unwavering support and encouragement has made me the person I am today. Their lives exemplify the best of an archaeological lifestyle, and I hope that is reflected in this work.

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Chapter 1: The Menu: Food in Urban Athens

The study of the archaeological evidence concerning food has always been a rather fertile approach towards understanding human culture. The modern phrase "you are what you eat" can be applied to the varied lifestyles and identities formed by all human cultures. In *Catching Fire*, biological anthropologist Richard Wrangham presents the theory that humans evolved primarily due to the habit of processing food, specifically through cooking.[1] Wrangham's evidence derives mainly from modern behavioral, skeletal, and nutritional observations of primates as well as humans, but without recourse to archaeological evidence.[2] The orthodox anthropological theory concerning human evolution, "Man the Hunter," also gives primacy to the consumption of food, specifically meat, in human evolutionary history; "Man the Hunter" is identified through the presence of early stone tools and butchered bones in the archaeological record.[3] Many of humanity's most recognizable traits, including brain size, relate to the human diet and the processes involved in acquiring and processing food in a variety of environments. This evident truth can also be applied to specific cultural adaptations and identities.[4] For example, modern cuisine is often identified by culture or ethnicity.

Perhaps the most prominent culture shift in human diet was the adoption of agriculture, which led to the development of a sedentary lifestyle. Changing how food is acquired, and what food is acquired, on a day-to-day basis, leads to radical changes in lifestyle and culture. Anthropologically, the study of foodways analyzes the relationship between the production and

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[1] Wrangham 2009 argues that cooking directly coincided with the evolution of *Homo Erectus* 1.8 million years ago.
[2] Sandgathe et al. forthcoming reviews the early archaeological evidence for fire and concludes that the earliest indisputable evidence dates to 250,000-350,000 years ago. Wrangham 2009, 83-88 concedes this fact but suggests the lack of early evidence to be due to formation processes (the ca. 300,000 year life span of a cave).
[3] Stanford 1999. Stone tools and butchered faunal remains are present in the archaeological record from ca. 2 million years ago in association with *Homo Habilus*.
[4] Wrangham 2009, 11: "Culture is the trump card that enables humans to adapt." Wrangham applied this quote to the variety of cultural activities humans have utilized to adapt to the diversity of foodstuffs offered in various environments.

consumption of food.[5] In such a manner, all food-related activities, including production, transport, acquisition, storage, processing, and consumption, directly affect one another.

However the study of the archaeological evidence for food and its associated activities is a lesson in futility. From the earliest archaeological evidence of stone tools and animal bones to modern landfills, the amount of data is overwhelming. The hunger humans have had for food has left innumerable archaeological traces, with new ones produced every day. In addition to sheer quantity, the archaeological evidence for food presents itself in an infinitely varied manner. Organic matter, stone, ceramic, metal, plastic, and other materials make up the variety of tools and containers utilized for human food-related activities. Equally important has been the transformation of space for these purposes. From entire landscapes modified for agricultural practices to the cultural embellishment of a dining area, space has been utilized and modified due to human actions concerning food.

This study aims to synthesize the published archaeological evidence pertaining to foodways in Classical Athens in an effort to approach the broader topic of Athenian daily life during this period.[6] Food and drink were public as well as private matters discussed in political meetings and incorporated into numerous public events and cultic festivals. Therefore, the study of Athenian foodways allows an analysis of the relationship between public and private contexts within Classical Athens. The city named for Athena identified publicly with the gift of the olive, while private Athenians often identified themselves through with whom they drank and what they ate. Surprisingly, no synthesis of the archaeological evidence for food in Classical Athens

[5] Harris 1987. The journal *Food and Foodways* focuses upon this topic worldwide.
[6] In this case, the term "Classical" is chronological referring to the 5th and 4th centuries B.C.E. Typically this term applies to the period between two prominent historical events from 479 B.C.E. (the end of the Persian Wars during which Athens was sacked) to 323 B.C.E. (by which time Athens was under Macedonian control). However, since archaeology is rarely so chronologically specific, the 5th and 4th centuries are concentrated on here, and prior and later evidence is included in order to create a richer understanding of long term lifestyle and cultural changes (ca. 550 B.C.E.-260 B.C.E.).

exists. While Athenian products such as drama and monumental architecture have been studied so intensively as to be recognizable scholarly fields, the study of food in Classical Athens, and to a greater degree in the field of Classical Archaeology as a whole, has only recently taken root.[7] However, the quantity and quality of published scholarly research concerning Classical Athenian culture enables a study of the archaeological evidence for food-related activities.

The urbanization of Athens and in particular its Agora during the Classical period provides an interesting case study in culture change. The creation of an urban environment is identified primarily through the development of public and private infrastructure. An urban environment is defined through the construction of urban infrastructure, which had a great affect upon the daily lives of the city's residents and more specifically upon their foodways. Therefore the relationship between the urbanization of space and the development of an urban lifestyle is at the core of this paper. Specifically, the changes in Athenian urban food practices over the course of the Classical period reveal the development of an Athenian urban lifestyle.

The long term archaeological exploration of the Athenian Agora by the American School of Classical Studies in Athens (ASCSA) has provided a diachronic, published dataset from Athens' urban center (Figs. 1-4). The Greek term ἀγορά, in a functional sense, referred specifically to a marketplace; however, the area defined by labeled boundary markers, or ὅροι, as the ἀγορά in Athens was utilized for civic, religious, and other social activities in addition to private commerce.[8] Throughout the Classical period, the Athenian Agora underwent major development to facilitate these functions, and at the same time it became the urban heart of

[7] I.e., Camp 1977; Garnsey 1988; Wilkins 2000.
[8] Wycherley 1957, 218.

downtown Athens (compare Figs. 2-4).[9] Excavation elsewhere in Athens, notably the immediate surroundings of the Agora, the acropolis, and the harbor (Piraeus) confirms a developmental trend towards urbanism that was not limited to the Agora. The efforts undertaken by the citizens of Athens in developing both private and public urban features of their city was an integrated process affecting Athenian culture, as a whole. Urbanism occurred alongside the development of the city's political system, notably democracy, as well as alongside the broader development of the Classical Athenian culture represented in both material and texts.

This study aims to approach Athenian culture of this period by analyzing the published archaeological evidence concerning food and water: their supply, distribution, storage, processing, and consumption. As the evidence derives primarily from the Agora area, a study of the evidence for food-related activity reveals the lifestyle and experiences of the inhabitants of and visitors to this area. The urbanization of the Athenian Agora, its surroundings, and perhaps the city of Athens as a whole led to food-related developments in city infrastructure, laws, and daily life. In particular, urban infrastructure was developed to facilitate the provision of water (fountains) and food (transportation routes and commercial structures). In addition, commercial policies encouraged the import of food to the city, enabling the urban population to acquire foodstuff commodities regularly in the Agora's marketplace.

The regular availability of food and water in urban Athens directly led to the development of an urban lifestyle, one not focused upon the production of food. This thesis identifies a greater variety of foodstuff commodities, food preparation techniques, and food consumption practices as hallmarks of the Athenian urban lifestyle to develop over the course of the Classical period. The development of the Athenian democracy also coincided with an

[9] For the probable existence of a separate, unexcavated Agora in the Archaic period see Chapter 3. Unless specifically identified as "the Archaic Agora," mentions of the Athenian Agora, the Classical Agora, or the Agora refer to the area excavated by ASCSA.

increasingly urban lifestyle. Not surprisingly, communal dining was a key feature of democratic administration. As this archaeological study demonstrates, the Athenian urban lifestyle can be approached in both public and private contexts through a study of food-related evidence from Classical Athens.

Reviewing the Ingredients

Ceramic vessels are the most important class of published, archaeological evidence concerning food in Classical Athens. Most ceramic vessels, even the exquisitely decorated ones, were utilitarian in nature and, as such, were often designed to hold food or drink. Fired ceramic is virtually indestructible and once broken eventually discarded;[10] thus, countless vessels and vessel fragments (sherds) have been uncovered in Athens. While much modern scholarship has been devoted to the images on decorated vessels, this study focuses upon the uses of ceramic vessels. Contemporary depictions and textual references to ceramic vessels have traditionally informed scholars concerning the function of a vessel.[11] A vessel's intended function, as well as other possible functions, is primarily ascertained from its functional characteristics recognized through details in form and fabric.[12]

The fabric of a vessel directly pertains to its (intended and possible) functions by affecting its size, weight, porosity, thermal conductivity, resistance to thermal stress, and resistance to mechanical stress. The addition of a finish through burnishing or slipping, effectively altering or applying a surface fabric to a vessel or an individual surface of a vessel,

[10] Although broken pottery was re-used in a variety of manners, it was eventually deposited.
[11] Both textual references and iconographic depictions are heavily biased avenues of evidence. Furthermore correctly matching a written Greek word to an archaeological object is often tenuous: Amyx 1958, 166: "Words are not things, and the gap between the two is great, especially in the case of man-made things." Rotroff 2006, 167: "I wonder if such strict application of name to form, or of form to task, was ever a reality."
[12] Arnold 1988, Rice 1987, Rye 1981. In the following paragraphs, the methods and inquiries of these works are displayed prominently.

also determines such functional characteristics. Analysis of the geological composition of a vessel's fabric can sometimes identify if a vessel was locally produced and if not, occasionally indicate where it was produced. Some details of a vessel's fabric can be recorded by the naked eye or with easily available equipment such as a magnifying glass. The fabric of ceramic vessels and sherds are generally classified by eye alone. However, such techniques are not always reliable, as the popular 5th century B.C.E. cooking-ware fabric from the Athenian Agora demonstrates. The results of the petrographic analysis of this fabric class demonstrate that some of these vessels were produced locally and others on the nearby island of Aigina.[13] Such a distinction is invisible to the naked eye. Scientific techniques including petrography (analyzing a thin-section of the ceramic under a polarizing microscope) and spectrography (passing a beam of sub-atomic particles through the ceramic in order to identify its molecular properties) are quite important tools for analyzing aspects of ceramic fabric not visible to the naked eye. Often the results of such scientific analyses can be directly applied to readily visible and defined fabric classes.[14] The analysis of ceramic fabrics reveals decisions made by potters concerning the composition of a fabric– the type of temper added or the levigation applied to create a finer fabric– and the firing process, which also affects the appearance and properties of a vessel's fabric.

A vessel's form refers to its shape and provides evidence relating to its (intended and possible) functions in the form of capacity, stability, transportability, graspability, accessibility, resistance to thermal stress, and resistance to mechanical stress.[15] A vessel's form is often divided into the various parts of a vessel: base, body, and mouth, each of which can be

[13] Farnsworth 1964. The fabric class is defined by Sparkes and Talcott 1970, 34-36.
[14] As in Rotroff 2006.
[15] Christakis 2005 demonstrates the potential of identifying capacity, stability, transportability, graspability, and accessibility characteristics in his study of Bronze Age Cretan pithoi.

subdivided further, such as when a vessel's mouth is formed into a lip. As well, various plastic additions, such as handles, can greatly modify a vessel's form and functional characteristics. Formal analysis can also provide details concerning a vessel's production: coiled, wheel-made, handmade, moldmade, beaten, in addition to combinations of these for a single vessel. Formal details of ceramic vessels often change over time, and analyzing such details allows ceramicists to provide date-ranges for a particular formal class of ceramics, aided through the analysis of ceramics in stratigraphic deposits with known dates provided independently of the ceramic class in question. Formal analysis can be conducted with the naked eye and has traditionally been the primary mode of study and classification of ceramics found in the Athenian Agora and elsewhere. The types applied to ceramics from the Athenian Agora– jug, cup, plate, bowl, hydria, kylix, amphora, etc.– are determined primarily by formal details, although fabric can also affect classification (an oinochoe is basically a jug made of levigated, fineware fabric with an applied finish).

The primary venue for the publication of ceramic vessels and sherds from the Athenian Agora is the monograph series *The Athenian Agora* by ASCSA in the form of ceramic catalogs divided by chronology and ware.[16] *The Athenian Agora Volume XII: The Black and Plain Pottery of the 6th, 5th, and 4th Centuries B.C.* by Brian Sparkes and Lucy Talcott, a work essential to the current study, reveals the publication plan in its title. Many of these catalogs are divided further by fabric and form, although in the case of figured pottery, often the decoration takes precedence. These catalogs are invaluable resources with concern to the evidence presented within; however, care must be taken since the catalogs represent merely a small selection of

[16] "Ware" is a vague term, but is understood traditionally as often referring to the finish of a vessel. For example, the Attic Black-Figured pottery has been published in volume XXIII, while the Attic Red-Figure pottery and White Ground pottery was published in volume XXX. See Berlin 1997 for an examination of the term ware.

many more ceramics.[17] Other ceramics have been published according to context, again often in the form of a selection presented in a catalog. *The Debris from a Public Dining Place in the Athenian Agora* by Susan I. Rotroff and John H. Oakley, published as a *Hesperia* supplement by ASCSA, is a prime example of the publication of the ceramics in a specific deposit from the Classical Athenian Agora; however, similar contextual studies appear as articles.[18] Such publications are invaluable in that they deal with ceramics in a particular context, defined by stratigraphy, chronology, cultural activity, and topography (both natural and built).[19]

While these ceramic catalogs and analyses provide the bulk of the ceramic evidence for this paper's study of food in Classical Athens, other publications analyze specific aspects of ceramic evidence. Scientific analyses of fabrics,[20] anecdotal studies of ceramics represented visually, usually on decorated vases,[21] and surveys of ceramic use in various textual sources[22] have been published. Studies concerning ancient trade to and from Athens have been published, enabled by modern ceramic classification.[23] Various thematic studies have also been published concerning the variety of uses for ceramics.[24] For example, ancient Athenian drinking activity, labeled as the symposium, is a prolifically published topic and is revealed largely through ceramic evidence.[25] In many ways, this study of food in Classical Athens can be classified as a

[17] Rotroff's 2006 publication of the Hellenistic Plain Pottery (4^{th}-1^{st} centuries B.C.E.) has aimed to alleviate the bias of such a catalog through quantifying ceramic types collected from several sample deposits.
[18] Boulter 1953 is one such example publishing the contents of a single well (N 7:3) with citations to similar publications.
[19] The catalog monographs from *The Athenian Agora* series do include citations to deposits and occasionally stratigraphy; however, these are rarely discussed within nor were the stratigraphic contexts studied as assemblages.
[20] Farnsworth 1964.
[21] Sparkes 1962 heavily relies upon visual representations of ceramics in applying function.
[22] Amyx 1958 represents the most thorough approach deriving from a study of the containers mentioned on the Attic Stelai (in addition to citations to visual representations concerning the use of ceramics).
[23] Lawall 1995 on imported transport amphoras.
[24] Sparkes 1962; 1965; and 1981 focus on the "Greek Kitchen."
[25] Rotroff 1996 discusses changes in the symposium assemblage between the Classical and Hellenistic periods. It should be noted that while ceramic vessels have been used to study the symposium most modern studies rely on textual sources.

thematic study largely revealed through ceramic evidence. In particular, there is a focus upon ceramic vessels used for the transport, storage, preparation, and consumption of food and drink.

Topography is another extremely important class of evidence for this study. The landscapes of Athens and Attica provided the settings within which Athenians produced, distributed, processed, and consumed food. Evidence pertaining to all these activities is clear in both the built environment of the city and the agricultural environment of its hinterland. As mentioned above, the depositional context of individual artifacts, including ceramics, is extremely important to understanding their uses and relationships to other material remains. The publication of archaeological finds from a particular geographical location provides details concerning the use of space, although these publications are often rather selective in their presentation of non-architectural finds. Topographic publications can vary in scope from an Attic town such as Thorikos[26] or a region of the city such as the Industrial District[27] to a specific structure such as the Tholos in the Agora[28] or the Dema House in the Attic countryside;[29] as well, topographically confined studies take the form of regular excavation reports often published in *Hesperia*. The space defined by architecture provides valuable information concerning ancient activity in a given location and its relationship to activity in locations nearby. Architectural features, including sacrificial altars or wells, provide specific evidence of ancient activity relating to food in a specific location at a specific time. Some categories of architectural features have received their own published synthesis such as John Camp's study of the water

[26] Mussche et al. 1975.
[27] Young 1951.
[28] Thompson 1940.
[29] Jones et al. 1962.

supply of ancient Athens.[30] Camp reviewed all the excavated fountain houses in addition to cataloging all the wells excavated at the time of publication.

Ancient textual references to the Athenian Agora have been utilized to identify specific structures and their functions. Occasionally, in situ inscriptions identify a specific structure known from other textual sources, as is the case concerning the Altar of the Twelve Gods, an altar utilized for sacrificial ritual, as well as the central monument from which ancient Athenian distances were calculated.[31] Other structural remains have been identified on the basis of literary descriptions, most often Pausanias, concerning their location within the city in relation to other known monuments or regions.[32] Still others, such as the Bouleuterion where the Athenian council met, are identified on the basis of their architectural configuration and the functions of associated finds in relation to the named structure's function ascertained from primary and secondary accounts preserved in the ancient textual corpus.[33]

Thematic studies of Athenian society strongly rely upon architectural space and its surrounding topography. Modern understanding of Athenian democracy in this period has been greatly enriched through the study of the topography of the Agora, the location of many civic bodies. The Tholos, located at the southwest corner of the Agora, was the location at which the prytaneis dined regularly at public expense. The prytaneis, as members of the Athenian council, were chosen by lot from citizens both rich and poor, and such public dining enabled greater public participation in the democracy.[34] Private Athenian culture is revealed through the space of

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[30] Camp 1977.
[31] Gadbery 1992, 447: the altar found in the Athenian Agora contains an inscription which reads, "Leagros, son of Glaukon, dedicated this to the twelve Gods." As mentioned above, several of the *horoi* marking the extent of the Athenian Agora have also been found, presumably *in situ*.
[32] Vanderpool 1949.
[33] Thompson and Wycherley 1972 remains the orthodox and most comprehensive interpretation concerning the identification of various structures in and around the Athenian Agora.
[34] See Chapter 5.

the Athenian (and Attic) household.[35] A number of houses from different periods surrounding the Agora have been excavated and published. Domestic space was both lived in and worked in: Athenians not only did household chores but also engaged in a form of "cottage industry." Perhaps the most recognizable room in a private structure was the andron, marked by masonry couches along its walls as the setting for a drinking symposium. However, caution must be utilized in assigning orthodox functions to a particular space. Space, by its very nature, is mutable and often several different activities took place in any given space at the same time or at different times. The artifactual and architectural evidence from private courtyards generally reveals a variety of activities ranging from cooking to sculpting and has even been inferred to act as a semi-public sales floor for home-made products.[36] Similarly, the textual and archaeological evidence concerning the city's courtyard, the Agora, reveals the political, economic, religious, athletic, and feasting activity that took place in the open square. This paper can be seen as similar to such thematic studies with its focus on food-related activities conducted within the topography of Classical Athens.

Textual and visual sources comprise another category of evidence pertaining to the study of food-related activity in Classical Athens. Not only can these illuminate details concerning the archaeological evidence, but certain activities are best revealed through textual evidence. Due to the paucity of published archaeological evidence pertaining to the Athenian diet (human, faunal, and botanical remains),[37] textual and visual sources provide our best evidence concerning what foodstuffs were consumed. Images on Athenian ceramics reveal a surprisingly wide-range of

[35] Young 1951; Nevett 1999; Tsakirgis 2005; Ault 2006,
[36] Tsakirgis 2005, 77.
[37] There are only two publication analyzing faunal remains from Classical Athens (Foster 1984 and Reese 1989), and both deal with the same faunal assemblage deposited in association with the altar of Aphrodite Ourania. There are no detailed analyses of human or botanical remains from this period in Athens.

foodstuffs,[38] and the scene in which food appears offers a cultural context for its role. However, these scenes dealt with a limited repertoire of foodstuffs and cultural contexts. Furthermore Classical Athenian vase-painting was often an idealized form of cultural expression and, like other forms of Classical visual representation, dangerous to take literally. Textual sources should similarly be viewed cautiously, as details concerning food-related activity were incorporated into a work designed for some purpose unrelated to characterizing Athenian food-related activity to contemporary audiences or future scholars.

The majority of scholarship analyzing Classical Athenian food-related activity utilizes textual evidence. A social-historical approach can be seen as early as the 2nd century C.E. in the work of Athenaeus, *The Deipnosophistatae*.[39] This piece took the form of dinner during which the diners discussed food-related activity extant in past literature, most of it stemming from Classical Athens. Quotations from a variety of textual sources, primarily Athenian comedies, formed the basis of Athenaeus' evidence, and preserved such primary evidence transmitted in this secondary form for modern scholars. Athenaeus' quotations and discussions, in addition to the evidence provided by other fragmentary and complete comedies from the Classical period,[40] provide a plethora of evidence concerning ancient Athenian food-related activity.

Food is seemingly ever-present in comedy, and the dramatic action of a few extant Classical Athenian plays concludes with a feast, and as such food has received considerable modern analysis in this context.[41] The professions of multiple comic characters, including that of several protagonists, involved food-selling or processing; the stock character of the comic cook

[38] Bread, meat, fish, cheese, nuts, other vegetables, and wine are just a few. Tsoukala 2009 is an example of a publication studying cuts of sacrificial meat represented on decorated ceramics.
[39] On this, see Braund and Wilkins 2000.
[40] All the complete comedies were authored by Aristophanes, and the larger fragments of comedies were authored primarily by Menander.
[41] This is not to say that the audience necessarily feasted but rather a feast set the scene for the end of the play. On this observation and on food in comedy see Wilkins 2000.

was popular in plays of the 4th century. The mere mention of a particular food or food-related activity in relation to an individual would have provoked a strong cultural reaction. Euripides' mother was insulted as low-class by being labeled a vegetable-seller,[42] while contemporary politicians were sneered at as elitist through their purchase of expensive fish,[43] and Thebans were represented as greedy gluttons.[44] Athenian comedy demonstrates the complex cultural vocabulary associated with food and related activity. Different foods and food-related activities were imbued with cultural identities, meanings, and values. Athenian comedy provides rich detail concerning everyday life, with a strong emphasis on food and food-related activity, as the authors of this genre chose to reveal to their specific audiences.

Other social-historical studies concerning food-related activity in Classical Athens have approached the subject thematically. The subject of the religious role of food, particularly concerning animal sacrifice, has revealed much concerning the praxis of ancient ritual.[45] Arguably, the Athenians' three most revered deities– Athena, Demeter, and Dionysos– are associated with the prominent Mediterranean triad of agricultural products– olives, grain, and grapes (wine). In addition, the calendar of the Athenians included a large number of agrarian rituals demonstrating the strong connection between cult and food. As in comedy, food was quite prominent in religious literature and descriptions of religious ritual, including civic ritual. However, such food-related details were often incorporated within a specific text for a reason often only understood to their initiates or authors. As well, many details concerning Attic ritual are found in texts written hundreds of years after the Classical period: Pausanias' many descriptions of ritual provide an important example of this and should be primarily utilized

[42] Ar. *Thesm.* 387.
[43] Ar. *Ran.* 1069.
[44] Ar. *Ach.* 870-880; Wilkins 2000, 97-98.
[45] Detienne and Vernant 1989; Rosivach 1994.

towards understanding ritual conducted during his lifetime, i.e., the 2nd century C.E.[46] That said, Athenian religious ritual clearly emphasized the public and private importance of food.

The study of the food supply of Classical Athens in relation to both agricultural and economic activity is arguably the most prominent socio-historical topic explicitly concerning food-related activity in ancient Athens. The relationship between a city and its hinterland figures prominently in studies of ancient urbanization.[47] While some extensive survey-work has been conducted in Attica,[48] the region (as a whole) is largely understudied archaeologically. Agricultural productivity is often estimated based on available land– with modern climate/productivity providing a starting point– and also inscriptional evidence of religious tithes paid by Attic farmers.[49] In addition to rough estimates, scholars understand that local productivity varied dramatically from year-to-year due to climate, and it seems practically impossible to understand the "average" agricultural year.[50] This unstable ecological condition, in addition to Athens' booming population, another estimated figure widely debated by social historians,[51] reveals the necessity of imported food for the city, if not every year, perhaps over the course of several years.

Historical sources make it clear that the Athenian navy and the city's economic ties enabled a flourishing market at the Piraeus and in the city itself. Inscriptional and legal sources demonstrate the methods the city undertook to encourage and honor merchants who traded in

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[46] Dibble, W.F. 2009.
[47] Finley 1973.
[48] Lohmann 1992.
[49] The First-fruits inscription (*IG* II^2 1672) is the most important of these and is studied by Garnsey 1988 in such a manner. Foxhall 2007 has estimated olive production from inscriptional evidence concerning the amount of Panathenaic olive oil awarded, which was also collected on a tithe system from sacred olive trees that were under private management.
[50] Horden and Purcell 2000 emphasize this fact concerning the ecology of the entire Mediterranean over time.
[51] Gomme 1933, but the population debate has been continued in recent publications including Garnsey 1988 and Hansen 2006.

foodstuffs.[52] Modern debates have focused upon estimates of population and productivity, agricultural methods employed in the hinterland (for the elite the public auction recorded on the Attic Stelai provides some detail), and the Athenian economy. Modern scholarship analyzing the Athenian economy often intersects with political history but is most often couched within modern theoretical debates concerning the pan-Mediterranean economy: primitive or modern?[53] While recent approaches have attempted to break away from such a simplistic and exclusive dichotomy, evidence concerning the larger economy is often fragmentary, and the most fruitful approaches limit themselves to a particular dataset that can be approached objectively.[54] This study approaches the Athenian Agora as a marketplace in a similar fashion, by highlighting economic decisions concerning the supply, processing, and distribution of food in the context presented by archaeological evidence, largely domestic in nature. In particular, the evidence for storage practices is highlighted as relevant to an understanding of the Athenian market. Even though the evidence for these two spheres of life– domestic storage vs. commercial supply– is quite different, these different aspects of Athenian foodways were interrelated.

As this review demonstrates, there are positives and negatives associated with each category of evidence relating to food practices and its role in the urban lifestyle of Classical Athens. To date, the majority of modern scholarship explicitly focusing on food in Classical Athens is both recent and generally based upon textual evidence. This study aims to rectify this

[52] Garnsey 1988 reviews many of these. Stroud 1998 is another example providing more detail to one such inscription concerning the Athenian Grain Tax Law of 374/3 B.C.E.

[53] This debate has a long history. Finley 1973 represents the primitive view adjusted for Athens by Burke 1992. My primary disagreement with such debates over the modern or primitive nature of the ancient economy is that these are models developed in comparison to the economies of medieval and/or modern times. There is no need for such broad comparative analysis, which distracts scholars from the goal of describing (in this case) ancient Athenian society. While, of course, I am affected by my own biases (and the biases of past scholarship) I do not attempt to develop an economic model but rather a description of the evidence for food in the economy. Such evidence is not the focus of this paper but is incorporated into the thesis of this paper concerning the development of an Athenian urban lifestyle.

[54] Foxhall 2007 represents one such approach focusing upon olive production and processing throughout Greece.

situation by focusing on the activity revealed in the published archaeological record. However, it must be stated at the outset that the archaeological record (and historical record) has been studied, selected, and presented by modern scholars for their own purposes, often very different from the objectives of this study. The selection bias created by excavation techniques and published reports, particularly when considering assemblages and depositional context (i.e., archaeological formation processes), is important to recognize. An attempt is made to restrict study to sufficiently contextualized evidence and/or evidence concerning broad cultural changes, particularly changes in Athenian ceramic assemblages. When considering textual evidence, contemporary evidence is preferred. Overall, this study aims to present the archaeological evidence concerning food-related activity in Classical Athens, and the textual evidence serves to provide further detail to conclusions derived primarily from the archaeological data.[55]

A Taste of Athenian Urbanism

Upon passing through the Propylaia atop the sacred acropolis of Athens, a viewer's gaze was inevitably drawn forwards towards the famous Parthenon. From this vantage the mythical contest between Athena and Poseidon was prominently visible in the very center of the Parthenon's west pediment (Fig. 5). The scene recalled the mythical story in which the citizens of Athens chose the city's name in honor of the goddess and her gift of the olive tree. While the olive tree between the two opponents is missing today,[56] it and its fruit were clearly a superior gift to Poseidon's salt-water puddle. In the latter half of the 5th century B.C.E., Athens eternally commemorated her mythical selection of the olive tree with the Parthenon's western pediment

[55] This can be seen as an effort to invert the traditional role of archaeology as the "handmaiden" of history.
[56] Palagia 2005, 242-253. Many scholars agree that the center of the pediment was the olive tree, although some argue that it might have been Zeus's lightning bolt; Palagia even entertains the possibility that both were in the middle.

sculpture. The depiction of the early Athenian royal family on the pediment signifies that the choice of the olive tree was to be identified with the people of Athens. The importance of olives to Athenian identity is further emphasized in the Panathenaic prize of amphorai filled with olive oil.

In Classical Athenian culture, olives and their processed oil were associated with wealth, cleanliness, and good eating.[57] Olive oil was used in recipes in a similar manner as today for its taste and nutritive value (high in fat-based calories). Furthermore the culinary properties of olive oil would have been equally important as a non-stick substance with high heat retention that reduced the porosity (thus increasing the thermal conductivity of a ceramic cooking vessel by reducing evaporation). Olive oil (often scented) was used in bathing as seen in numerous vase painting scenes and after athletic contests would have been applied and scraped off with a strigil. Olives were an expensive investment: olive trees took several years to mature and produce fruit which occurred only bi-annually. In addition, the labor involved in processing, storing, and transporting oil makes it no surprise olive oil was an expensive product.

By continuing along the path between the Erechtheion and the Parthenon, a viewer, who looked closely, would have observed on the North Frieze of the Parthenon a large sacrificial procession oftentimes interpreted as the Panathenaic procession (Fig. 6).[58] The procession included bearers of olive branches, bearers of water vessels, tray-bearers, and the final Easternmost stretch of the North frieze culminated in a display of sacrificial animals, sheep and bulls, with attendants. The importance of such animals was emphasized by the hecatomb, or sacrifice of 100 bulls, that took place with each Panathenaia.[59] The citizens of Athens received

[57] On the uses of olives see Foxhall 2007, 85-96.
[58] Neils 2005. The subject of the Parthenon frieze is highly controversial; however, there is no doubt that the Eastern halves of both the Northern and Southern frieze displayed a sacrificial procession.
[59] Rosivach 1994. Accounts from the 4th century B.C.E. record that more than 100 bulls were sacrificed.

the slaughtered meat and took it down from the Acropolis and celebrated publicly with private feasts among friends and family. In Classical Athens, animals and their sacrificial meat were associated with wealth, piety, and good eating.

Animals were expensive to keep since they consumed edible produce and required care and protection. The very concept of money possibly derived from cattle as an early elite exchange medium.[60] The act of sacrifice was the preeminent ritual of public and private religion in Classical Athens. Meat was an important component of the Athenian diet. It has even been argued that frequent public sacrifice was the primary mode through which a great deal of the population had access to meat.[61] Meat was clearly a valuable component of the Athenian diet consumed regularly or semi-regularly by most classes of citizens. Its value was further heightened by the sacred and communal nature of sacrifice.

The highly visible example of the Parthenon, particularly its monumentalization of the gift of the olive tree and civic ritual sacrifice, demonstrates that food was central to the Athenian public display of wealth, health, piety, and self-identity. While modern scholarship might debate whether the visual representation of a sacrificial procession refers to the Panathenaia, or if there was an olive tree or lightning bolt between Athena and Poseidon, the association of food evident in these scenes begins to reveal the cultural importance of olives and domesticated animals in Classical Athens. Most significantly, the Parthenon clearly demonstrates the public interest the Athenians themselves held concerning food-related products and activity.

The economic and political atmosphere of the 5th century B.C.E. provided the Athenians with the means to develop their city, both publicly and privately, into the Classical urban center whose remains continue to be excavated. The Parthenon was constructed in the second half of

[60] McInerney Forthcoming.
[61] Rosivach 1994 estimates that an Athenian citizen participated in a public sacrifice ca. 40 times a year.

the 5th century B.C.E. on the site of the ruins of the old, unfinished Parthenon destroyed, along with the rest of the city, by the Persians in 480-479 B.C.E. The Persian destruction deposits, dated to immediately after 479 B.C.E., from the Athenian Agora reveal a relatively empty area largely utilized in a domestic and industrial manner. The public nature of the Agora area, as a democratic and commercial center, was developed primarily after the Persian destruction. Over the following two centuries the urbanization of Athens provided the cultural and spatial setting upon which its urban lifestyle developed and, in turn, the interests of the citizens provided the rational for both public and private urban development.

This study aims to approach the development of the Classical Athenian urban lifestyle through the evidence provided by food-related activity. A definition of the term "urban lifestyle" is slippery at best. There is clearly a geographical component to an urban lifestyle: it is practiced in an urban environment. The Athenian Agora and its surroundings clearly urbanized over time through the construction of public and private infrastructure. While an open square was retained throughout this period, the surrounding areas became more and more densely occupied and utilized. Another key characteristic of an urban lifestyle involves the everyday activities of people within this urban environment. This study will focus on the food-related practices associated with an urban lifestyle. That is, individuals practicing an urban lifestyle do not spend as much time acquiring food directly as individuals practicing a rural (agricultural or nomadic) lifestyle. An emphasis must be made on the term "acquiring food" since food processing, and other food-related activities, can still be an important and time-consuming component of an urban lifestyle.

Instead of spending time directly acquiring food (hunting, gathering, growing, rearing, etc.) individuals practicing an urban lifestyle engage in other activities through which capital

(economic or social) is acquired, which can be exchanged/converted for food, in addition to other products. An urban lifestyle is therefore dependent upon the availability of foodstuff commodities in the urban market. These prerequisites lead to an urban lifestyle in which individuals spend their time participating in activities not directly related to the acquisition of food. While Classical Athenian urban culture was defined by both non-food and food related activities, it was directly enabled through the regular availability of food and water.

This thesis seeks to reveal the urban lifestyle in Athens throughout the Classical period and analyze its development over time. Athenian culture, as evidenced from its material and textual remains, was neither static nor uniform during this period. The 5th century B.C.E. was a period in Athens when the citizenry invested heavily in urban development. By the outset of the Peloponnesian Wars, the city had developed the acropolis as a civic/religious center, the Agora and surroundings as a political and economic center, and its harbor as the city's prime point of contact with the outside world. The success of Athenian urban development paid large dividends throughout the course of the Peloponnesian Wars as Athens and the Piraeus, protected by the long walls, served to shelter and provide for the majority of the Attic population trapped in the city. Alongside the urbanization of the cityscape, the Athenian population itself developed its own form of urban culture.

The study of Athenian foodways, i.e., the range of food-related activities, is divided into four chapters: 1) the control and use of water, 2) the supply and storage of food, 3) the processing and cooking of food, and 4) the consumption of food and drink. The second and third chapters of this study analyze the direct relationship between the urbanization of space and the development of an urban lifestyle. Changes in the assemblage of vessels used for water transport and storage in Athens reveal a decreasing capacity in vessel size over the course of the Classical

period. These changes are linked to the development of public and private infrastructure providing a reliable quantity of fresh water, available locally in Athens. Similarly, the ability for the urban population to store large amounts of foodstuffs, in private, diminishes over time. The trend towards decreased storage capacity in the urban setting is contrasted with the large storage capacity evident in rural Attica. The reduced capacity of storage vessels in the urban environment is linked to the urbanization of the city, specifically the city's ability to provision the marketplace with foodstuffs. The urbanization of space, a process through which useful infrastructure was constructed, contributed to the development of an urban lifestyle. In the developed Athenian urban lifestyle, more evident by the 4th century B.C.E., less domestic energy is devoted to acquiring, transporting, and storing food and water due to their ready availability in the city.

The fourth and fifth chapters focus upon the processing, cooking, and consumption of food and drink. Again, dramatic changes occur over the course of the Classical period: specifically, an increased availability of more varied foodstuff commodities in the Athenian marketplace. Over the course of the Classical period, Athenian urban cuisine diversifies. Mortars used for food preparation (crushing, grinding, chopping, etc.) are imported from Corinth, and the assemblage of cooking vessels used in Athens increases in variety, enabling the preparation of a wider assortment of dishes. The assemblage of dining vessels also demonstrates a diversification as ceramic bowls and plates become popular, although not replacing previously existing vessels. Most importantly, ceramic vessels on a whole become increasingly mass-produced. Mass-production reflects a wider distribution of these vessels, not only to the elite segment of the population. Overall, the observations of increased availability and variety exemplify the Athenian urban lifestyle that developed over the course of the Classical period.

The Athenian urban lifestyle was especially evident in the literature authored during this period. The comic play, a form only preserved from its height of popularity at the end of the fifth through the fourth centuries B.C.E., put aspects of the Athenian urban lifestyle on display to the Athenians themselves. The academy, full of vibrant philosophical discourse, was fostered in such an urban environment. Finally, transparent, participatory democracy developed alongside urbanization and perhaps, more specifically, in step with the development of an urban lifestyle. Over the course of the Classical period, an ever-increasing variety and quantity of Athenian textual documents were produced and preserved to modern times.

However, this thesis aims to demonstrate urbanism in the everyday life of the people who inhabited and visited the area near the Agora. The Athenian urban lifestyle is especially revealed through the analysis of the archaeological evidence for food-related activity. The concern for the regular availability of food and food-related products (such as ceramics) to the urban population can be seen in related public and private activity. Conclusions concerning humanity's evolution demonstrate that cultural adaptations relating to food acquisition and processing, enabled by our larger brain, are part of what makes us human. By approaching the Athenian adaptations and activities concerning food the urban lifestyle of Classical Athens, and its development over time, is revealed.

Chapter 2: The Control of Water and Urbanization

This chapter begins with urbanization and concludes with the development of an urban lifestyle, specifically relating to the control and use of water. It is argued that public and private efforts concerning both drainage and the water supply throughout the 5th and 4th centuries B.C.E., identified as urbanizing activities, directly led to changes in private water-related activity. The increase in the number and variety of water sources reduced the need for transporting and storing water in ceramic vessels. An analysis of vessels used for such functions demonstrates their trends over time towards diminished capacity and increased porosity. These functional characteristics of water vessels signify that, by the 4th century B.C.E., Athenians in the Agora area were not engaging in the practices of transporting water long distance nor storing water long term. In addition, the topic of archaeological formation processes in Athens is dealt with explicitly in this chapter. The majority of closed deposits containing large assemblages of Athenian ceramics have been found in the dumped fills of both wells and cisterns. In fact, the period-of-use (POU) deposit found at the bottom of many wells, containing a large number of water vessels, is one of few primary contexts often found at Athens. As such, an analysis of deposits recovered from water sources reveals several of the processes by which the Athenian archaeological record was formed.

Drainage and the Construction of the Cityscape

The Athenian Agora is a relatively flat plain immediately adjacent to the hills of the Areopagos to the South and the Kolonos Agoraios to the West. These heights, in addition to the sloping terrain leading up to the Acropolis to the Southeast, would have drained water runoff into the Agora area. In order to be developed, the Agora first required significant drainage, an activity which survives as remnants of the Great Drain. In the first season of excavations, the Agora area

was flooded and water pressure led to the discovery, excavation, and re-use of the Great Drain, which continues to operate effectively today.[62] The Great Drain, measuring about one meter in both width and depth, was constructed with a heavy stone floor and large polygonal blocks. The utility of the drain is emphasized through its multiple repairs and expansions throughout antiquity.

Excavations demonstrate stratigraphically that the initial construction of the Great Drain preceded most of the earliest monumental public structures on the West side of the Agora: the Old Bouleuterion, the Metroon, the Stoa Basileios, the Tholos, and the Classical phases of the Temple of Apollo (Fig. 7).[63] In order for the Great Drain to function, large amounts of fill, consisting of sediment and crushed bedrock, were deposited to guarantee a regular slope from South to North. Several of the structures were set into this fill demonstrating their subsequent construction. In particular, the initial construction of this drain seems to be associated with the construction of the Old Bouleuterion due to its related orientation and stratigraphic relationship. While the study of Archaic Athenian chronology is a matter of ongoing dispute, it is clear that the initial branch of the Great Drain was completed prior to the Persian occupation of Athens in 480/79.[64] Its relationship to the Old Bouleuterion and the democratic embellishment of the Agora seems to suggest an early democratic construction date (ca. 510-490); however, this is only suggested, not proven, at this point in time.

Regardless of chronological specificity, the history of the Great Drain demonstrates that control over water was a necessary early step in the process of urbanizing the Athenian Agora

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[62] Shear 1933, 103.
[63] Thompson 1937, 3-4; Thompson and Wycherley 1972, 194-197; Francis and Vickers 1988, 154-5. The only monumental construction in the area prior to the Great Drain is Building F, a structure whose function is contested as perhaps residential/palatial, political/public, or commercial (Papadopoulos 2003; Tsakirgis 2009).
[64] Shear Jr. 1993, 405 relates that an extension (H 13:5) to the South of the initial Great Drain was abandoned and filled with material associated with the Persian destruction.

and its surroundings.[65] Public and private structures oriented themselves alongside the Great Drain, as it was expanded. In the 5th century B.C.E., additional branches were constructed primarily to accommodate public structures.

At the start of the 4th century B.C.E., a prominent drain joining with the Great Drain in the Agora was constructed, replacing an earlier drain Southwest of the Agora in the Industrial District, an area of the city filled with private residences and workshops (Fig. 8).[66] The construction of this branch was not uniform, marking a change in construction technique.[67] Each segment, often corresponding to the limits of adjacent properties, was constructed utilizing different materials and orientations (Fig. 9), and the widths of this branch varied from 0.60 m to 1.50 m.[68] Such construction styles sharply contrast with the uniform construction evident further to the North, where a corbelled bridge was constructed over the drainage channel.[69] It seems as if the details of this project, within the confines of the Industrial District, were undertaken by the private owners/residents of this area probably coordinated, by necessity, to an overarching publicly agreed-upon plan.[70] The plans of several houses/workshops in this area were modified; specifically, the western properties were renovated with their easternmost wall rebuilt directly atop the drain.[71]

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[65] Thompson 1937, 4. The same could be said of many similar urban centers including the Roman Forum.
[66] Young 1951, 253-262.
[67] Although later repairs of the Great Drain in the public area of the Agora and the construction/repair of drainage channels deriving from public structures and debouching in the Great Drain oftentimes utilized unique construction methods. Thompson and Wycherley 1972, 194-195 demonstrate such unique later repairs and constructions concerning the Tholos.
[68] Thompson and Wycherley 1972, 196.
[69] Young 1951, 258 this section was constructed out of uniform poros blocks.
[70] Young 1951, 254 this extension seems to correspond with a prior drain that was merely cut into the ground. Thompson and Wycherley 1972, 196: "The changes of style are abrupt and normally occur where house-properties meet. Apparently the neighboring householders were allocated sections of the drain walls, and employed each his own mason. Yet, the whole must have been coordinated and was presumably in some sense a public work." Young 1951, 257: "We must assume that the building of the drain walls was a single operation, since a channel of the sort formed by them would have been of little use were it not continuous."
[71] Young 1951, 261-262: "House A lost a sliver [of land], House C gained a new eastern margin, House D gained a sliver."

The Athenian drainage system demonstrates the public control over water needed prior to developing the low-lying Agora and its surroundings. The efforts undertaken for this urban infrastructure were surely great and the long term dividends can be recognized in its continued function today. Such a project represents a public investment in this particular area, and perhaps the first step in the process of urbanization. The drains from the Industrial District demonstrate the concern for private areas of the city, as well. In fact, the 4th century construction phase seems to set a pattern seen throughout this study: the public concern, here relating to drainage, for the private urban context in the late 5th through the 4th centuries B.C.E. This action is representative of the development of an Athenian urban lifestyle.[72]

The Provision of Public Water Sources

Similarly, the provision of water to the Agora and its environs can be interpreted as a public effort that contributed to the urbanization of the cityscape. From the second half of the 6th century through the 4th century B.C.E., the area near the Agora was equipped with multiple fountain-houses, many of which piped in water from afar. Ancient references describe Athens as relatively arid, necessitating such projects in order to sustain concentrated urban activity and population.[73] The success of the waterworks constructed in the Archaic and Classical periods is clear since the majority of fountain-houses continued to be renovated, improved, and used until the Herulian sack of Athens in 267 C.E. The public investment in the water supply between ca. 550-300 B.C.E. is further emphasized by the lack of public fountain-houses constructed in the Hellenistic period, demonstrating that the earlier waterworks did adequately supply the urban

[72] Young 1951 suggests that the renovation to the Pnyx, located above the Industrial District, in the late 5th century altered the flow of rainwater in the area. Regardless this was a project designed for the benefit of this private area in Athens.
[73] Pseudo-Dikaiarchos fr. 59.

environment with water, at least the area excavated to date.[74] Fountain-houses and spring-houses were particularly useful because they delivered clean, running water.[75]

The Peisistratid tyranny of the second half of the 6th century B.C.E. was credited with the initial provision of water to Athens, notably the oft-mentioned Enneakrounos.[76] The Enneakrounos remains unidentified to-date.[77] However, fountain scenes painted upon black-figured vases representing women with hydriai drawing water are often believed to refer to this fountain, even if there does not seem to be a consistent fountain pictured.[78] Fountain scenes appeared on black-figure vases ca. 530 B.C.E.-500 B.C.E., which corresponds with a possible date for the Enneakrounos. Three archaeologically extant fountain-houses and one spring-house, in addition to the Enneakrounos, date to the Archaic period.[79] These waterworks are generally associated with the public munificence of the Peisistratid tyranny in the form of urban infrastructure.[80]

The prestige individuals garnered in providing a public water-supply continued to be a factor into the democracy. However, the late date of many sources requires caution in reading attributions too literally. That said, according to Plutarch the leading politicians of the 5th century B.C.E.– Themistokles,[81] Kimon,[82] and Perikles-[83] all contributed to the water supply of Athens

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[74] Camp 1977, 23.
[75] Arist. *Pol.* 1330b demonstrates an understanding of healthy water (ὕδασιν ὑγιεινοῖς), in opposition to unhealthy water.
[76] Thuc. 2.15.5 refers to the Enneakrounos, and Pausanias 1.14.1 identifies it as constructed by the Peisistratids.
[77] Several fountain-houses have been identified as the Enneakrounos and none seem acceptable to-date. For a review of this debate see Camp 1977, 90-94; 100-102.
[78] Camp 1977, 101.
[79] 1) The Southeast Fountain-house (see below); 2) Dörpfeld's Enneakrounos located between the Pnyx and Areopagos is evidenced from one parapet slab, one wall-block, a stone-lined channel providing water from the south, and several cisterns (Camp 1977, 94-98); 3) the Ilissos Fountain-house represented by a single parapet block from a fountain-house unearthed in the course of modern construction (Camp 1977, 93); 4) the spring-house on the south slope of the Acropolis of which primarily the basin alone is extant along with scanty foundations of a superstructure (Camp 1977, 98-100). These four structures are generally associated with the Peisistratid tyranny; however, little evidence for precise dating is extant.
[80] Camp 1977, 62-63.
[81] Plut. *Them.* 31. See below concerning the Dipylon fountain. Dillon 1996, 196-197.

and were honored for these actions. While the state commissioned most fountain and spring-houses, others were dependent upon private benefaction.[84] The importance of the supply of water to the city can be seen in the election of the public official in charge of the water-supply, as opposed to assigning the office by lot.[85] In the 4th century B.C.E., this position appears rather prominent, as well as prestigious.[86]

The Southeast fountain-house, dating to the Archaic period, was constructed in the Southeast corner of the Agora (Fig. 2).[87] The juncture of a pipeline with the fountain-house is not extant, but a section of piping found in situ 6.0 m to the east demonstrates that water was piped in from afar.[88] The actual source for this fountain-house is not known; however, the discovery of many water-pipes dated to the Archaic period demonstrates the Athenian ability to pipe water over distance in a gravity-line system.[89] The Southeast fountain-house was rectangular, measuring 6.80 m by 18.20 m, and contained two basins, each measuring 3.20 m by 5.00 m, and was equipped with marble floor slabs. Furthermore, a columnar façade has been conjectured due to a step course placed in front.[90] The quality of the hydraulic engineering, materials, construction technique, and embellishment all testify to the monumentality of this large, early urban feature. In the 4th century B.C.E., the Southeast fountain-house underwent

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[82] Plut. *Cim.* 13 mentions Kimon provided water to the Academy.
[83] Not from Plutarch but from *IG* I^2, 54 where the name Perikles is restored. Dillon 1996, 197-198.
[84] Since some were associated with temples and cultic sites, the public can be interpreted here as either a civic or cultic group, depending on the context.
[85] Arist. [*Ath. Pol.*] 43.1; Dillon 1996. Only a few positions that required skill, such as the generalships, in the Athenian government were elected.
[86] Camp 1982, 11-12; Dillon 1996. *IG* II^2 338 dated to 333/2 B.C.E. honors Pytheas of Alopeke for work as a water-commissioner (ἐπιμελητής τῶν κρηνῶν), and *IG* II^2 215 similarly honors Kephisodoros, son of Kallias, for his work as [water-commissioner] (restored).
[87] Camp 1977, 73-90; Thompson and Wycherley 1972, 197-199; Thompson 1953, 29-35. The ceramic evidence is rather scanty concerning its date and instead construction style (including the use of Z-clamps) led to the second half of the 6th century date, which Thompson 1953, 32 tentatively proposed and others have accepted (Camp 1977, 86 argues more specifically to 550-525 B.C.E.).
[88] Dörpfeld's Enneakrounos also contained a channel providing water from afar (Camp 1977, 96).
[89] Camp 1977, 64-72.
[90] Camp 1977, 76-77 notes that any more specificity deriving from visual representations is impossible.

significant renovations to its supply line, overflow channel, and interior demonstrating its continued usefulness.[91] The fountain-house appears to have been used into the 3rd century C.E. with debris dating to the 4th century C.E. marking the end of its utility in the Agora.[92]

Immediately after the Persian sack of Athens, the city increased its water-supply with the construction of the first phase of the Dipylon fountain-house and the Klepsydra spring-house.[93] The Dipylon fountain-house was constructed at the East end of the Dipylon gate, just inside the city-walls (Fig. 1). Early 5th century ceramic remains and the structure's close association to the Themistoklean city-walls demonstrates that this fountain-house was constructed in the immediate aftermath of the Persian occupation.[94] This monumental fountain-house, fed by a stone supply channel, was equipped with spouts set 0.55 m above the floor and a conjectural marble columnar façade.[95] The Klepsydra spring-house, located at the Northwest foot of the Acropolis (Fig. 1), was constructed in the first or second decade following the Persian occupation.[96] A water-mark on the sides of the chambers demonstrates the approximate 3.00 m height of the water level in a basin measuring 4.50 m by 2.35 m (=31,725 liters), in addition to inlets carved out of the wall to permit the free-flow of water into the basin.[97] In modern times, the spring produces ca. 100 liters

[91] Camp 1977, 89. P 22345, a sherd of a red-figure krater dating to 390-370 B.C.E., provides the terminus post quem for this renovation although if the supply line was renovated in conjunction with the installation of the Poros Aqueduct (discussed below) then this renovation would date to the second half of the century.
[92] Camp 1977, 89-90.
[93] Dipylon fountain-house: Gruben 1969; Camp 1977, 107-109. Klepsydra spring-house: Parsons 1943; Camp 1977, 109-112.
[94] Camp 1977, 108 n. 3 also cites the similarity of its form to the Peirene in Corinth dated to the first half of the 5th century B.C.E. Camp attempts to associate the construction of the Dipylon fountain with Themistokles on the basis of Plut. *Them.* 31, in which Themistokles is identified as a water commissioner (ἐπιστάτης ὑδάτων).
[95] Camp 1977, 108 relates that the excavator (G. Gruben) believed the column bases definitively associated with the second phase of the Dipylon fountain-house were re-used from its initial phase.
[96] Parsons 1943, 229-231. Ceramic evidence (P 13507) provides a terminus post quem of 475-470 and Parsons suggested a date of no later than 460 B.C.E. due to construction style. Camp 1977, 112 tentatively associates this with Kimon.
[97] The basin walls were to a height of 4.00 m.

per hour.[98] The Klepsydra spring-house was equipped with enclosure walls and a wooden roof; it also appears to have remained unfinished as several surfaces were never dressed. Both of these sources were maintained for long term usage and underwent renovations in the subsequent centuries.[99] While these fifth-century B.C.E. constructions were not located in the Agora, they further served to provide a supply of water to two prominent urban locations not far from the Agora and perhaps demonstrate the public munificence of politicians prominent in the 5th century.

In the second half of the 4th century B.C.E., the Poros Aqueduct was constructed representing a massive upgrade to the water supply of the urban area.[100] This aqueduct has been traced for 220 meters running to the west underneath the East-West street which marked the Southern border of the Agora. Camp has tentatively associated it with the Acharnian Aqueduct evident from literary and epigraphical sources.[101] The findspots of inscriptions mentioning the Acharnian Aqueduct traces its origins to springs on the lower slopes of Mount Parnes. The stone-lined channels excavated in the Agora were 0.30 m wide and made of poros limestone. The construction of the aqueduct clearly marked a sharp increase to the supply of water to the urban area. Both the Dipylon and Southeast Fountain-houses might have been modified in association with this construction and a massive new fountain-house was constructed in the Southwest corner of the Agora (Fig. 4).[102] The Poros Aqueduct continued to function throughout antiquity supplying water to numerous structures in the Hellenistic and Roman periods.[103]

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[98] Camp 1977, 110 recorded "some twenty-five gallons," this is an approximate conversion. He also notes that structural considerations demonstrate the water level rarely fell below 2.30 m.
[99] Camp 2001, 159 mentions the renovation of the Dipylon fountain-house in the latter half of the 4th century B.C.E.
[100] Camp 1977, 130-134; Thompson and Wycherley 1972, 200. The date of this aqueduct has changed frequently; however, Camp 1977 presents a fairly convincing argument for its dating 350-325 B.C.E.
[101] Vanderpool 1965; Camp 1977, 141-142; Camp 1982, 11.
[102] The renovation of the Southeast Fountain-house might have been earlier; the complete reconstruction of the Dipylon fountain (referred to as the Kerameikos Fountain in Camp 1977, 134-138) seems to date to this period.
[103] Camp 1977, 133.

The Southwest fountain-house's identification as a fountain largely rests upon its juncture with the Poros Aqueduct. Constructed in the third quarter of the 4th century, it was massive containing a square court leading to a colonnaded porch which led to an L-shaped basin measuring more than 100 square meters.[104] With a total capacity of ca. 51,000 – 86,500 liters, the Southwest fountain-house represents a massive increase to the public water-supply of the Agora and its surroundings.[105] The success of this fountain-house is demonstrated in its continued use up until at least the sack of Athens by Sulla in 86 B.C.E.[106] Furthermore, no new public fountain-houses were constructed until the Roman period. Smaller fountains specifically associated with individual public structures were constructed as was an annex to the Southwest fountain-house.[107] These later constructions linked to the Poros Aqueduct. But in general, the supply of water to Athens' urban center was completed by the end of the Classical period.

The two hundred year span of public waterworks vastly altered the urban landscape of the Athenian Agora and its surroundings (ranging from the Acropolis to the Dipylon gate). Prior to the development of such public infrastructure, the Athenians presumably relied upon private wells. The importance of these public waterworks is emphasized by the monumentality of their construction, in addition to the sheer amount of fresh running water available in multiple locations to the inhabitants of and visitors to this area. By 460 B.C.E., at the latest, the area including the Acropolis, the Areopagos, the Classical Agora, and the Dipylon gate had at least three functioning monumental fountain-houses all piping in water from elsewhere and two monumental spring-houses collecting local water, perhaps in addition to the famed

[104] Camp 1982, 10 n. 4 provides the date in the form of a black-glaze bowl (P 27562) found in the filling underneath the floor packing of the northwest court.
[105] Camp 1977, 124 n. 12 mentions the depth of the water would have been approximately 0.50 m to 0.85 m. This calculates to a capacity of 50,915-86,555 liters.
[106] Camp 1977, 129.
[107] Camp 1977, 116-130; 163-174.

Enneakrounos. Four additional public sources (of unknown locations) are mentioned in textual sources, and can be conjectured to have been constructed in the 5th century B.C.E.[108] As well, a spring-house was constructed within the confines of the Asklepeion sometime in the 4th century B.C.E.[109] The construction of the Poros Aqueduct, Southwest fountain-house, and renovations to previously existing fountains represents the next phase in supplying the city with water, ca. 350-325 B.C.E. The fact that the commissioner of the water supply was an elected position demonstrates the care taken by the Athenian populace and their intention and efforts over time to provide their city with useful infrastructure. The urbanization of the city of Athens was a project undertaken by the population as a whole, demonstrated by the actions of the elite and of the democratic state, as well as the sheer labor required for the effective supply of water.

Wells and Cisterns

In addition to fountain-houses, many structures included wells or cisterns. The construction and demise of Athenian wells represents a unique class of archaeological evidence available to modern scholars. Ceramic chronologies, the function and appearance of built space, climate change, and the Athenian response to the Persian destruction have all been enlightened through ingenious analyses of wells and their deposits. What follows is a brief synopsis of the available evidence and past analysis concerning the construction, use, and closing of both wells and cisterns.

[108] Camp 1977, 139-140: 1) *IG* I^2 54, the so-called "Spring-house decree" perhaps honors Perikles (restored) and his sons for constructing a fountain; 2) the scholiast to Arist. *Av.* 997 mentions Meton of Laukonos' construction of a fountain-house on the Kolonos Agoraios (not found to-date); 3) Lyc. *Leokr.* mentions a fountain-house among the osiers where a murder took place in 411 B.C.E.; 4) Pl. *Lysis* 203 B mentions a fountain at Panops just outside the city-walls.
[109] Camp 1977, 112-116.

Only a few pieces of information can be gleaned concerning the construction of wells, and dating this activity is notoriously difficult since earth, along with datable objects, is removed from rather than deposited in the well. Therefore, the construction of most wells is dated by stratigraphy, their period-of-use (POU) deposits, and the dumped deposits which came to fill them (Fig. 10).[110] A well's location is perhaps the most important piece of evidence recovered concerning its construction (Fig. 11). Most wells were located in the courtyard of private structures (residences/workshops); however, some wells were dug in association with public buildings, such as the Tholos, and others have been interpreted as being available to the public.[111] Wells were dug through the soft bedrock of the Agora area to depths of less than 3 meters to more than 20 meters. Camp's study of Athenian wells from the Neolithic until the Roman period demonstrates a steady increase in average well-depth (Fig. 12), which he correlates with a drop in the underground water-table and a potential drought in the middle to end of the 4th century B.C.E.[112]

In addition, wells were often embellished with finishing touches relating to their use.[113] Since the bedrock of the Agora area is quite soft the wells were prone to collapse,[114] some wells were lined with stones and others with purpose-made tile linings. The tile linings, equipped with foot and handholds, first appeared in the mid 5th century B.C.E. and became increasingly common into the Hellenistic period.[115] Footholds, carved out of the bedrock in other wells, were utilized in the well construction and for cleaning the well or recovering vessels dropped within.

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[110] Shear Jr. 1993, 384-387 on the stratigraphy of wells. In addition, wells often have a supplementary fill, deposited after the original dumped fill settled.
[111] Shear Jr. 1978 on Archaic public wells.
[112] Camp 1982 combines the increase in well depth with the decrease in numbers of closed wells, the increase in number of cisterns, the increase in massive public water-works, and textual evidence for grain shortages in Greece (all dated to the mid 4th century B.C.E.) to come to this conclusion.
[113] Camp 1977, 175-182.
[114] Camp 1977; Shear Jr. 1993, 386.
[115] Camp 1977, 178-179.

Some wells were equipped with a well-head, which often preserved rope-marks telling of its use or niches within which to emplace a pulley system. The well-heads took the form of either a re-used pithos or a purpose-made terracotta or stone feature. Purpose made well-heads are known from earlier but became common beginning in the 5th century.[116] The use of purpose-made features, both well-heads and tile linings, demonstrates an increase in specialized production available to the urban population aiding the construction of wells.

The construction of cisterns represents another specialized development in the water supply of Athens. Evidence for cisterns initially appears at the end of the 5th century B.C.E., but they become increasingly popular into the Hellenistic period.[117] Twelve cisterns went out of use in the 4th century and 27 in the 3rd century B.C.E. (Fig. 13), as dated by their dumped fill.[118] At the same time, wells were dug increasingly deeper in order to reach the water table; perhaps, due to this reason, wells decreased in number. 46 wells were closed in the 5th century, 28 wells in the 4th century, and 13 wells in the 3rd century (Fig. 13).[119] Over time the total number of private water sources in the Agora area remained fairly steady. Furthermore, starting in the second half of the 4th century, several wells were converted to cisterns.[120] Cisterns were bottle-shaped with a small opening widening to a base (Fig. 14).[121] The entire cistern was coated with water-proof cement enabling the collection of rain water. Oftentimes several cisterns were joined by tunnels creating a cistern-system with a higher retaining capacity. Cisterns were on average only three to seven meters deep and would have involved less overall effort to construct than wells; however,

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[116] Camp 1977, 180.
[117] Camp 1977, 145-147. However, this conclusion is primarily dependent upon the closing dates of cisterns (Camp 1977, 146 admits this). Only a few cisterns retained POU deposits (i.e., O 20:1) thus their dates are derived solely from closing dates, and perhaps further off from construction dates than a POU deposit would reveal.
[118] Camp 1977, 147-149. "For the third century some twenty-seven cisterns are known…. The figures are almost identical for the second century."
[119] Numbers from Camp 1977 catalog. Although it should be noted that the large number of wells closed in the 5th century B.C.E. could be inflated owing to the Persian destruction of Athens (14 operating wells were closed).
[120] Camp 1977, 148-149.
[121] Camp 1977, 145: the tops were ca. 0.80-0.90 m diameter and the bottoms ca. 2.50 to 4.50 m diameter.

they did require specialized materials and skills. As well, cisterns would have been effective sources of water in an area suffering from a drop in the water-table. The development of an industry specializing in the construction of water collection sources reflects the increasing urbanization of Athens in the form of private infrastructure.

Wells and especially cisterns seem to have been cleaned fairly regularly, as makes sense with regards to recovering useable water vessels,[122] keeping the well unclogged, and preserving the purity of the water supply. This regular activity of cleaning a water source (in addition to the purpose-made features mentioned above) demonstrates the care and maintenance of wells and cisterns designed as substantive, long-lasting resources. It has also been suggested that foodstuffs, primarily wine, could be lowered into and stored in the cool subterranean waters.[123] In some wells, and more rarely in cisterns, a period of use (POU) deposit (or rarely two discrete deposits) has been identified (i.e., Fig. 10). Such strata are characterized by a (very) high percentage of complete or semi-complete water vessels that were presumably dropped in during use and not recovered.[124] While there are 30 POU deposits dating to the Archaic period, there are only 16 in the Classical period (Fig. 15), and in fact none date to the period ca. 480-425 B.C.E.[125] POU deposits provide an assemblage of artifacts, specifically water-jugs, related to the

[122] The fact that few metal water vessels have been recovered from any Athenian wells prior to the Roman period demonstrates the frequency with which valuable vessels could have been recovered. For an example of a bronze hydria in well H 12:6 (425-400 B.C.E.) see Thompson 1940, 96.

[123] Thompson 1951, 50. This suggestion is determined from the discovery of a broken but complete jug (P 20786 = *Agora* XII no. 1665) with a cork in its mouth found in well R 12:1. However, neither Thompson nor Sparkes and Talcott 1970 mention a specific stratigraphic layer or depth to contextualize this find and neither mention the possible existence of a POU deposit for the well. Thompson cites literary sources dating centuries later concerning the practice of storing wine in a well.

[124] Complete assemblages are not published for any POU deposits. However, the POU deposit of Well H 12:11 (410-390 B.C.E.; near the Tholos) contained at least 26 relatively complete water-vessels: 17 black-glazed oinochoai, four coarse-ware jugs, two red-figure oinochoai, a black-figured hydria, a black-glazed hydria, and a table-amphora. These counts were taken from vessels published in Young 1939 and/or Sparkes and Talcott 1970.

[125] Clearly wells were cleaned less often in the Archaic period (these deposits are spread out over the 6th century and not a reflection of the Persian destruction, which only closed 4 POU deposits). That said, many Archaic wells did include carved footholds and around half of them did not include POU deposits. In the Classical period, wells seem to have been meticulously cleaned (evident from the absence of POU deposits from 480-425 B.C.E.).

actual use of a well or cistern. In addition, POU deposits provide a use-date, oftentimes the closest date modern scholars can ascertain providing a terminus ante quem for the construction of a well. However, the rate at which a use deposit might accumulate and how often a well was cleaned out render the chronological usefulness limited, at best.

Modern scholarship focuses on the closing of a well or cistern. Occasionally, i.e., when the shaft of a well collapses, it is possible to determine exactly why a water source was closed (Fig. 10, G 11:8). However, in most cases it is difficult to determine the reason a water source was abandoned. Wells and cisterns were closed by filling them with anything and everything on hand, often jumbled together: crushed bedrock, sediment, ceramics, faunal remains, and architectural material. Sometimes stratigraphic layers of discrete dumps can be discerned in these fillings, and conclusions can be drawn whether a layer represents a steady accumulation or a single-event deposit. Most importantly the large number of varied artifacts found in well and cistern deposits generally allows for a confident date for their discard and the well or cistern's closing. In fact, the large number of artifacts found in wells directly contributed to the establishment of chronological frameworks for artifacts, particularly ceramics.[126]

The Athenian recovery after the Persian destruction in 480/79 B.C.E. resulted in the closing of at least 17 wells (Fig. 16).[127] The closing of these deposits provided a strong chronological fixed point associated with a large assemblage of material, which aided the establishment of modern ceramic typologies and chronology.[128] The assemblages in these

[126] Talcott 1936 uses the association of kalos names inscribed on vases, and Vanderpool 1946 uses the association of inscribed ostraka, both found dumped in a well with numerous other ceramics. These names, known from Athenian literature, were utilized as fixed points in ceramic chronology. For a response to these techniques see Francis and Vickers 1988. Rotroff 1997, 11-36 discusses the use of closed deposits in the development of Athenian ceramic chronology.

[127] Shear Jr. 1993 details 16 of these wells in addition to five other deposits; Camp 1996, 242-252 describes well J 2:4 as another clear example of this activity.

[128] Shear Jr. 1993. His analysis has, in turn (through comparing ceramics found in fill layers), demonstrated convincingly that the Building F complex, the initial construction of the Great Drain, the Old Bouleuterion, and the

deposits, in addition to five filled pits, reveal a strong similarity in ceramic formal and iconographical development. These deposits were filled with a variety of artifacts– ceramics, potter's clay, architectural fragments, deposits of mudbrick, faunal material– which provide our best extant evidence for daily life in the Archaic period in the region around the Athenian Agora.[129] In fact, wells and their deposits provide clear evidence for the development of the Athenian Agora, particularly in the Archaic period since structures of that period have largely disappeared due to the Persian destruction and later construction activity.[130] Wells closed in the 8th and 7th centuries B.C.E., located in the middle of the open Agora square, have provided evidence concerning the initial demarcation of the area.[131]

In all, over 60 wells have been discovered in this area to have been closed in the Archaic period, by far the most wells for such a span of Athenian history.[132] The filling of so many wells in a little over a century can be partially explained by historical events such as the Persian destruction; however, it can more clearly be understood as a symptom of Athenian urbanization. The fact that most wells were unlined in the Archaic period rendered them more susceptible to collapse. Later wells were better constructed, often with well-heads and tile linings, demonstrating the long term investment made by the Athenians in the Classical and Hellenistic periods. Furthermore, the large number of wells and their contents testifies to the domestic nature of the Agora area during the Archaic period, as opposed to the later public nature adopted over

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Stoa Basileios were all constructed prior to the Persian destruction *contra* Francis and Vickers 1988 and Thompson 1981.

[129] In particular, J 2:4 has been identified as providing the best dataset for an Archaic Athenian domestic assemblage, the subject of a forthcoming study by Kathleen Lynch.

[130] The Athenian Agora refers to the area excavated. It is likely that another area served as the Agora in the Archaic period (see Chapter 3).

[131] Shear Jr. 1978, 4-5. As well, Shear Jr. argues here that closing of 17 wells around the periphery of the Agora in the second quarter of the 6th century B.C.E. is due to the rise of the tyranny of Peisistratos.

[132] For Figure 13 (the units as centuries are set by the published data concerning cisterns), 15 of the wells closed in the 5th century were due to the Persian destruction and should count as Archaic wells. Even if the Persian destruction wells were excluded from the count altogether, the Archaic period would still have a significantly large number of wells.

the course of the Classical period. The construction of large-scale public water sources in the late Archaic and early Classical periods enabled subsequent development to abandon a large number of wells. New private water sources generally took the form of cisterns, a specialized adaptation adopted due to the receding water level of the region. In such a manner, Athenian practices reacted to the natural environment, as well as the developing urban space.

Specifically, the Persian destruction deposits provide a stunning account of the initial effort the Athenians undertook to redevelop and improve the Agora region in the early Classical period. These deposits have primarily been cited as evidence pertaining to the cleaning up of the destroyed Agora; however, the presence of re-deposited dug bedrock (i.e., not from the collapse of a well-shaft) in several of these deposits most likely provides direct evidence of subsequent construction activity (Fig. 17). Dug bedrock found in several of the Persian destruction deposits would probably not have been produced due to the destruction of the city but rather in conjunction with earth-leveling related to later construction. Of the closed eight wells and one additional deposit (interpreted as an aborted branch of the Great Drain) filled with dug bedrock only one well was not built over in the Classical period.[133] In fact, the direct association between the deposits filled with dug bedrock and subsequent construction activity is highlighted by the fact that only one Persian destruction well that was constructed over does not contain dug bedrock.[134] Further study of these wells containing crushed bedrock could shed light upon the post-Persian destruction construction projects and city planning of both a private and public

[133] The eight closed wells: Shear Jr. 1993, 403-404, B 19:10, D 17:10, G 11:3, G 11:8 (an inactive well by this period), H 12:15, J 2:4 (Camp 1996, 242-252), Q 21:3, R 12:1. The aborted branch of the Great Drain: Shear Jr. 1993, 404, Pit L 5:2. R 12:1 is the one well not constructed over; however, publications referencing the well make it possible that it was constructed over in the Classical period, but no explicit mention is made concerning its later context. Modern scholarship does mention Classical foundations in the area of R 12:1, and perhaps the bedrock was dug for this construction project (Thompson 1951, 50-51).

[134] Shear Jr. 1993, 405 places B 18:6 under Room 6 of House D in the Industrial District. This well had collapsed prior to the Persian destruction.

nature, in the Agora area.[135] Such planning was clearly associated with the process of urbanization, for it seems probable that the closing of so many active wells was only enabled by the development of urban infrastructure providing water.[136]

While the long term use of both wells and cisterns can obscure their construction dates, it highlights the gravity of the decision (or necessity) to abandon a water source. The closing of three wells, in addition to other deposits, has been linked to the earthquake of 426 B.C.E.[137] Sixteen wells whose abandonment has been dated from 410-400 B.C.E. have been argued to be related to the troubles at the end of the Peloponnesian Wars: the siege of Athens and/or the rule of the Thirty Tyrants.[138]

Overall it can be seen that Athenian activity concerning water supply, on both a private and public level, effectively re-shaped the Agora area. Over time more water was piped in than before and, on a smaller-scale, additional investment was employed for private wells and cisterns. Tile linings enabled the extended use of wells. Cisterns, equipped with water-proof cement, enabled the creation of a water source in an area with a receding water table. Most likely, there were more water sources available in both the 5th and 4th centuries B.C.E. than can be garnered from the number of wells and cisterns filled in during these centuries.[139] Regardless, with the construction of monumental public water sources it seems likely that the quantity of readily available fresh water increased during these centuries and into the Hellenistic period.

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[135] B 18:6 (not containing re-deposited bedrock), B 19:10, D 17:10, H 12:15, J 2:4, and Q 21:3 were all found underneath Classical residences/workshops. G 11:3 and G 11:8 were found filled in and covered by large quantities of re-deposited bedrock, a leveling fill for the Tholos. Pit L 5:2 was found underneath the Panathenaic Way.
[136] See above concerning the first phase of the Dipylon Fountain-house and the Klepsydra spring-house.
[137] Rotroff and Oakley 1992, 53-57. The wells cited here are E 13:1, I 17:1, M 18:8, and R 13:4. Rotroff and Oakley associate them with the earthquake that caused the deposition of a large amount of public dining debris, and it is even postulated to have shifted the NE corner of the Parthenon 2.5 m.
[138] Camp 1977, 143-144; Thompson 1981, 349-350.
[139] I.e., some of the wells and cisterns closed in the 3rd century B.C.E. were likely to have been used in the 4th and maybe even 5th centuries B.C.E.

An increase both in the quantity and variety of water sources relates well to the urbanization of the Agora and its surrounding region. Both the state and private citizens made important investments into the region, resulting in an improved infrastructure providing water for inhabitants and visitors. The development of this improved water infrastructure responded directly to the natural environment as well as to the developing urban use of the area.

Water Vessels and the Athenian Urban Lifestyle

This section aims to identify and analyze the production and usage of water vessels that were primarily recovered from period-of-use (POU) deposits in and around the Athenian Agora. The fabric and formal characteristics of a vessel directly determined its intended and potential functions as relates to filling with water at a fountain, well, or cistern; transporting the water to its intended destination; storing water for a short or long period of time; and serving water to various individuals. The development of urban infrastructure and specialization in the construction of water sources provided the Athenians with a variety of choices in their use of water-vessels. It is argued here that several changes in ceramic functional characteristics, particularly those noted at the turn of the 5th to the 4th century B.C.E., demonstrate the development of a more urbanized Athenian lifestyle with regards to water-related activity.

Analyzing and even identifying the vessels excavated in a POU deposit contains its own series of challenges. There is not always a clear change between the POU deposit and a dumped fill above. Even when there is, the difference might occur gradually as vessels dropped into the bottom of a well during use would not have necessarily stacked in a uniform manner, might have shattered against the well-wall during deposition, and might have floated gently above other sunken vessels. This analysis of vessels in POU deposits is derived primarily from the catalogs

and comparanda published in Sparkes and Talcott's 1970 study *The Black and Plain Pottery of the 6th, 5th, and 4th Centuries B.C.* (*Agora* XII), and Rotroff's publications of Hellenistic tableware (1997, *Agora* XXIX) and plainware (2006, *Agora* XXXIII). Ceramic catalogs provide a somewhat objective sample since the vessels were chosen to be representative from a large number of deposits. The above three catalogs provide sufficient stratigraphic detail to verify a vessel was found in a POU layer.[140] Only vessels found in POU deposits dating from ca. 600-250 B.C.E. are included. The resulting count of 343 vessels comprises the POU sample. However, when noted, vessels published in individual reports (i.e., the Persian destruction deposits) are included for further detail in the following discussion.[141]

It should be emphasized that these published vessels represent a selection determined by a number of criteria appropriate to each publication and are, therefore, not a comprehensive picture of POU assemblages. As well, POU deposits represent a formation process whereby mostly complete or intact vessels are preserved. For this reason, vessels excavated from these deposits were more likely to be inventoried and subsequently published.[142] Therefore, one would expect a large number of vessels from all different ceramic types to be published. On the other hand, water vessels in coarse fabric were less likely to be curated and published. Clearly, water-vessels, particularly if undecorated, were present in a larger proportion within POU deposits than this study depicts.

[140] Unfortunately *Agora* XXIII (Attic black-figured pottery) and *Agora* XXX (Attic red-figured and white-ground pottery) were excluded due to their lack of detail concerning precise stratigraphic layer.
[141] These are not included in the POU sample since they would heavily weight single deposits. However, they are useful for a closer analysis of the details, at least for the few POU assemblages that have been published.
[142] For example, the POU deposit in H 12:11 (410-390 B.C.E.) contained at least 26 relatively complete water-vessels (all inventoried and published in Young 1939 and/or Sparkes and Talcott 1970).

Figure 18 gives the total quantity of each type found in the entire POU sample dating from the 6th through the 3rd centuries B.C.E., excluding the forms with insignificant numbers.[143] Three distinct categories emerge (Table 1): 1) the vast majority are jugs since oinochoai are formally similar to jugs but include a glaze or painted finish; a middle category that includes 2a) vessels formed for acquiring, storing, and transporting liquid such as oil, wine, or water (amphorai, hydriai, kadoi, pelikai) as well as 2b) vessels unusual to such a function (bowls, chytrai, drinking vessels,[144] lekanai, plates, and unguentaria); and 3) the other category[145] that most likely represents discarded, contaminated, or exceptional items.

By breaking down the POU sample chronologically, further detail is provided concerning the use of vessels over time (Figs. 19-21). Concerning individual vessel-types, the jug form, whether in fine or coarse fabric, remains popular in every period. Both the hydria and kados form disappear by the Hellenistic period. Both bowls and drinking vessels, particularly kantharoi, become more common in the Hellenistic POU sample. Chytrai, lekanai, plates, and unguentaria never seem to appear frequently. Perhaps the presence of these latter vessels in the POU sample can be seen as intermittent, due to their use near a well, or due to the well as a convenient discard area. Furthermore, the formation process of a POU deposit, consisting of largely intact or complete vessels, explains the frequent publication of non-water vessels from POU deposits. Thus, a POU deposit should be expanded to include both water-vessels relating to the well's use, intact vessels deposited in the well, either during use or immediately after abandonment, and

[143] The vessel types with insignificant numbers are combined in the "other" category. For the purposes of this study an arbitrary cut-off of six or more published examples in the POU sample suffices for inclusion. Although it should be noted that every single identified type in this figure has at least 10 examples in the POU sample.
[144] Drinking vessels include any form referred to as cup, kylix (none found in POU sample), cup-skyphos, skyphos, or kantharos. As discussed below, the vast majority found in the POU sample are kantharoi.
[145] The other category includes 34 different vessel-types each with 5 or fewer examples in the entire POU sample.

vessels filtered down from a dumped fill above. The large number of vessels in the "other" category, in all periods, supports an expanded definition.

While no complete publication of a POU assemblage exists, some have been published in detail including most inventoried vessels (most likely any nearly complete vessel). In particular, Shear Jr.'s 1993 publication of the Persian destruction deposits provides a significant assemblage of vessels from POU deposits dating ca. 500-480 B.C.E. (Fig. 22).[146] The number of vessels in fine fabric (93) and coarse fabric (89) are similar; although, Shear Jr. notes that a large number of coarse fabric sherds were discarded shortly after excavation.[147] The large number of lamps can probably be attributed to their one-off presence in a single deposit (G 11:3). Together, jugs and oinochoai outnumber any other type; however, from category 2a, amphorai (both storage and table varieties), kadoi, and hydriai appear in prominent numbers. As well, the pelike closely resembles the amphora form, as the olpe does a jug. None of the vessel-types in category 2b are present in any prominent number, and it seems logical to identify vessels in categories 1 and 2a (in addition to the olpe) as vessels that were used by Athenians for fetching well water ca. 500-480 B.C.E. Figure 23 presents drawings of the Archaic POU assemblage.[148]

The water-vessel types in the Archaic POU assemblage each possess two of the functional characteristics important to vessels used to collect water from a well or cistern: a

[146] Four wells with POU deposits are associated with the abbreviated period of the Persian destruction and post-war construction: E 15:6, G 11:3, H 12:15, and R 12:4. Well G 11:8 is excluded since a collapse of bedrock had closed it earlier (ca. 550-500 B.C.E.). Well J 2:4 could be added to this list and its complete publication is the subject of Lynch forthcoming.

[147] Shear Jr. 1993, 392-393. "The numbers need also to be viewed with caution for the further reason that the proportion of figured pottery to black glazed is far too high, while the proportion of household pottery to decorated pottery is far too low. Over the years, excavators have been more assiduous at collecting, restoring, and recording figured pottery than any other kind, while they were often content to leave many joining fragments of a black-glazed pot in the storage tins. On the other hand, the plain and coarse household wares which form the bulk of most excavated lots of pottery have been heavily selected in almost all cases, and the many unidentifiable wall fragments have been mostly discarded."

[148] I thank Kathleen Lynch for allowing these figures to appear within this study. They derive from her efforts to re-publish *Agora* XII (Sparkes and Talcott 1970). While the olpe does not appear here (due to space) it can be assumed to have been a candidate for water-collection due to its similarity to the jug/oinochoai form although of a smaller capacity.

sufficient capacity and appropriate form. In particular, vessels need handles to which rope can be tied for collecting water. As well, these vessel-types are all of a closed form and are taller than wide. The number of water-vessels in fine and coarse fabric is roughly equal in the Persian destruction POU deposits.[149] The vessels in category 2b lack the functional criteria of capacity and appropriate form with handles.

Traditionally, kadoi are identified as the primary vessel-type for fetching well-water due to iconographic representations of this activity on decorated vases.[150] Iconographically, hydriai are associated primarily with the collection of fountain water.[151] However, the fact that hydriai were first developed in Athens, as seen from the Agora excavations, in the 7th century B.C.E. prior to the construction of any fountain-houses surely supports an argument for their use in wells.[152] Overall, the evidence from the Archaic POU deposits requires refinement to the modern understanding of what constituted a vessel used for acquiring water from a well. For example, the very term oinochoe (= wine-pourer) appears to be a misnomer. The vessel-type oinochoe is better understood as a jug in a fine fabric, which could be used for pouring wine, fetching water, or several other tasks involving liquids. With regards to the oinochoe form, the type known as chous (shape 3) seems to have been most popularly used at the well; for the jug form, the type labeled as cooking-ware trefoil jug is most commonly found in POU deposits.[153] While this study should not supplant prior studies of iconographic or textual references to vessels' uses,[154] it

[149] 59 fine fabric water vessels and 57 coarse fabric water vessels were found. Of the 59 water vessels in fine fabric, 16 were decorated with black-figure iconography. Although, perhaps such a breakdown is biased by curation practices, allowing us to suppose that coarse fabric vessels did in fact dominate the assemblage.
[150] Amyx 1958, 186-190; Sparkes and Talcott 1970, 201-203.
[151] Amyx 1958 200-201; Sparkes and Talcott 1970, 200-201.
[152] Sparkes and Talcott 1970, 201.
[153] Of the nine extant Archaic examples of chous (shape 3), six were found in POU deposits (from Sparkes and Talcott 1970, 244-247, see esp. notes and comparanda to no. 109). Of the 34 examples of chous (shape 3) published in Sparkes and Talcott's catalog (6th-4th centuries B.C.E.), 11 were found in POU deposits. Sparkes and Talcott 1970 publish (in total) 30 trefoil cooking ware jugs, of which 20 were found in POU deposits.
[154] I.e., Amyx 1958.

should serve to augment them. Clearly a wide range of vessel-types, all with appropriate and similar functional characteristics, sufficed for the activity of fetching well-water in Archaic Athens. In addition, the presence of these vessels could indicate cool storage within wells. Vessels identified today as amphorai, hydriai, jugs, kadoi, oinochoai, olpai, and pelikai, whether in fine or coarse fabric, were probably all used in Archaic Athenian wells.[155]

In the Classical period, there are no POU deposits dating to the period ca. 480-425 B.C.E. (Fig. 15), perhaps demonstrating the regular cleaning of wells.[156] Almost all the vessel-types in the Archaic POU assemblage disappear from the excavated record: coarse fabric hydriai,[157] coarse fabric kadoi,[158] coarse fabric amphoras,[159] and coarse fabric trefoil jugs;[160] although, it should be noted that black-glazed oinochoai (shape 3) in fine fabric continue.[161] The disappearance of so many forms likely reflects the formation processes in the Athenian Agora. Deposits were rarely a product of all activity in the area, i.e., gradual accumulation of objects utilized locally. Instead, the deposition of objects was precipitated for a specific reason, most often construction-related activity. Since water was probably acquired from wells during the period 480-425 B.C.E., one would expect water vessels to exist in the archaeological record.

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[155] Metal vessels were also used (Thompson 1940, 96 reports a bronze hydria in the late 5th century B.C.E. POU deposit of H 12:6). Lynch (in Lawall et al. 2001) provides further evidence from well J 2:4 (an additional Persian destruction well, with a POU deposit) for the presence of pelikai in use-deposits (3 black-glazed vessels were found here). In addition, the complete publication of this well (Lynch forthcoming) provides further evidence of multiple vessel-types present within the POU deposit.

[156] Camp 1977's catalog does publish ten wells closed during this period, so it is surprising that none include a POU level. For example, in the Archaic period, about half of the wells had POU deposits.

[157] Sparkes and Talcott 1970, 200-201.

[158] Only one kados has been found dating to after 480 P 21953 = *Agora* XII 1607 (460-440 B.C.E., not from a POU deposit). Amyx 1958, 188-189 first noted the disappearance of kadoi in the mid 5th – 4th centuries B.C.E. and attributed it to the use of metal vessels; Sparkes 1962, 129 n. 74 attributed the disappearance to a lack of POU deposits for this entire period; Sparkes and Talcott 1970, 202 mention the lack of POU deposits from 480-425 B.C.E. but acknowledge the form did disappear as there are many POU deposits dating to the end of the 5th century B.C.E.

[159] Sparkes and Talcott 1970, 187 mention that Attic household ware amphorai are poorly represented in this period. Only one complete amphora is published from 470-460 (P 5173 = *Agora* XII 1448) and some fragments with a graffito (P 10823 = *Agora* XII 1449).

[160] Sparkes and Talcott 1970, 205.

[161] Probably because of their function as wine jugs.

However, both POU deposits and the vessels normally found within disappear at the same time. Therefore, it is likely that the presence of water-vessels in the archaeological record is dependent upon their deposition during the period-of-use of a water source. It is surprising that these vessels do not appear frequently in other deposit-types including construction fill and local discard. For this reason, the published archaeological record of Athens cannot be interpreted as a direct reflection of all forms of localized ancient activity. It is even possible to suggest that discard would have been removed from the Agora area, except when deposited for a reason such as construction fill or during the period-of-use of a well.

However, nine POU deposits date to the relatively abbreviated period 425-390 B.C.E., allowing a chronological comparison of the assemblages used at wells.[162] As noted above, around this time sixteen wells were closed, tentatively related to the period near the end of the Peloponnesian Wars.[163] The large number of wells closed represented a disruption of normal activity by abandoning a water source. Similarly, abandoning the vessels from a POU deposit would also signify a disruption of normal activity. Therefore, it should be no surprise that about half of the wells closed during this turbulent period included POU deposits. While I have made an effort to track down every published vessel from these deposits, publications refer to an unquantified number of additional water-vessels.[164] As such, the counts of vessels found in POU deposits from the late 5th century B.C.E. should be viewed with extreme caution (Fig. 24). While

[162] As published in Sparkes and Talcott 1970 and Camp 1977: B 19:11, C 19:9, C 19:11, E 16:1, H 12:6, H 12:11, O 19:4, Q 10:4, and U 13:1. I found no published ceramics specifically attributed to the POU layers of C 19:9 or Q 10:4. J 5:1 is excluded, although dated to this period by Sparkes and Talcott 1970, due to revisions to its stratigraphy mentioned in Rotroff 2006, 458.
[163] As in Camp 1977, 143-144; Thompson 1981, 349-350. They prefer to relate it to the rule of the Thirty Tyrants.
[164] I.e., Shear Jr. 1975, 355-356 mentions "plain jars of various sorts" found in the use-deposit of U 13:1; however, he only publishes 3 table amphorai from the POU layer. I have found nothing else specifically from this deposit. Sparkes and Talcott 1970 mention a "heavy use-filling" for B 19:11 but only publish six vessels. In addition, uninventoried vessels/sherds are surely missing.

the assemblage is dominated by vessels in fine fabric (46 out of 66), this is probably due to publication bias, and one should assume that vessels in both fine and coarse fabric were used.[165]

The assemblage of water vessels from the end of the 5th century B.C.E. diverges slightly from those found at the end of the Archaic period (compare Figs. 23 and 25). Most of the vessel-types that disappeared from the archaeological record ca. 480-425 B.C.E. reappear in the POU deposits dated ca. 425-390 B.C.E. This observation further supports the conclusion that the appearance of artifacts within the Athenian archaeological record is dependent upon specific formation processes. The major exception is the kados, a vessel no longer evident from this period through the Hellenistic period.[166] Another marked change is that the handles of pots in the assemblage from the end of the 5th century B.C.E. are lower along the body of the vessel, in comparison to vessels from the earlier POU deposits.[167] The change in handle characteristics, similar across several vessel-types, emphasizes the importance of appropriate handles for lowering a vessel into a water source. Two advantages can be hypothesized concerning this formal development in relation to the collection of water from wells. First, a juncture between the handle and vessel on the body, as opposed to the more fragile neck, would be more resistant to mechanical stress and less likely to break if struck against a well-wall. Second, tying a rope near the bottom of a handle would provide leverage near the center of gravity of the vessel,[168]

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[165] One of the vessels is the bronze hydria mentioned above. The majority of vessels are from deposits H 12:11 and O 19:4, of which a large number of fine fabric vessels, specifically oinochoai, have been cited.

[166] See n. 158 above.

[167] Compare Figs. 23 and 25. Sparkes and Talcott 1970 observe this trend: Hydria: pg. 200; Kadoi: pg. 202; Jugs: pg. 205 does not explicitly mention this change but merely states: "Its [Trefoil cooking ware and related jugs] history follows closely on that of the other cooking-ware closed shapes already described, hydria and kados." A comparison of trefoil cooking-ware jugs in Figs. 23 and 25, *Agora* XII no. 1641 (ca. 520-480 B.C.E.) and no. 1645 (ca. 410-390 B.C.E.), both found in POU deposits, demonstrates this transition in handle placement; For chous (shape 3) no reference to this development is cited, however, a comparison of *Agora* XII no. 106 (ca. 500 B.C.E.) and no. 118 (ca. 420-400 B.C.E.) reveals a similar change (Figs. 23 and 25).

[168] The horizontal handles of hydriai have been interpreted from iconographical scenes as used for lifting the hydria upon one's head. However, these are also positioned at the center of gravity for a vessel and might have also been developed with a use in the well with a rope in mind.

perhaps in addition to tying the rope around the mouth of the vessel or top of the handle.[169] This placement allows for a handler to have more control when swinging the vessel from above.[170]

POU deposits again become rare in the first half of the 4th century B.C.E., and again many of the vessels typically found within these deposits disappear from the Athenian archaeological record.[171] While seven POU deposits date to the second half of the 4th century B.C.E., the publication of their assemblages is insufficient, except for well Q 13-14:1. As published in Sparkes and Talcott, the POU deposit for this well included five household amphorai, three jugs, a kantharos, a lopas, and a saltcellar.[172] Sparkes and Talcott consider this a "scanty use filling" and note it includes a high proportion of imported vessels, specifically the amphorai re-used in this setting.[173] The stratigraphic contexts of transport amphoras lack extensive publication and have not been included in this study. However, the presence of imported household amphorai here perhaps suggests that transport amphoras could have been used in wells. There are also relatively few published POU deposits whose lower date falls within the latter half of the 4th century B.C.E.[174] Therefore, Figure 26 presents the totals for

[169] A similar method for tying a rope around a vessel is suggested in Sparkes and Talcott 1970, 201 n. 4 from contemporary observations.
[170] In the Hellenistic period (Rotroff 2006, basket-handled water jugs), basket-handles are created (above the vessel, as in a modern bucket). Such a development would help a handler tip only the top of a vessel; however, this handle placement is more difficult to create in ceramic (perhaps explaining its late development). It is possible that a rope was used to create a basket handle for vessels with two handles, i.e., kadoi (Sparkes 1962).
[171] Sparkes and Talcott 1970, 63, 201, 205-206 note the disappearance (in the first half of the 4th century B.C.E.) of black-glazed choes (shape 3), trefoil cooking ware jugs, and hydriai (of either cooking or household ware). In Figure 15, the POU deposits from ca. 420-360 B.C.E. consisted of the nine dating ca. 425-390 B.C.E. The two POU deposits dating from 375-350 B.C.E. (J 18:7 and Q 13-14:1) were included in the period ca. 360-300 B.C.E., and J 18:7 had very scanty use-fillings (according to deposit notes in Sparkes and Talcott 1970).
[172] *Agora* XII nos. 659, 944, 1464, 1485, 1486, 1499, 1699, 1700, 1706, and 1969, in addition to an amphora cited as a comparandum to no. 1486.
[173] Sparkes and Talcott 1970, 397. They do not mention whether the above vessels were the entire assemblage from the POU deposit or not.
[174] Only five POU deposits have a lower date ca. 350-300 B.C.E.: R13:11; B 18:7; S 19:8; F 12:3; F 16:8 and their contents have not been published in detail.

vessels from the POU sample in deposits dating ca. 360-260 B.C.E.[175] Yet again, the lack of complete published assemblages encourages caution with this figure.

However, the Late Classical/Early Hellenistic POU assemblage differs significantly from the two previous assemblages (Fig. 27). Other than coarse fabric jugs and amphorai, few of the vessels identified previously were found in POU deposits. Notably, hydriai are entirely absent, and the number of fine fabric oinochoai (jugs) has diminished drastically. Hydriai do become rare in the Athenian archaeological record from the start of the 4th century B.C.E. through the Hellenistic period;[176] however, fine fabric oinochoai are attested elsewhere. Overall, coarse fabric jugs seem to dominate the assemblage, particularly when including vessels in POU deposits dating down to 200 B.C.E. (Fig. 21). However, two vessel-types in category 2b (Table 1) appear in larger quantities: handleless bowls and drinking vessels. The lack of handles most likely excludes the use of bowls within a well. However, the vast majority of drinking vessels from POU assemblages ca. 360-260 B.C.E. are of the type known as kantharos.[177] The kantharos became popular as a drinking vessel in the 4th century B.C.E., and one of its features are high handles extending out of the body.[178] Such handles, unlike those on other forms of drinking vessels (popular prior to the kantharos), would have been ideal for use at the well (see Fig. 44). Furthermore, the classical kantharos form was sturdier than other drinking cup forms such as cups or kylikes.[179] It is possible that the large number of kantharoi in use-deposits, in contrast to

[175] All of the POU deposits from this figure include an upper date from the 4th century B.C.E. Such an extension should, in theory, matter little as Rotroff 1997, 11 concludes that, "the real beginning of the Hellenistic phase of Attic ceramics, then, should be placed around 275 [B.C.E.]…. By 250 [B.C.E.] most of the old Classical shapes had gone out of production and the assemblage had achieved a fully Hellenistic character."
[176] Coarse fabric hydriai practically disappear from the archaeological record around the beginning of the 4th century B.C.E.: Sparkes and Talcott 1970, 201 mention this as "the final stage" in the form's development. Rotroff 2006, 82 mentions a gap of three centuries until the 1st century B.C.E. where a single example of the form was found.
[177] Sixteen of the eighteen drinking vessels from Figure 26 are kantharoi. Similarly, 33 of the 46 drinking vessels assigned to the period ca. 400-200 B.C.E. in Figure 18 are kantharoi.
[178] On drinking vessels, see Chapter 5.
[179] I thank Kathleen Lynch for pointing out this fact.

other drinking vessels, is explained due to their use within a well. Perhaps these vessels were used to fetch water to be consumed on the spot. Regardless, coarse fabric jugs continued to dominate the late Classical/Early Hellenistic POU assemblage.

Another sharp difference between the late Classical/early Hellenistic POU assemblage and those prior is the fabric used for water-vessels. The cooking ware fabric that most 5th century B.C.E. hydriai, jugs, and kadoi were produced in disappears from the Athenian ceramic repertory at beginning of the 4th century B.C.E. The cooking ware fabric used in Attica and Aigina from the 7th through 5th centuries B.C.E. was produced by beating the vessels with a paddle after either coiling or wheel throwing the shape.[180] The beating created thinner walls and therefore a lighter vessel, superior perhaps when transporting water over long distances. Furthermore, the beating caused the particles of clay and temper to align tightly creating a vessel with low porosity. As noted, the number of vessels in a fine fabric has diminished. The fine, levigated fabric used in the 6 and 5th centuries B.C.E. also contained a relatively low porosity. Thus, the earlier vessels can be seen as superior in terms of storing water over long periods of time owing to the low incidence of evaporation and therefore water loss.[181] In contrast, the coarse fabric of 4th century water jugs was wheel made. The walls were thicker, creating a heavier vessel, and more porous, allowing for more evaporation. However, since these vessels were wheelmade, less effort and time was expended in production.[182] In fact, one can see the adoption of this fabric as move towards mass-production.

Between the Archaic and Hellenistic periods, two crucial functional characteristics of water-vessels change: a decrease in capacity and an increase in porosity. The decrease in

[180] For the fabric see Sparkes and Talcott 1970, 34-36 and Farnsworth 1964. As mentioned in Chapter 1, it is impossible to distinguish between the Attic and Aiginetan vessels with the naked eye. So it is not possible, at this time, to estimate how many were imports.
[181] Schiffer 1990 demonstrates the effects of porosity on water vessels through experimental archaeology.
[182] I thank Joey Lillywhite for suggesting that I consider the energy spent creating various vessels.

capacity is evident from the disappearance of the hydria form and perhaps the appearance of kantharoi in POU deposits. Hydriai were about twice as large as water-jugs and kantharoi even smaller, demonstrating a decrease in capacity.[183] The increase in porosity is probably related to the decrease in capacity. Smaller vessels would have been used to store water for a shorter period of time meaning that increased evaporation would not have amounted to much water loss. Furthermore, increased evaporation would have acted to cool the water by expending energy in the evaporation process.

These changes in the functional characteristics of water vessels relate to a change in the Athenians' lifestyle. Water was no longer stored on as large a scale as before, evident from both the decrease in capacity and increased porosity. Both hydriai and kadoi were vessel forms utilized for acquiring, transporting, and storing water; on the other hand, jugs and oinochoai were equipped with a spout suitable for pouring water effectively. In the 4th century B.C.E., the all-purpose, smaller water-jug became the predominant vessel in which water was acquired, transported, and served. It was well-equipped for these tasks due to its fabric and form. However, it was not suitable to water-storage. These observations concerning the chronological development of the various Athenian vessels used in wells can be applied to the earlier conclusions concerning the urbanization of the Athenian water-supply. Numerous fountain-houses, spring-houses, wells equipped with purpose-made features, and cisterns lined with water-proof cement all testify an increased investment over the course of the Classical period in long term water-supply options with local availability. With water reliably available at a shorter distance,[184] both storage and transport became minimal factors to the urban lifestyle with regards

[183] Sparkes and Talcott 1970, 200 mention that the typical size of a hydria was two choes (6.4 liters) and some were as large as 5 choes. Jugs (pg. 205) and oinochoai (pg. 63) were typically one chous (3.2 liters).
[184] This conclusion is not to disagree with the drought proposed in Camp 1982, as a drop in the water-table did occur. Rather, this emphasizes the success with which the Athenians dealt with a possible drought.

to the day-to-day acquisition of water. Instead smaller, mass-produced, all-purpose vessels became the norm and typified the Athenian urban lifestyle of the 4th century B.C.E.

Conclusions

The act of fetching water was at all times important to the Athenian population. The hydriai bearers on the Parthenon frieze testify to its prominence in civic ritual. Water-bearers in festival processions were on display to the community. Coinciding with the appearance of monumental fountains within the city, iconographical representations of women fetching water with hydriai at a fountain appear on decorated hydriai. While the popularity of such scenes did not persist, the city did effectively provide the citizens with a large supply of water piped in from afar. With respect to the water supply, the cityscape of Athens urbanized over the course of the 5th and 4th centuries B.C.E. through the development of public infrastructure. A specialized industry provided long-lasting infrastructural investments in the form of cisterns and wells, essentially the urbanization of private areas. It is probable that the changes in the water-vessel assemblage over time relate directly to such urbanization. As a wider variety of water sources were available locally, the variety of vessels used to fetch water dropped dramatically. Out of a large assemblage of possible water vessels, primarily small, spouted jugs of a coarse, wheelmade fabric were used in the late Classical/early Hellenistic periods. One multi-purpose, mass-produced vessel-type served to acquire, transport, and pour water at this time. Notably, the function of water storage seems to be less important in the urban environment beginning in the 4th century B.C.E. In such a manner, it seems as if the development of an urban cityscape directly contributed to the development of the Athenian urban lifestyle, with regards to water.

Chapter 3: The Supply and Storage of Food in Classical Athens

This chapter aims to build upon the conclusions of the previous chapter in an analysis of the supply and storage of food in Classical Athens with a focus on the contrast between rural and urban practices. However, Chapter 4 will consider food processing in relation to storage. The importance of agriculture to the Athenians is demonstrated through an overview of agrarian cult. Several pragmatic aspects of agrarian cult ritual are identified: an awareness of the seasonality of agriculture production, anxiety over the unpredictability of agricultural production, the connection of rural, agricultural areas to the city of Athens, and a communal accounting of the harvest. In the second section, storage in both the rural and urban context is contrasted. While large-scale private storage is attested in the Attic hinterland, at no times does it appear significant in the urban center of Athens. In fact, domestic storage capacity in the urban environment appears to diminish over time, implying that the population of Athens had regular access to foodstuffs in the marketplace. The final section explores an investment in commerce made by the Athenians in their port of Piraeus and in the Agora and environs. A historical overview of grain crises and the methods by which the Athenians stimulated imports of foodstuffs reveals the vibrancy of the market. In particular, grain crises seem to be a concern of the 4th century B.C.E. and not of the 5th century B.C.E. due to different political environments. It is likely that the movement of population from the country to the city during the Peloponnesian Wars encouraged the necessity of available foodstuffs in the urban environment. Furthermore, such an event possibly catalyzed the development of an Athenian urban lifestyle.

The Pragmatics of Athenian Agrarian Cult

The prominence of agrarian ritual in cult throughout the Classical period demonstrates the importance of the annual agricultural cycle to the Attic population. This study aims to treat Athenian cultic ritual from an etic perspective by identifying activities useful to the population. The geographical placement of Athenian agrarian cult centers acted to demark the agricultural territory of Athens. Agrarian rituals expressed the anxiety of the Athenians who recognized the unpredictable nature of the agricultural cycle. Public festivals were an occasion to demonstrate and celebrate the community's success in agricultural production. Cultic tithes not only enabled these festivals and the public distribution of foodstuffs but were also an occasion for the community to take account of seasonal production.

François de Polignac has presented a strong argument that the development of cult led to the development of the Classical Greek polis– the city and its countryside.[185] A cornerstone of de Polignac's thesis is the placement of cult in the countryside, acting as a physical marker laying symbolic claim to the territory. The geographical placement of prominent cult centers along the borders of Attica is comparable. The Athenian incorporation of the cult of Dionysos of Eleutherai in the 6th century B.C.E. has been interpreted as a territorial claim, in opposition to the neighboring Thebans, over the fertile plain located below Eleutherai.[186] Dionysos of Eleutherai was associated with the City Dionysia, an important Athenian festival celebrating wine. The annual procession in worship of Demeter from Athens to Eleusis can also be interpreted similarly as the population of the city displaying its close association with another fertile region, identified

[185] Polignac 1995, 32-87.
[186] Parke 1977, 125-126. The Athenians transferred the statue of Dionysos of Eleutherai to the city theater. Paus. 1.20.2; 1.38.8 records how the border of Attica and Beoetia changed to Kithairon after this acquisition.

in Eleusinian myth as the birthplace of agriculture.[187] Both Eleusis and Eleutherai were located at the borders of Attica, and these cults acted as a sacred boundary marker of Athenian identity to the neighboring Megarians and Thebans (Fig. 28).[188] The location of cultic ritual demonstrates methods through which the Athenians defined their agricultural territory, which formed an integral part of the Athenian polis.

The Classical Athenians identified first and foremost with Athena and her olive-tree, an association displayed prominently on the Acropolis by the sculptural program of the Western pediment of the Parthenon (Fig. 5) as well as Athena's olive tree growing in the Temple of Athena Polias. According to legend, the cuttings from this sacred tree were used to plant numerous sacred olive trees throughout Attica.[189] During Aristotle's time these trees were managed by private Athenian landowners, who in turn dedicated processed olive oil to Athena; however, he relates that previously the city used to manage the trees located on private property. The growth and management of privately owned olive trees seems to have been largely an elite practice, due to the long term investment required.[190] Olive trees need 25 to 30 years of growth before they are fully productive and even then are productive only biennially, limiting their potential for those with little land or leased land.[191] Furthermore, olive trees require intensive labor during the period in which grain is sowed, perhaps necessitating the use of hired

[187] Alkibiades' wartime procession by land and not sea in the year 407 B.C.E. can be seen as a similar symbolic claim over the countryside during a period when Sparta was occupying Dekelea. Xen. *Hell.* 1.4.20; Plut. *Alc.* 34.3-6.
[188] The sanctuary of Oropos probably functioned similarly as it passed hands from the Theban and Athenian control throughout its history. Perhaps the annual procession of Bendis to Piraeus can be seen in a similar vein. Piraeus, the port where much foreign grain would pass through annually, contained a large foreign population, which would have been linked to the city through this procession in honor of a non-Greek deity. See Parke 1977, 149-151 on this procession. The shrine of Bendis was founded in 429 B.C.E., and this festival is the occasion described at the outset of Plato's *Republic* 327a.
[189] On the sacred olive trees (*moriai*) see Foxhall 2007, 117-121; Arist. [*Ath. Pol.*] 60.1-2; Lys. 7.
[190] Foxhall 2007, 75-83.
[191] Foxhall 2007, 76. Minimal productivity begins after eight to ten years.

agricultural workers or slaves (Fig. 29).[192] It should be no surprise that the olive oil of Athena was awarded predominantly to elite athletes during the quadrennial games of the greater Panathenaia.

During the Lesser and Greater Panathenaia, held at the end of the month of Hekatombaion (June/July),[193] Athenian success was on display to both local residents and foreign visitors. In the 5th century B.C.E., every city in the Athenian empire, as well as Athenian colonies, was required to dedicate a bull to the festival.[194] In addition, the city provided over 100 sacrificial animals representing a large meat-based meal in which much of the population shared. Athena's olive oil was awarded to victorious athletes arriving from all over the Greek world in front of an international audience. It was presented in amphorai designed for the purpose and lavishly decorated with a scene pertinent to Athenian identity.[195] In fact, many of these amphorai have been found outside Athens and their message, as well as oil, would have traveled far and wide.

An account from the first half of the 4th century B.C.E. of the amount of olive oil awarded in a greater Panathenaia, 1113 amphorai each with a normal capacity of 38-39 l, reveals the large number of sacred olive trees.[196] From this account, Lin Foxhall has calculated that if the oil from sacred olive trees was collected in the manner described by Pseudo-Aristotle, three

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[192] Foxhall 2007, 78 suggests slaves to be the best force of labor in this situation.
[193] For the Attic sacred and agricultural calendar (with references to festivals mentioned in this section) see Fig. 29. The Greater Panathenaia was held every four years at a larger scale than the annual Panathenaia. The exact correlation between Athenian months and modern months is problematic since the Athenian council frequently added (intercalated) days or even months to the annual calendar at a variety of times: see Mikalson 1975 on *The Sacred and Civil Calendar of the Athenian Year*, which is used here to establish the precise date of a festival in the Athenian calendar. However, it should be noted that in some publications (i.e., Foxhall 2007) the approximate transcription of Athenian months is ca. 1 modern month later than here (i.e., here Hekatombaion is referred to as June/July but elsewhere it can be noted as July/August). Such a precise distinction is impossible to make without knowing each instance of intercalation and therefore in some years Hekatombaion would probably have fallen in June and other years in August.
[194] On this custom see Fornara 1983, 207, no. 98 (*IG* I^2 66.42); no. 100 (*IG* I^2 45.11-12); no. 136 (*IG* I^2 63.57).
[195] Amyx 1958, 178-186.
[196] *IG* I^2 2311 discussed in Amyx 1958, 182; Foxhall 2007, 117-118.

half kotylai per tree (0.405 l), there must have been between 55,000 and 65,000 olive trees sacred to Athena.[197] Interestingly, the amount of dedicated oil cited in Pseudo-Aristotle equals about 10% of an average olive-tree's yield, typical of first-fruit tithes (ἐπαρχέ) throughout Greece.[198] Foxhall's calculations have taken into account the biennial nature of olive production, representing two major harvests in the four year period these games were held; however, the calculations did not include an estimate of additional olive oil not awarded during the Panathenaia, such as the olive oil burning in the ever-lit golden lamp in the temple of Athena Polias.[199] The lamp was refilled once a year, perhaps during the Kallynteria, a festival held in the month of Thargelion (April/May) during which the temple of Athena was cleaned. Rituals in honor of Athena demonstrate the cultic use of olive oil and large meat sacrifices to promote the city's success and self-identity.

The festivals of Dionysos, associated with grapes and wine, are prominent in Athenian cultic ritual and demonstrations of identity, particularly the internationally attended City Dionysia in Elaphebolion (February/March, see Fig. 29). Vines, like olive trees, were a crop dependent upon a large initial investment– four to five years before "respectable returns"– probably discouraging smaller landowners or tenants from growing them and encouraging larger, elite landowners.[200] The grape harvest was celebrated with the festival of the Oschophoria in the month of Pyanopsion (September/October). The Oschophoria included a procession of young girls of aristocratic status bearing bunches of grapes.[201] However, the most important celebration of wine was the Anthesterion, which commenced with the opening of the wine-pithoi.[202] The

[197] Foxhall 2007, 117-121.
[198] Foxhall 2007, 118 citing Isager and Skydsgaard 1992, 173-174 with regards to first-fruits dedications.
[199] Parke 1977, 152. Although the evidence for the lamp and the Kallynteria is late (Photius and Plutarch).
[200] Foxhall 2007, 77.
[201] Parke 1977, 77-80.
[202] On this festival see Parke 1977, 107-120; Burkert 1983, 213-247; Hamilton 1992; and later in Chapter 5. Hamilton 1992 prefers to name the local Athenian version of the festival "the *Choes*."

first day of the festival was aptly named Pithoigia. This celebration was held in the month of Anthesterion (January/February) after the wine had fermented. A citation to Phanodemus in Athenaeus suggests this event included an account of the year's wine production at the Temple of Dionysos Limnaia in the form of a communal tasting of the first-fruits of the vintage.[203] A large quantity of the year's wine was surely drunk the following month during the City Dionysia.

While seasonal fruits, wine, olives, and meat were all important components to the Athenian diet, cereals are generally believed to have accounted for the majority of the average ancient diet. The ancient Greek vocabulary demonstrates this nicely as there are two words for food: σῖτος (grain/bread) and ὄψον (accompanying foodstuffs).[204] The importance of grain was not lost upon the Athenians who controlled the nearby sanctuary of Demeter and Kore at Eleusis where, according to mythology, agriculture was invented. The Homeric Hymn to Demeter, a text popular throughout Greece, recollects the agricultural aitiology of this cult: Persephone's abduction and stay in Hades represents the winter when Demeter mourns for her daughter, and Persephone's return represents the spring and summer months. The setting of the myth at Eleusis highlighted the antiquity of agriculture in Athens.

Athenian anxiety over the food supply is demonstrated in a series of planting festivals. The months of Boedromion (August/September) and especially Pyanopsion (September/October) in autumn were a period filled with numerous festivals. Autumn is associated with the harvest of tree and vine crops– notably grapes and olives– and with the planting of winter grain (Fig. 29).[205] In particular, several festivals in worship of Demeter related directly to the planting of grain. The Greater Mysteries at Eleusis in Boedromion begin the series of autumnal festivals.

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[203] Ath. 11.465a; Parke 1977, 107-108; Hamilton 1992, 6-9 takes a more skeptical view of the evidence: "Phanodemus was an early (4th C) scholar but a fanciful one." He admits the existence of a Classical Athenian Pithoigia but cautions that our only evidence for its nature is its name and date.
[204] Davidson 1995; Plato *Republic*, 372a-373c. See Chapter 4 on changes in the meaning of ὄψον.
[205] Winter grain would be the primary crop due to its growth during the rainy season.

The Proerosia, on the 6th of Pyanopsion, literally means "the preliminary to the plowing" and was announced at Eleusis where a ritual plowing occurred.[206] The next day the Pyanopsia was celebrated, associated with Apollo.[207] This festival has been interpreted specifically as a planting festival due to the consumption of a soup, named *pyanopsia*, containing a mixture of grains and legumes representing the seed planted.[208] The Thargelia (Thargelion 7; April/May) in the Spring mirrors the Pyanapsion with a dedication to Apollo consisting of a similar soup, the *thargelos*, at a time right before or during the harvest.[209] Perhaps the most important Hellenic planting festival in autumn was the Thesmophoria celebrated locally in the middle of the month of Pyanopsion.[210] This festival was celebrated in secret by Athenian women, where again a variety of foodstuffs was consumed. Kevin Clinton has identified the distribution of rotten pig remains to be planted with the seed as a symbolic form of fertilizer.[211] These festivals reveal the public focus upon the annual planting of crops.

Athens promoted the cult of Eleusinian Demeter as a Panhellenic cult. Its international status is revealed by two inscriptions on the same stele found in Athens dated to ca. 460 B.C.E.[212] *IG* I^2 6, demonstrating the Panhellenic status of this cult, declared an international truce from the full moon of Metageitnion (July/August) to the tenth of Pyanapsion (September/October) for the Greater Mysteries and from the full moon of Gamelion (December/January) to the tenth of Elaphebolion (February/March). These periods were

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[206] Mikalson 1975, 67-69; Parke 1977, 73-4, however, dates the Proeresia to the 5th of Pyanopsion.
[207] Mikalson 1975, 69-70; Parke 1977, 75-77. Both agree this festival took place on the 7th of Pyanopsion.
[208] Parke 1977, 75-77. Literally the name means "boiled beans." Although Parke writes, "Any lugiminous vegetables could be included, and also cereals. In fact it was a hotch-potch of the sort which the ancient Greeks called *panspermia* (all seeds), boiled together in one pot…. At the time of sowing a general mixture of all the edible plants to be sown was cooked and offered to the deity."
[209] Parke 1977, 146-147.
[210] Mikalson 1975, 71-73 records the known dates from Attica and the state Thesmophoria which took place from the 11th through the 13th.
[211] Clinton 1994, 163-164.
[212] Fornara 1983, 76-77, no. 75; *IG* I^2 9 (on the reverse face) regulates the payment and cultic operation during the Mysteries. *IG* I^2 6 (on right lateral face) is discussed below.

immediately prior to both the planting and harvest seasons, allowing individuals to participate in the Mysteries and return home for agricultural work. *IG* I^3 78, an Athenian decree passed by the Boule and people ca. 435 B.C.E., required all Athenian demes, colonies, allies, and other participating cities to dedicate as "first-fruits" (ἐπαρχέ) 1/600th of their barley harvest and 1/1200th of their wheat harvest to the cult of Eleusinian Demeter.[213] Since the decree established the necessary bureaucracy and ordered the construction of storage pits for the sanctuary of Demeter, it appears to represent the institutionalizing of the international collection of first-fruits for Eleusinian Demeter. The dedications of Eleusinian first-fruits are often viewed as imperial tribute paid in kind, and the grain would have been sold to the Attic population.[214]

An inscription from 329/8 B.C.E., *IG* II^2 1672, records the amounts of grain dedicated in this year by each city: 1,100+ medimnoi (40,000+ kg). It is unfortunately the only inscription of this kind recovered but has been studied intensively by numerous scholars.[215] The totals recorded in this inscription, combined with evidence from *IG* I^2 76 have allowed modern scholars to estimate the total production of wheat and barley in all of Attica and its allies for this year.[216] The evidence from this single inscription is ambiguous as to how it relates to the average annual production of grain. In fact, Peter Garnsey has suggested that 329/8 B.C.E. was a notably bad harvest year for Attica.[217]

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[213] Fornara 1983, 160-163, no. 140 referring to its earlier numeration of *IG* II^2 76. Fornara provides a wide range of dates (425/4 or about 422 or 416/5 B.C.E.). This decree is the subject of Cavanaugh 1996, 29-95 who exhausts the evidence for the dating of the decree and suggests ca. 435 B.C.E. from evidence referring to the administrators of the Eleusinian sanctuary.

[214] Isager and Skydsgaard 1992, 170-173 emphasize the tributary nature of the first-fruits. Garnsey 1988, 98 pessimistically argues that while the first-fruits amounted to a large amount of grain, when considering the entire population of Attica they were not statistically significant. While 1,100 medimnoi of grain would not have been a small amount, when considering the total production of Attica from this year (339,925 medimnoi) Garnsey's thoughts carry weight.

[215] Garnsey 1988, 98-101 with citations to prior studies.

[216] Garnsey 1988, 98 estimates 339,000 medimnoi (ca. 11,000,000 kg) were produced in Attica that year.

[217] Garnsey 1988, 100: "There is no escape from the conclusion that Lemnos had an average or good year, and Attica a bad one."

However, it is possible that the dedication of first-fruits was a method by which the ancient Athenians could take stock of their annual harvest, much as it enables modern scholars today. *IG* I^3 78 emphasized that the amount dedicated was to be made in strict proportion to annual grain production ($1/600^{th}$ of barley and $1/1200^{th}$ of wheat). Furthermore, it was decreed that the total dedication from each city was to be recorded on two notice-boards (πινακίοι) set up in the Eleusinion at Eleusis and in the Bouleuterion in the Athenian Agora. While a notice-board would not have been as monumental as an inscribed stele, it would have permitted the quick publication of harvest quality.[218] It is unknown when the first-fruits were delivered, but the term suggests soon after harvest, allowing the Athenians plenty of time to plan their grain storage and import strategies.[219] The miniscule proportion required from this dedication, contrasting with most other Greek first-fruit dedications of $1/10^{th}$ and other forms of imperial tribute,[220] could suggest a function other than the collection of tribute. While the aitiology of the first-fruit dedication might not have been so practical, perhaps the dedication was an important tool through which the Athenians could obtain knowledge concerning the grain harvest in Attica and elsewhere.

The practice of dedicating first-fruits to Eleusis must have been exceptionally beneficial in the 5^{th} century B.C.E. when Athenian allies were numerous. Only seven non-Attic cities or islands contributed grain in 329/8 B.C.E., amounting to a similar total as was dedicated from

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[218] *IG* II^2 1672 shows that in 329/8 B.C.E. the first-fruits were sometimes inscribed on a stone stele similar to other civic tithes including the portion of the imperial tribute dedicated to Athena in the 5^{th} century B.C.E.

[219] There is no evidence for the delivery date. The only clues available are 1) the dates of a variety of festivals and 2) a line in an addendum to the initial decree *IG* I^3 78 stating that for the upcoming year (ca. 435 B.C.E.) the month of Hekatombaion was to be intercalated. Isager and Skyrdsgaard 1992, 171 suggest the delivery to have been transacted during the Panathenaia (along with other tribute) or around the time of the Greater Mysteries (near the end of sailing season. Parke 1977, 73-74 suggests the Proeresia (right before plowing) as a suitable deadline. With regards to the second clue, the addendum to the initial decree did not exclusively discuss the Eleusinian first-fruits (as the initial decree did) and should not be seen as firm evidence for dating this event.

[220] Isager and Skydsgaard 1992, 173-174; see above with regard to the sacred olive-trees.

Attica that year.[221] Clearly, the total annual dedication from the many cities in the 5th century Athenian Empire would have been significantly larger. Although the practice would have enabled the annual detailed understanding of the Attic harvest, dedications from additional allied cities would have equipped the Athenian navy and merchants with valuable information relating to grain production throughout the Mediterranean. The few allies dedicating first-fruits in 329/8 B.C.E. perhaps demonstrates the advantages of such a strategy waned with Athenian power. However, even the publication of only local harvest information would be useful for planning storage and trading strategies (on both a city and domestic level).

In the 4th century B.C.E., the Athenians promoted the cult of Eleusinian Demeter in less forceful ways. Isocrates' *Panegyricus*, dating to 380 B.C.E., reveals the tenor of the Athenians' message:

> Demeter came to our land and… gave these two gifts, the greatest in the world: the fruits of the earth, which have enabled us to rise above the life of the beasts, and the holy rite which inspires… sweeter hopes regarding both the end of life and all eternity. Our city was not only so beloved of the gods but also so devoted to mankind that, having been endowed with these great blessings, she did not begrudge them to the rest of the world, but shared with all men what she had received. The mystic rite we continue even now, each year, to reveal to the initiates; and as for the fruits of the earth, our city has, in a word, instructed the world in their uses, their cultivation, and the benefits derived from them…. For most of the Hellenic cities, in memory of our ancient services, send us each year the first-fruits of the harvest.[222]

Clinton presents a strong case to trust Isocrates' claim that many Hellenic cities continued to dedicate first-fruits in 380 B.C.E.[223] After a hiatus through most of the 5th century B.C.E.,

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[221] Garnsey 1988, 98 provides the data. The ten demes of Attica contributed ca. 566 medimnoi of barley and ca. 22 medimnoi of wheat in 329/8 B.C.E. The cities/islands of Drymos, Oropos, Salamis, Skyros, Myrina, Hephaestia, and Imbros contributed ca. 567 medimnoi of barley and ca. 100 medimnoi of wheat. However, as mentioned Garnsey believes the harvest to have been a poor one in Attica this year.
[222] Isoc. *Paneg.* 28-31, transl. Clinton 1994, 161.
[223] Clinton 1994.

Eleusinian iconography reappears on Attic vases in the 4th century B.C.E.[224] The 4th century iconography is strongly associated with Athena and Athens. For example, Panathenaic amphorai dated to 367/6, 364/3, and 336/5 B.C.E. include the representation of Triptolemos.[225] In the middle of the 4th century, Athens also issued bronze coinage featuring Eleusinian iconography, including the ritual piglets and Triptolemos. Athens' promotion of the cult of Eleusis served as a tool by which to encourage the international collection of grain and the subsequent (unintended) benefit of published harvest data.[226]

The supply of meat, in the form of ritual sacrifice, reveals another important aspect of cultic ritual. Ritual sacrifice and the consumption of meat was a communal activity, in which groups of varying private and public nature participated.[227] The fragmentary "Dermatikon Accounts" record the civic sale of hides from sacrificial victims from Poseideon (November/December) 334 until Elaphebolion (February/March) 330 B.C.E.[228] The festivals wherein ca. 50 or more animals were sacrificed bookend the period of the year ranging from harvest to planting (Fig. 29).[229] These large-scale civic festivals include the City Dionysia (Elaphebolion 10-16; February/March),[230] the Olympieia (Mounichion; March/April),[231]

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[224] Clinton 1994, 163-169 reviews Eleusinian iconography on Attic vases. Scenes with mythic characters from Eleusinian myths appear on Archaic vessels but disappear until the 4th century B.C.E.

[225] Clinton 1994, 168. An example would be the black-figured Panathenaic amphora of 367/6 B.C.E., a scene of Athena between two Ionic columns topped with figures of Triptolemos in a winged chariot: New York 56.171.6; *ABV* 413.3; *Para* 177.3; *Add*^{2} 108; *CVA* New York, The Metropolitan Museum of Art 3 [USA 12], pgs. 36-37, pl. 45 [577]: 1-4.

[226] Whether such pragmatic effects were consciously intended by the Athenians is a question of another sort.

[227] Schmitt-Pantel 1992 and reviews (Slater 1994 and Rotroff 1994); Rosivach 1994. Our vast majority of evidence for ritual sacrifice is public in nature.

[228] *IG* II^2 1496. On the dates and scale of sacrifice in the following festivals see Rosivach 1994, 48-65.

[229] On Figure 29, the festivals listed below are in bold.

[230] This festival originated in the Archaic period (Rosivach 1994). Some authors date Elaphebolion to February/March (Mikalson 1975; Simon 1983; Rosivach 1994) and others to March/April (Isager and Skydsgaard 1992 and Foxhall 2007). So, it seems likely the City Dionysia was held sometime around March, perhaps immediately prior to or at the beginning of harvest season.

[231] This festival originated in the Archaic period (Rosivach 1994).

Dipoleia (Skirophorion 14; May/June),[232] the sacrifice to Eirene (Hekatombaion; June/July),[233] the Panathenaia (Hekatombaion 23-30; June/July),[234] the commemoration of the Battle of Marathon (Boedromion 6; August/September),[235] the Eleusinian Mysteries, including the Asklepieia (Boedromion 15-24; August/September),[236] and the Theseia (Pyanopsion; September/October).[237]

Most interestingly, the large public sacrifices were all conducted in the warm months. The four winter months, Maimakterion through Anthesterion, include no large civic sacrifices. Since several of the festivals involving large numbers of sacrificed animals occurred in the summer, it seems necessary that all the meat needed to be consumed quickly if not immediately.[238] The same would probably be true of other perishable items, particularly fruits, consumed during warm-weather festivals. Therefore the following analysis could perhaps be extended to non-meat foodstuffs consumed in cultic rituals. A seasonal analysis of the festival calendar enables a clearer understanding of the seasonal supply of a particular foodstuff, in this case meat, to Attica and Athens. Some evidence suggests that leftover meat was sold in the market (as with the hides). However, sacrificial meat would be edible for only a short period of time due to the warm weather representing a sharp glut in meat-eating.

Celebrations of a more local or private nature seem to have been focused either around harvest time or in the cooler winter months. Local demic sacrificial calendars survive from

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[232] Specifically, the sacrifice of Zeus Soter recorded in the Dermatikon Accounts was established no earlier than ca. 493/2 (Parke 1977, 167).
[233] Established in 374 B.C.E. (Rosivach 1994, 57).
[234] First formally organized in 566/5 B.C.E. (Rosivach 1994, 56).
[235] Parke 1977, 54-55. Xen. *An.* 3.2.12 describes an annual sacrifice of 500 goats
[236] The Asklepieia recorded in the Dermatikon Accounts began ca. 420/19 or later (Rosivach 1994, 56). As well, for the procession to Eleusis (originating prior to the Classical period), each initiate provided a pig. Most scholars (following Burkert 1983) have interpreted this pig as a sacrifice to be consumed; however, Clinton 1994 argues that the pigs were sacrificed by throwing them into two pits at Eleusis (megara) from which the remains were retrieved as a sort of "fertilizer" during the Thesmophoria taking place in the following month.
[237] This festival was probably established in 475 B.C.E. (Rosivach 1994, 56).
[238] March through October is typically identified as the sailing season in the Mediterranean due to weather conditions.

Erchia (ca. 375-350 B.C.E.),[239] Thorikos (ca. 420-440 B.C.E.),[240] and Marathon (ca. 400-350 B.C.E.).[241] Figure 30 presents the numbers of animals sacrificed each month. The harvest and planting seasons receive large numbers of sacrifices in Mounichion and Thargelion (March-June) and Boedromion (August/September).[242] For several events listed on the Erchian sacrificial calendar, the sacrificial meat was prohibited from being carried away from the place of sacrifice.[243] Such a command would promote the immediate consumption of meat. While this command occurs frequently in the warm months, it never occurs in the colder months.[244]

Surprisingly, Gamelion (December/January) receives a large number of sacrificial victims in the Erchia and Marathon sacrificial calendars.[245] Ethnographic evidence from rural modern Greece has demonstrated that families are more likely to slaughter animals during the cold months.[246] It was during these months that meat could be preserved longer, in combination with varying preservation techniques including salting and drying. Therefore the large numbers of animals sacrificed in Gamelion were not wasteful and could be stored longer and/or distributed to the members of the deme. Indeed, the month of Gamelion, a month named after weddings, seems to have included a large number of privately funded sacrifices.[247] This month was in the dead of winter and represented a time during which families, as well as local demes,

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[239] *SEG* 21.541; Rosivach 1994, 14-21.
[240] *SEG* 33.147; Rosivach 1994, 22-29.
[241] *IG* II^2 1358; Rosivach 1994, 29-36. The sacrificial calendars of the Marathonian Tetrapolis (*IG* II^2 1358; Rosivach 1994, 36-40) and the genos of the Salaminioi (*SEG* 21.527; Rosivach 1994, 40-45) also survive; however, they are excluded from this survey due to the small number of sacrificial events recorded and the ambiguity of participation. The majority of sacrifices in these calendars do occur in Mounichion though.
[242] The Erchia and Thorikos calendars each record a large number of sacrifices for Boedromion, while the Thorikos and Marathon calendars each record a large number of sacrifices in Mounichion. Other months falling within the variable harvest and planting months also receive a moderate number of sacrifices.
[243] Rosivach 1994, 16-19.
[244] This command is never applied to sacrifices in the months Maimakterion-Anthesterion (October-February). In the remaining months it is applied to a sacrifice at least once, excepting the month of Boedromion.
[245] In particular, for the Erchia calendar the prices of different animals reveals a large proportion of the money spent on demic sacrifice was in Gamelion (Isager and Skydsgaard 1992, 176-177).
[246] Halstead 2007, 28-29.
[247] Parke 1977, 104 on marriages in this month.

could afford to provide meat to a smaller gathering and need not worry about the wastefulness of the event since the meat could be preserved for a longer period of time.

Rosivach's study of Athenian public sacrifices in the 4th century B.C.E. estimates that citizens could consume meat at public sacrifices ca. 40-45 times a year.[248] However, in practice such an estimate is both optimistic– several counted sacrificial events only slaughtered one animal– and pessimistic: the accounts are clearly fragmentary and private sacrifices (essentially meals) are excluded. Rosivach further estimates that annually the city publicly sacrificed around 800 oxen and 500 goats, while the Attic demes as a whole sacrificed roughly 200 oxen and 2,531 sheep or goats.[249] While meat was never the predominant source of calories for the majority of the Athenian population, it was commonly consumed in the form of either public or private sacrifices.

This analysis of agrarian cult demonstrates that many cultic rituals were pragmatic and intertwined with the seasonal production and supply of food to Athens. Cultic rituals allowed the populace to express anxiety over the unpredictability of agriculture and to display, distribute, and celebrate the annual harvest. Furthermore the warmer months in which public sacrificial ritual often took place prohibited long term preservation and the necessity of immediate communal consumption. However, private or small-scale sacrificial rituals seem to have taken place predominantly in the cooler months, perhaps revealing the private owner's desire to conserve and store left-over meat. On a communal level, the geographical placement of cultic ritual associated particular areas, specifically those associated with fertility or import, and their populations with Athens. Significantly, the tithing, accounting, and publication of the wine, olive, and most

[248] Rosivach 1994, 66.
[249] Rosivach 1994, 68-76 arrives at these figures from an estimate of ca. 10 dr. per hide for the Dermatikon accounts and through the total number of sacrifices from the three deme calendars (9 oxen and 106 sheep or goats) factoring that these demes accounted for ca. 4.2% of the population of Attica. Of course these estimates should be taken rather roughly.

importantly grain production allowed for the state and population to plan ahead with consideration to both storage and supply strategies.[250] The prominence of the Mediterranean triad is emphasized by the international status of festivals in honor of Athena (the Panathenaia), Demeter (the Mysteries of Eleusis), and Dionysos (the City Dionysia).

The Contrast of Capacity: Rural and Urban Private Storage Practice

The local sacrificial calendar mirrors Hesiod's adage concerning storage: "Take your fill when the cask is first opened and when it is nearly spent, but midways be sparing: it is poor saving when you come to the lees."[251] Festivals seem to dominate the periods immediately prior to and during the planting and growing seasons, in addition to the spike in the winter month of Gamelion.[252] Hesiod's adage, in addition to the sacrificial practices, recalls the importance of storage practices to the ancient Athenians.

The forms of Athenian storage vessels designed for liquids were covered in the last chapter. Notably the amphora form would have been the most useful long term storage vessel due to its larger capacity.[253] Several types of amphorai have been identified based on form: transport amphoras designed for trade, smaller table amphorai, and larger storage amphorai.[254] Mark Lawall's study of the re-use of transport amphoras for local commercial activity in the Classical period of the Agora further suggests that these vessels could have been used for storage

[250] Only the grain production can definitively be claimed to have been published, as *IG* I^2 76 reveals. However, this decree mentions that the first-fruits of olive oil will be decided upon in a later decree (not extant) that in theory could have called for similar publication.
[251] *Works and Days* 366-369, transl. Evelyn-White 1914.
[252] Some civic festivals follow a similar pattern (i.e., those of Dionysos: the Lenaia prior to the opening of the wine-casks, the Anthesterion as first-fruits, and the City Dionysia immediately after).
[253] Amyx 1958, 174-186; Sparkes and Talcott 1970, 187-193; Rotroff 2006, 85-89.
[254] Storage amphorai could be similar in size to a pithos (i.e., *Agora* XII 1501 = P 4599).

purposes too.[255] Amphorai are typically interpreted as wine-containers but could have been used to contain many other goods, including olive oil but also dry produce. Hydriai could provide a medium-capacity vessel for storing liquids, and as mentioned were only produced through the 5th century. Jugs, kadoi, or oinochoai were useful for storing smaller amounts of liquids, and the evidence of a piece of cork in a jug attests to this function.[256] Furthermore, liquids could have been stored in most other ceramic, metal, wooden, or hide vessels, including those covered below.

Athenian storage vessels designed for dry foodstuffs range greatly in capacity (Fig. 33). The vessel form known as the pithos, after the Greek term, is the largest vessel produced in Attica. The largest held ca. 800 liters, equivalent to ca. twenty or twenty-five transport amphoras and were up to 1.5 m high.[257] Athenian pithoi were coil-built out of a coarse fabric, and owing to their large size were probably produced on the spot.[258] Pithoi were often embedded in the ground to provide a cool and convenient storage area and could be sealed with ceramic, cloth, or hide lids. Furthermore, pithoi had a long use-life demonstrated through the evidence for repair found on many of them and their presence in deposits dating centuries after their presumed production period.[259] Another Athenian vessel-form labeled as storage-bin is also relatively large but not on the scale of pithoi, being only 0.25 – 0.50 m high.[260] These were often made on the wheel out of a coarse fabric, demonstrating that they required much less investment of energy and time for

[255] Lawall 2000, 73-82 describes the re-use of transport amphoras for further commercial activity, including the storage/distribution of different varieties of wine or other liquids. Lawall's evidence derives primarily from graffiti indicating re-use, and a study of re-used non-marked transport amphoras still remains to be conducted. For extensive re-use of amphorai in the Roman period see Peña 2007.
[256] Thompson 1951, 50 suggests this function from the find of a broken but complete jug with a cork in its mouth (P 20786 = *Agora* XII 1665).
[257] Amyx 1958, 168-174 combines various evidence for ceramic pithoi size and their textual equivalents (*pithoi* and *phidaknai*). The capacity of those in the Attic Stelai seems to range from three to twenty-five amphorai. Sparkes and Talcott 1970, 193 on the height.
[258] For pithoi in Athens see Sparkes and Talcott 1970, 193-195; Rotroff 2006, 98.
[259] Rotroff 2006, 98; for the mention of repaired pithoi in the Attic Stelai see Amyx 1958, 168-174.
[260] Rotroff 2006, 93.

production. Most storage-bins were provided with an interior ledge upon which a tight-fitting ceramic lid could be placed. Their small size and handles testify to their portability. Finally, a smaller, wheelmade storage vessel, labeled a lekanis, was also common and similarly equipped for a tight-fitting ceramic lid. One interesting thing to note is that lids were interchangeable between vessels, only dependent upon a similar diameter.[261] Such multi-functionality would have aided individual storage strategies. However, modern understanding of storage strategy is limited since foodstuffs could have also been stored in perishable containers in hide, wood, or cloth and even in a pit or empty room.

It seems possible to distinguish the roles of storage vessels determined by capacity as either to be used for primary or secondary storage.[262] Primary storage would involve long-term bulk storage in an architecturally defined area, while secondary storage would involve short-term storage in an activity area. Larger vessels– storage amphorai, pithoi, and large storage-bins– can be defined (particularly when a large number are found in the same assemblage) as used for primary storage. Architectural features such as pits or bins were often designed for large vessels associated with primary storage, and such an area could be demarked for primary storage. Smaller vessels– table amphorai, water-vessels, smaller storage-bins, and lekanides– can be understood as evidence of secondary storage.[263] Foodstuffs stored in the smaller containers would be ready for use at the table or in the kitchen.

The primary storage of agricultural products is an essential component of the rural agricultural lifestyle. Ethnographic studies of modern rural inhabitants of Methana demonstrate that several years' supply of produce is stored in addition to seed due to the unpredictability of

[261] Sparkes and Talcott 1970, 197.
[262] I thank Kathleen Lynch for suggesting this dichotomy.
[263] Transport amphoras (re-used) are excluded for now due to their lack of contextualized publication.

the climate.[264] Ideally, for annual crops such as grain, a two year supply is stored, and for biennial crops such as olives, a four year supply is common due to the unpredictable nature of agriculture. Modern studies of the Mediterranean climate reveal sharp contrasts in rainfall over areas separated by a very short geographical distance.[265] The Mediterranean environment is made up of an immense variety of ecological micro-regions, each affected differently by interannual climactic conditions.[266] Several strategies to minimize the risk within this ecological situation, specifically an emphasis on the diversification of landholding and crop-production as well as the importance of private storage, have been noted in the study of ancient Attic agricultural practice.[267]

The Attic Stelai present the public auction of the property of several elite Athenians in 415/414 B.C.E.[268] The elite landholding strategy at this time reveals diversity as each individual owned several dispersed parcels of land.[269] In addition, the mention of large quantities of a variety of stored agricultural products demonstrates the diversity of crop-production practiced by each of these individuals.[270] Foxhall's description of ancient Greek farming arrangements emphasizes such diversity on a single plot of land.[271] Plots of land would often be demarked by a ring of fruit-bearing trees and/or vines. These surrounded an interior area planted with grain and/or legumes, although in other cases it seems as if different crops could be planted on different plots. Diversity in planting is emphasized by the large number of local foodstuffs

[264] Forbes and Foxhall 1995.
[265] Garnsey 1988.
[266] Horden and Purcell 2000, 51-172.
[267] Garnsey 1988; Gallant 1991; Isager and Skydsgaard 1992; Horden and Purcell 2000; Foxhall 2007.
[268] Pritchett 1953; Pritchett and Pippin 1956; Amyx 1958; Amyx and Pritchett 1958.
[269] Foxhall 2007, 40-48, 56-58; tables 2.1 and 2.2 summarize the properties, as known from the Attic Stelai, of Adeimantos son of Leukolophides of Skambonides and Axiochos son of Alkibiades of Skambonides respectively.
[270] For the variety of agricultural goods and the various measures used see Pritchett and Pippin 1956, 180-203.
[271] Foxhall 2007, 112-116 with literary references. Such an analysis is impossible archaeologically in Attica; however, Jashemski 1979 records from root casts immense diversity in cropping strategies in Campania prior to the eruption of Vesuvius.

known from textual sources.[272] The regional survey of the deme of Atene (SW Attica) reveals a diverse arrangement of farmsteads, hamlets, and towns, each defined by the number of identified properties (Fig. 31).[273] In addition, no deme center has been identified suggesting that the population was dispersed in the countryside. Such an arrangement implies that the land was worked intensively, perhaps alongside animal rearing, which provided additional farming labor and helpful byproducts such as fertilizer.[274] Animal rearing combined with diversification of crops demonstrates the wide variety of food products produced in rural Attica.

The large quantities of stored produce recorded in the Attic Stelai emphasize the role of large-scale storage in a rural agricultural setting. Such textual evidence is complemented by the presence of towers in the Attic hinterland.[275] While the function of these towers is controversial, a large number of these towers from both the 5th and 4th centuries B.C.E. were directly associated with threshing floors and other signs of agricultural activity, suggesting an agricultural function (Fig. 32).[276] However, others are located within towns such as Thorikos, and Morris and Papadopoulos argue that the presence of towers related to the use of slave labor.[277] Pithos sherds were frequently found embedded into the ground floor of many rural towers.[278] Hans Lohmann has identified ca. 30-40 farms in the deme of Atene, at least 13 with associated towers.[279] The storage-function of these rural Attic towers has parallels to rural storage practice in other

[272] Dalby 2003 and Alcock 2006 provide a staggering list of foodstuffs with citations to literary sources.
[273] Lohmann 1992.
[274] Lohmann 1992, 35-37 for the various settlement categories; 33-34 for the lack of a deme center. Garnsey 1988, 93-94 on intensive farming alongside animal rearing.
[275] Young 1956; Jones et al. 1973; Lohmann 1992; Nevett 2005; Morris and Papadopoulos 2005.
[276] In particular those described in Young 1956 and Lohmann 1992. Such approaches counter earlier assumptions that these were watch-towers. While some were (described in Morris and Papadopoulos 2005), the majority were not positioned in a location favorable to defense nor communication.
[277] Morris and Papadopoulos 2005 suggest this for Hellenic towers, in general. Their conclusions are based on architectural design (individuals could be locked in) as well as location (i.e., those near the Attic-Megarid border).
[278] Lohmann 1992; Morris and Papadopoulos 2005, 156.
[279] Lohmann 1992. For additional towers associated with threshing floors see Young 1956.

contemporary areas throughout the Mediterranean, as well as more modern parallels.[280] These structures enabled an adequate amount of produce to be stored in a dry area. Furthermore, such visible structures would have been a prominent testament to an individual's or a community's wealth.[281] An example of a *pithon*, or non-tower storeroom was uncovered at the Vari house, with purpose-made features in which to embed pithoi.[282] Other houses in Thorikos include basements, which may have functioned as storage areas, with the advantage of a cool, underground location.[283]

The above agricultural strategies, combined with long term storage, minimized the risk to an individual landowner each year guaranteeing an adequate and varied food supply produced locally. The philosophical ideal of autarky or self-sufficiency epitomized such agricultural strategies and was incorporated into the practices of the landowning elite.[284] However, self-sufficiency was a practice only afforded to an elite class able to control dispersed tracts of land and mobilize sufficient labor.[285] Furthermore, the diversity of agricultural production– including a combination of grains, legumes, fruit-bearing trees, vines, and animals– would have most likely been out of reach to many due to the required capital and long term investment. Trees and vines take several years of growth and protection before they can produce crops, and several only produce biennial crops, limiting their usefulness to a small landowner or tenant farmer. As well, non-elites employed by the state– i.e., individuals chosen by lot to hold an office or even rowers in the navy– as well as craftsmen and merchants required access to food produced by others.

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[280] Morris and Papadopoulos 2005 provides the most comprehensive analysis of towers and their uses. They limit storage-activity to the ground floor. However, modern grain silos are an excellent example of a tower used to store grain and suggest the possibility of above ground storage in the ancient towers.
[281] As suggested by Nevett 2005 for towers located in rural villages in Attica.
[282] Jones et al. 1973, 369. Interestingly, this property included a tower.
[283] Jones 1975.
[284] As expressed by the character Kritoboulos in Xen. *Oec*.
[285] Foxhall 1992 argues that the majority of land was controlled by the wealthy; however, she accepts the existence of a large number of small-scale farmers as a significant proportion of the population.

While an attempt for self-sufficiency through diversity and storage might have been made by some of these individuals who did own agricultural land, it seems clear that the supply of food for non-elites needed to be acquired through different means. State-driven food supply, private elite patronage, other private support systems such as family, friends, neighbors, or cultic groups, and an exchange of goods, services, and capital seem to represent the variety of options through which individuals who were not elite landowners could have acquired food.

Most of the private structures dating to the Classical period excavated in the area of the Athenian Agora were, for the most part, not the residences of elite landowners. In fact the plan and finds in these structures demonstrate their use for industrial and commercial activity in addition to domestic activity.[286] While it is possible that some of these inhabitants might have owned and worked agricultural land outside of the city, it seems as if their lifestyle was not as self-sufficient as the lifestyle of the elite displayed in the textual sources and rural archaeological evidence. In the rural setting, storage vessels, store-rooms, and storage towers reveal the practice of primary storage of foodstuffs. Even when a storage area is not readily defined, the presence of several pithoi testifies to the practice of primary storage.[287] There is minimal architectural evidence for large scale private storage in the area of the Agora; however, numerous storage vessels have been found that could reveal urban storage strategies.

Similar to the conclusions of last chapter, it seems as if a major reduction in capacity is noticeable from the evidence for storage vessels in the Agora area. In well J 2:4, filled in association with the cleanup of the Persian destruction, an assemblage of ceramics associated with the activities in a nearby destroyed Archaic house included a relatively complete pithos. In fact, almost all diagnostic pithos sherds found in the Agora and surroundings date to the Archaic

[286] Young 1951; Tsakirgis 2005.
[287] For example, the Dema House contained sherds of five or more pithoi (Jones et al. 1962, 86-87).

period.[288] Sparkes and Talcott mention that in 1970 only one pithos sherd was securely dated to the 5th century B.C.E.[289] In the Hellenistic period, only two complete pithoi have been found, and one was clearly functioning as a settling basin not as a storage vessel.[290] A few diagnostic sherds have been published from the Hellenistic period, and most of these were believed to have been produced in the Classical period. Likewise, large storage amphorai are a frequent component of the Archaic domestic assemblage recovered from the Persian destruction deposits. All 21 deposits contain at least one fragment from the sample analyzed by Shear Jr. and the average number of vessels per deposit is a little over nine.[291] On the other hand, Sparkes and Talcott only find evidence for the local production of storage amphorai down to the end of the 6th century B.C.E.[292] While the storage-bins for the Classical period come from a wide range of deposits, Rotroff notes that in the Hellenistic period over one-third of the storage-bins in her deposit sample (33 out of 79) came from four deposits in the same localized area.[293] The diminished capacity and localized distribution of storage vessels over the course of the Classical period suggest a decreased interest in primary storage on behalf of the urban population.

In terms of architectural evidence for urban storage, only one structure dating to the 5th century B.C.E. from the north slope of the Areopagos contains a store-room with five pits designed to hold pithoi (Fig. 34). The large residential area to the southwest of the Agora, named

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[288] Sparkes and Talcott 1970, 193. Most of these were even re-used as well-heads or burial jars.
[289] Sparkes and Talcott 1970, 194-195: *Agora* XII no. 1524. For a 4th century pithos found *in situ* see below.
[290] Rotroff 2006, 98. Both contexts dated to the 2nd century B.C.E. Only a few rims have been cataloged from the Hellenistic period but little detail is given.
[291] Shear Jr. 1993, 387-398, table 4. A minimum total of 193 storage amphorai are recorded in these deposits. Such values are only approximate as Shear Jr. noticed a trend that excavators were not as likely to curate household pottery as figured pottery. Furthermore his counts only included inventoried pieces from the largest assemblages while he included every sherd from the smaller ones. How these relate to individual households is unknown; however, it seems clear that storage amphorai were quite prevalent in this assemblage.
[292] Sparkes and Talcott 1970, 193.
[293] Rotroff 2006, 93, n. 101. An area immediately to the southwest of the Agora in two cisterns (E 14:1 had three storage-bins, E 14:3 had eighteen storage-bins) and two wells (E 14:6 had five storage-bins, F 13:3 had seven storage-bins). She "suggests that the houses or shops located there may have had particular storage needs." These deposits date from the 4th through 2nd centuries B.C.E.

the Industrial District, provides an excellent example of the lack of primary household storage in the city. While it is clear this area was first developed in the 5th century B.C.E., most of the evidence for domestic activity derives from the 4th century B.C.E., after the construction of the drain through the area. Many of these domestic structures were quite small, several only one room, seemingly excluding any ability for primary food storage within. In fact, pithoi or pits, which might suggest storage of foodstuffs, are clearly used for industrial purposes. The only in situ pithos excavated in the area and several storage features were used to hold marble chips; other features were utilized in conjunction with metal-working, terracotta production, or other industrial activity with the exception of two pits of unknown function.[294] Later Roman and especially Byzantine disturbance demands caution in emphasizing the negative evidence for the storage of food-stuffs. However, pits, basins, and masonry bins would provide excellent evidence for food storage, but these were found in abundance and determined to have been predominantly used for industrial purposes. In conjunction with the small-size of many properties, many of which also included evidence of an industrial nature, it seems clear that these domestic structures did not devote much space to primary food storage.[295]

Diminished domestic urban Athenian storage capacity in the 4th century B.C.E. and beyond relates to the development of a more urban lifestyle, contrasting with the evidence for primary storage in rural Attica. The lack of primary domestic storage in the urban environment

[294] Young 1951, 168-252. The pithos filled with marble chips was found in the Poros Building. House K contained masonry bins full of stored marble chips. Pits found in House L are believed to be used for terracotta manufacturing. The function of the pit in House A was not identified (however, its use for storage of foodstuffs is a possibility since "it contained a mass of fragments of coarse pottery, mostly amphoras…" pg. 194). The stone-lined pit from House B was filled with animal bones and cinders ("perhaps from a kitchen dump" pg. 201). Numerous smaller pits containing the remnants of "sacrificial pyres" were found throughout (primarily in Houses C and D), and three vats or tanks lined with water-proof cement were found in House F (presumed to be industrial in nature),

[295] Many of the properties in the Industrial District were not completely excavated; however, the plan indicates many to be quite small– one or two rooms (Houses A, E, F, G, J, K, H). It should be noted that larger properties do exist near the Areopagos but these have generally not received the same study that the Industrial District has. There is little published evidence concerning storage capacity or its lack thereof. As such, these conclusions should be seen as a working hypothesis.

demonstrates the population's confidence in its ability to acquire food regularly in the city. This conclusion is supported by the increasing industrialization and commercialization of the residences around the Agora. Most houses of the 4th century B.C.E. had evidence of commercial activity, but they did not possess static storage facilities. Instead, the space in these small structures seems to be dynamic and accommodated domestic, industrial, and commercial activity.[296]

The presence of industrial and commercial activity emphasizes that the long term survival of the urban population depended upon food acquired through indirect means. However, the diminished capacity of private storage in the urban areas demonstrates the regular availability of food needed for both short and long term survival. Foodstuffs were available in the marketplace nearby where services, goods, and capital were exchanged. Such a conclusion is supported by a quote from the late 4th century B.C.E. Pseudo-Aristotle's *Oikonomika* (I 1344 b 31-3): "The Attic system of economy is also useful, for they sell their produce and buy what they want, and thus there is not the need of a storehouse in the smaller establishments."[297]

The evidence for public storage in the Agora area is minimal. The Heliaia has been tentatively identified as the store-house in which grain-tribute collected in association with the grain-tax law of 374/3 B.C.E.[298] The structure was ca. 821.50 sq. m and could have held a significant amount of grain. However, excavation notes refer to the narrow foundations perhaps suggesting this structure could not have adequately withstood the horizontal pressure exerted by grain that had been heaped up.[299] Interestingly, this structure is near the area where Rotroff

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[296] Tsakirgis 2005.
[297] Arist. [*Oec.*]; Transl. by Ault 2006, 265.
[298] Stroud 1998, 85-104.
[299] Stroud 1998, 98-99 does not consider this factor to be influential in his identification. Although he does note the tentative nature of his identification; however, large granaries from the Roman world are characterized by the thickness of their walls (1+m) for precisely this purpose (Rickman 1980).

observed a large proportion of the Hellenistic storage-bins to have been found, perhaps providing evidence that, contrary to the decree, the collected grain was stored in vessels.[300] Large storage structures are known from Eleusis associated with the collection of first-fruits.[301] There are surely additional public and commercial storage structures remaining to be excavated. One should assume that the primary storage of grain was engaged in by both the state and the wealthy. It was from these stores that the urban population was able to acquire grain throughout the year.

The Commercial Agora

The development of the Athenian Agora, as the term implies, is closely linked to commercial activity, including the import of foodstuffs. Recent scholarship has demonstrated that the area today known as the Athenian Agora, used for commercial purposes in the Classical and Hellenistic period, was only defined ca. 500 B.C.E.[302] A variety of literary sources support the existence of a separate Archaic Agora to the East of the Acropolis (Fig. 35).[303] In particular, Pausanias' tour of Athens supports the suggestion that the Archaic Agora was to the East of the Acropolis, separate from the area to the Southwest referred to as "the Kerameikos."[304] The discovery of the Cave of Aglauros, referred to by Pausanias, on the East slope of the Acropolis helps establish a tentative location for the Archaic Agora.[305]

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[300] Stroud 1998, 97 discusses the verb κατανήσει in line 14 and its meaning of "heaped up."
[301] Clinton 1993.
[302] Papadopoulos 2003 argues for a date of ca. 480 B.C.E. and reviews arguments for earlier dates.
[303] Wycherley 1966; Vanderpool 1974; Dontas 1983; Shear Jr. 1994; Robertson 1998; Papadopoulos 2003; Schmalz 2006. Due to confusion, the Archaic Agora area to the East of the Acropolis is always referred to as "the Archaic Agora," while the Classical Agora to the Southwest is referred to less precisely as either "the Classical Agora," "the Agora," or "the Athenian Agora." Therefore, "the Agora and environs in the Archaic period" refers to the Archaic period of the area to become the Classical Agora.
[304] Paus. 1.17.1-2; Vanderpool 1974. The authors in the above note include a discussion of several literary sources, both contemporary (i.e., Herodotus) and late (i.e., Harpokration).
[305] Dontas 1983.

Commercial activity was a common feature of the Athenian Agora and environs in all periods. In the Iron Age, the area to become the Classical Agora was a proper Kerameikos with evidence for pottery production as well as graves.[306] The inhabited area shows clear evidence of industry, both ceramic and metal production, and its implied commerce. The possibility that the large structure labeled Building F in the Athenian Agora was either a ceramic workshop[307] or a large commercial structure[308] provides further evidence for the existence of early commerce in the area to be developed as the Athenian Agora. Commercial activity is well attested in the Classical Agora from both textual sources and archaeological evidence. Public construction improved the infrastructure of the Agora region, particularly the well-constructed roads, facilitating commercial traffic. In fact, John Papadopoulos argues that the reason for the shift of the Agora to the Southwest of the Acropolis was the accessibility to routes leading from the newly developed harbor and port-town at Piraeus after the Persian Wars (Fig. 36).[309]

In the Archaic period, Phaleron was the primary port of Athens located to the Southeast.[310] Therefore, the Archaic Agora would have communicated well with Phaleron. The development of the Piraeus, further to the West, as the port of Athens began either immediately prior, during, or after the Persian Wars owing to Themistokles' development of the Athenian navy.[311] The three harbors at Piraeus (Fig. 37), Kantharos, Zea, and Mounychia, quickly replaced the smaller harbor at Phaleron as the primary port of Athens. Piraeus was superior in location due to these three large harbors and the defensible nature of the terrain. Over the course of the 5th

[306] Papadopoulos 2003. Similar to the area referred to today as the Kerameikos. In fact, the ancient Kerameikos would have included the area from the Dipylon Gate approximately to the Areopagus.
[307] Papadopoulos 2003, 295-296.
[308] Tsakirgis 2009.
[309] Papadopoulos 2003, 285-287.
[310] Herodotus 6.116.
[311] Garland 2001 presents all the evidence, primarily textual, for Piraeus. Arist. [*Ath. Pol.*] 22.7 on the construction of the Athenian navy from a rich lode of silver recovered from Laurion. Thuc. 1.93.3-7 on Themistokles' development of the Piraeus.

century B.C.E. fortifications were constructed around Piraeus and the Long Walls finished by Perikles connected the port to the city center (Fig. 36).[312] Five stoas were constructed along the eastern bank of Kantharos, by far the largest harbor.[313] These stoas, labeled "the emporion" in inscriptions, were clearly related to commerce. The stoas acted as a storage warehouse and included a display-area, called the Deigma. It is generally assumed that this area functioned for the wholesale of goods. A wide range of administrative officials and tax farmers regulated commerce and collected port-fees. Specifically, the import of grain was controlled by a board of grain-wardens (*sitophulakes*).[314] Piraeus was constructed along a regular, Hippodamian grid plan to facilitate commerce, as well as the transportation of goods to Athens.

Similarly, the development of the Classical Agora in Athens included both transportation routes and commercial structures, infrastructure essential for commerce. The Agora, or more specifically the Altar of the Twelve Gods, served as the main center of the road-system of the city and region (Fig. 1).[315] In fact, the Agora's form was strongly dependent upon the location of prior roads.[316] Of greatest importance was the road from the Dipylon Gate, the Panathenaic Way leading to the Acropolis, which forked at the Northwest corner of the Agora. The East-West road from the Piraeus Gate, which formed the Southern boundary of the Agora, would have been used for the transportation of imported goods. This important road was twice the width of ordinary roads: 6 m.[317] The irregular forms of Athenian structures, in particular private dwellings, were often created in order to conform to the space provided by the pre-existing roads (Fig. 38). The Aristotelian *Constitution of the Athenians* relates that the duties of the *astunomoi* included

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[312] Thuc. 1.107.1.
[313] On the emporion see Garland 2001, 83-95; 152-153.
[314] Garland 2001, 77 records that the first mention of this board was ca. 386 B.C.E. It is possible the grain-wardens operated earlier, or else other known officials (i.e., *agoranomoi*) or unknown officials fulfilled their duties.
[315] Thompson and Wycherley 1972, 192-193.
[316] Jones 1975 on the constraints of construction in urban Athens.
[317] Thompson and Wycherley 1972, 192-193 although it did vary at sections.

preventing construction from encroaching on the streets.[318] The roads in the Agora area were renovated when public drainage was installed or maintained.

As at Piraeus, several stoas constructed in the Agora would have been useful for its function as a marketplace (Fig. 3). Aristophanes mentions that one stoa was known as a market for barley-meal (στοιὰν ἀλφιτόπωλιν).[319] While this stoa has not been identified archaeologically,[320] the open plan of a stoa would have permitted merchants to advertise their wares, including food. Furthermore, the space of a stoa was divided by columns allowing for several shops to be set up easily. Three excavated stoas were constructed over the course of the fifth century B.C.E.: the Stoa Basileios, the Stoa of Zeus Eleutherios, and the South Stoa. Two additional stoas– the Stoa Poikile and the Stoa of the Herms– are also known from texts of this period.[321] These structures are primarily associated with administrative activities; however, the mutable form of the stoa permitted a commercial function at appropriate times. A Hellenistic inscription (222/1 B.C.E.) from room III of the South Stoa concerns the officials of the weights and measures, suggesting a commercial function.[322]

Building Delta, constructed ca. 450 B.C.E., has also been identified as both commercial and industrial in nature owing to finds embedded in its floors.[323] While no finds identify a commercial use prior to the mid 4th century B.C.E., it is presumed from its position at the intersection of three roads at the Northeastern corner of the Agora to have operated similarly in its earlier phase. Several rooms provided evidence of industrial activity including the working of

[318] Arist. [*Ath. Pol.*] 50. Specifically, they were to prevent the construction of obstructive drainage and windows (Garland 2001, 76 supposes outwards opening window-shutters were obstructive).
[319] Ar. *Eccl.* 686.
[320] The line makes it clear that it is not the Stoa Basileios nor the Stoa of Zeus Eleutherios. The South Stoa, an unexcavated stoa (Stoa Poikile or Stoa of the Herms) or perhaps even a wooden structure could have served.
[321] Thompson and Wycherley 1972, 74-78; 82-103.
[322] Thompson and Wycherley 1972, 78.
[323] Milbank 2002.

metals and sculpting of stone; however, Room 2 has been identified as a store-room and sales floor for food stuffs, including wine.[324]

Booths known as σκήναι and tables, τραπέζαι, are known from textual sources to have been utilized for commercial purposes in the Agora area.[325] These would have been constructed of perishable materials and would have functioned as temporary vending areas in the open space of the Agora. While the archaeological evidence does not preserve a division of the vending zones, several textual sources describe the Athenian Agora as partitioned by the sale of a particular good.[326] In such a manner, it seems possible that all the grain-sellers would have been located in one area, the vegetable sellers in another, etc.

In the second half of the 5th century B.C.E. and 4th century B.C.E., the Athenian markets were famous for their international provisions. The Old Oligarch reveals that the control of the sea enabled Athens to control trade throughout the Mediterranean.[327] Around 380 B.C.E., Isocrates described Athens as "an emporion in the center of Greece from which could be obtained produce not readily available elsewhere."[328] Details concerning the Athenian import of grain are lacking from the 5th century B.C.E. However, a decree from ca. 430 B.C.E. shows the

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[324] Milbank 2002, 21-27

[325] Wycherley 1957, 190-193, nos. 623-631 collects the known testimonia.

[326] Wycherley 1957, 185-206. Most of the evidence for such zones is late. However, Xen. *Oec.* 8.22 states, "Every one will plainly know where he must go to get each class of goods. The reason for this, is simply that they are kept in their appointed places" (transl. Wycherley 1957, 189, no. 622).

[327] Xen. [*Ath. Pol.*] 2.11: "Wealth they [the Athenians] alone of the Greeks and non-Greeks are capable of possessing. If some city is rich in ship-timber, where will it distribute it without the consent of the rulers of the sea [i.e., the Athenians]? Again if some city is rich in iron, copper, or flax, where will it distribute without the consent of the rulers of the sea? However, it is from these very things that I have my ships: timber from one place, iron from another, copper from another, flax from another, wax from another. In addition, they will forbid export to wherever any of our enemies are, on pain of being unable to use the sea. And I, without doing anything, have all this from the land because of the sea; yet no other city has even two of these things: the same city does not have timber and flax, but wherever there is flax in abundance, the land is smooth and timberless. There is not even copper and iron from the same city, not any two or three other things in a single city, but there is one product here and another there" (transl. Marchant 1968).

[328] Isocr. *Paneg.* 4.4 Transl. Garland 2001, 87 who also quotes Xen. *Poroi* 5.3 "Where will those who want to buy or sell many items quickly have more success than at Athens."

Athenians allowing the Methonians to import grain, up to a certain amount, from Byzantium.[329] This decree, in addition to 4th century treaties with the Bosporan kingdom, suggests the Black Sea as a major source of imported Athenian grain.[330] It is presumed that Athens' naval control of the Aegean Sea and its dominance of the members of the Delian League, which contributed annual tribute, enabled its provision of grain. The population of Athens and Attica in the 5th century is estimated to have been so large that it was dependent upon the yearly import of foodstuffs, particularly grain. Garnsey estimated local Attic production as able to feed 120,000 – 150,000 people and estimated the population of Attica, from the Persian Wars to the Peloponnesian Wars, to be 200,000 – 250,000.[331] The success of Athens to import foodstuffs, particularly grain, during this period is highlighted through Athenian strategy during the Peloponnesian Wars.

Thucydides' eyewitness account detailed Perikles' plan during the Peloponnesian invasion. The Athenians abandoned the Attic hinterland and moved the population inside the city walls.[332] In the early summer of 431 B.C.E., as the grain was becoming ripe,[333] the Peloponnesians invaded Attica. The Peloponnesians advanced as far as Acharnai, destroying or raiding the possessions of the Athenians including the crops in the fields. However, Perikles encouraged the Athenians to avoid resisting, except for a few counterattacks in the fields immediately adjacent to the city. The Themistoklean walls around the city and the Piraeus along with the Long Walls linking the two fortification systems enabled the city to maintain its link to the sea in order to import foodstuffs. This strategy continued throughout the Peloponnesian

[329] *IG* I^2 57. Fornara 1983, no. 128 dates the decree to either 430, 429/8 or 427/6 or later. The amount the Methonians were allowed to import is fragmentary but is at least a thousand medimnoi.
[330] Garnsey 1988, 138-139.
[331] Garnsey 1988, 89-106 with citations. Other sources differ on figures (Gomme 1933; Hansen 2006); however, all agree Athens relied on imported grain in the 5th century and at least intermittently in the 4th century.
[332] Thuc. 2.13. As a guest-friend of the Spartan King Archidamos, Perikles promised to turn his fields and structures over to the public if they remained untouched.
[333] Thuc. 2.19.6*:* μάλιστα θέρους καὶ τοῦ σίτου ἀκμάζοντος

Wars, and after the Athenian defeat in Sicily the Peloponnesians maintained a permanent presence in the Athenian hinterland at the fortress of Dekelea. However, Peter Garnsey's historical review of Athenian food crises from 600-322 B.C.E. demonstrated that there were no recorded food crises in the 5th century after the Persian Wars except for in the years 447/6, 424/3, and 405/4 B.C.E.[334] Clearly the Athenians were able to import enough grain for its large urban-centered population during the Peloponnesian Wars. The Athenians were able to do this through control of the sea and perhaps aided by tribute and harvest accounts arriving in the form of Eleusinian first-fruits.

Garnsey considers the importance of imported grain to Athens in the 4th century B.C.E. to be minimal due to a drop in overall population. He suggests the 4th century population fluctuated between 120,000 and 200,000 individuals and that the production of Attica would be sufficient to support the population in most years.[335] However, the urban lifestyle of the 4th century Athenian population, identified above from urban storage practices, seems to imply an expectation that the markets will be regularly provisioned with affordable foodstuffs. Garnsey observes that several Athenian grain crises are evident in ancient literature of this period due to the weakened position of the Athenian navy. The supply of food to the city becomes a frequent topic in Athenian politics of the period.[336]

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[334] Garnsey 1988, 120-133.

[335] Garnsey 1988, 134-164. Unlike other modern scholars Garnsey argues that 4th century Athens did not continuously rely on imported grain, but concedes that the local supply was "uncertain" and therefore did require fairly regular import. Hansen 2006, 43-45 suggests a larger population (150,000 – 200,000+) and a heavier 4th century dependence on imported grain. In particular, Whitby 1998 reacts to Garnsey's conclusions and emphasizes the importance of imported grain in the 4th century B.C.E.

[336] Garnsey 1988, 144-149 identifies crises under discussion for the years of the 390s (specific years other than 392 are ambiguous but implied), 376 (or 374), 362, 361, 357, 353, 352, and 351. For many of these Garnsey assumes the Athenians effectively found grain. However, "Athens' food supply system was chronically insecure in the period down to 338." Garnsey concludes that the insecure supply moved into crisis only after the battle of Chaeronea in 338 B.C.E. (pgs. 154-162): 338, 335, 330, 328, 323 in addition to probable crises in 332, 329, and 325.

In the 4th century B.C.E., a large number of textual sources reveal more specifically the efforts Athens undertook to import grain. These efforts included commercial regulations and incentives designed to stimulate import. The only evidence from prior centuries is a possible ban on the export of all foodstuffs excepting olive oil.[337] Evidence primarily from 4th century legal speeches reveals rather strict regulation on grain merchants. For example, all grain merchants who were Athenian, had residence in Athens, or received Athenian capital were required to import all acquired grain to Athens.[338] As well, all grain ships entering the Piraeus were required to transport two-thirds of their grain over land to Athens.[339] Other laws served to reduce the ability of the wealthy to hoard grain and control prices.[340] These laws were all punishable by death and presumably enforced by either the grain-wardens or the market-wardens (*agoranomoi*).

On the other hand, incentives were provided for merchants who supplied the city's population with affordable grain. Specifically, the Bosporan kingdom seems to have been courted and is associated with grain exported to Athens from the end of the 5th century through much of the 4th century. Demosthenes, in *Against Leptines*, recorded that king Leukon of Bosporos supplied 400,000 medimnoi of grain, mentioning this amount could be checked in the official records.[341] The royal family was awarded citizenship for their supply of Athens.[342] Furthermore, he states that this amount is one-half of the grain imported in total that year. In an inscription dated to between 332 and 323 B.C.E., Cyrene sent 805,000 Aiginetan medimnoi of

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[337] Plut. *Sol.* 24.
[338] Garnsey 1988, 139-140 citing Dem. 34.37, 35.50, 56.6 and 11; Lyc. *Leocr*. 26-27.
[339] Garnsey 1988, 140 citing Arist. [*Ath. Pol.*] 51.4.
[340] Garnsey 1988, 141; Lys. *Against the Grain-dealers* reveals that no more than 50 baskets (unknown capacity) could be purchased at a time. Another law restricted the ability of grain-dealers to raise the price more than an obol for resale.
[341] Garnsey 1988, 96-99; West 1995 dates this speech to 355/4 B.C.E.
[342] Whitby 1998, 122.

grain to no fewer than 41 states, and one-eighth (100,000 medimnoi) was sent to Athens.[343] Several inscriptions record the honors the Athenian people of the 4th century B.C.E. and Hellenistic period bestowed upon benefactors, such as Leukon, supplying the city.[344] In addition to the occasional grant of citizenship or ability to own Athenian land, these individuals, and often their descendents, were publicly honored and could dine in the Athenian Prytaneion alongside politicians and other notables, at the public expense. For supplying the city with food, the city honored them in kind by providing public meals.

A tax paid in grain, dated to 374/3 B.C.E., levied upon the islands of Lemnos, Imbros, and Skyros demonstrated the Athenian state's market savvy.[345] The tribute called for these islands to send one-twelfth (8 1/3%) of their grain harvest to Athens. The collection of this tribute was sold to individual tax-farmers who were limited in the amount of tribute they could purchase, around a quarter of a ship's load. Ronald Stroud has suggested this practice encouraged the import of grain above and beyond that taxed.[346] Stroud's logic is that importers would wish to fill their ships and so bought local grain in addition to the collected tribute.[347] The above-mentioned laws would have required the Athenian tax-farmers to import all bought grain to Athens and directly transport at least 2/3 of imported grain to the Agora. The grain from the tax was to be stored in the Temple of Aiakos, immediately adjacent to the Agora. Stroud tentatively suggests the structure known as the Heliaia or "Rectangular Peribolos" in the Southwest of the Agora to be the Temple of Aiakos.

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[343] *SEG* IX 2.
[344] Whitby 1998, 122-123. *IG* II^2 360; 398; 408.
[345] *SEG* XXXVI 146; Stroud 1998.
[346] Stroud 1998, 112-117.
[347] Stroud suggests they would be in a favorable position to negotiate for surplus grain while collecting the tax.

The law decreed that the Athenian assembly each year voted upon the dates and prices for the sale of the grain collected by this tax.[348] The law specifically prohibits the sale of grain prior to the month of Anthesterion (January/February). Sale in Anthesterion and later would have been during the months immediately prior to the harvest, when the supply of food would be most scarce. Grain in this period would have fetched a larger price for the state. In addition, selling grain during this period would have helped alleviate the high prices charged by private grain speculators. Both the large amount of grain collected and the month of delivery– Maimakterion (October/November), marking the end of sailing season– in the grain tax law of 374/3 B.C.E. contrast with the first-fruits decree discussed above;[349] however, both demonstrate the savvy of the Athenians in understanding and maintaining some semblance of control over the Mediterranean grain market.

The Athenian Urban Lifestyle in the 4th century B.C.E.

The Athenian wartime strategy during the Peloponnesian Wars seems likely to have acted as a catalyst in the development of the Athenian urban lifestyle. Thucydides records that prior to this event most of the population lived in the countryside and now they were crammed within the city-walls living in temples, sacred land, towers, and eventually the area between the Athenian long-walls. "Not only were they about to change their way of life, but also each of them was doing nothing short of abandoning his own city."[350] Gomme's demographic assessment of the Athenian population suggests a greater concentration in the urban center in the 4th century B.C.E.

[348] Stroud 1998, 71-78.
[349] The amount for the first-fruits decree was seemingly insignificant (1/600 of the barley and 1/1200 of the wheat harvests), and as discussed above, it seems likely the first-fruits would have been due earlier.
[350] Thuc. 2.16. translated by Lattimore 1998.

than in prior periods.[351] Lohmann's survey data also suggests for the 4th century an increase in land ownership concentrated in the hands of larger farmers.[352] Foxhall's review of the 4th century textual evidence for Attic landholding suggests around 9% of the population controlled about half of available cultivable land.[353] It is plausible to suggest that the Peloponnesian Wars directly led to an increasingly urban Athenian population. Almost 25 years confined within the city-walls, dependent entirely upon the ready provision of grain through import must have left a mark upon the Athenian psyche and practices. It is possible that the 4th century urban population felt entitled to depend upon the regular availability of grain in the market.

Quantitative estimates of the Attic population and agricultural productivity, generally utilized in modern discussions of the Athenian food supply, do not provide a barometer of Athenian urban activity. On the other hand, the archaeological evidence for urban storage practices does suggest a decrease in the importance of primary storage in the 4th century B.C.E. It is likely that there was a relationship between private storage practice and Athenian commercial legislation of the 4th century. The evidence suggests that the 4th century Athenian urban lifestyle was characterized by an expectation that food could be acquired regularly in the market, eliminating the need for the direct acquisition and storage of foodstuffs. The development of urban infrastructure– transportation routes and commercial structures– both enabled and encouraged the availability of foodstuffs in the city.

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[351] Gomme 1933, 47 "[I]n 430 over half the population of Attica, in 330 nearly three-quarters, concentrated in the town-area." Gomme utilizes literary references in addition to grave inscriptions identifying a higher proportion of urban graves with individuals deriving from rural demes.

[352] Lohmann 1992, 51 "Taking into consideration the whole of Attica and the Megaris, there are growing signs that in the course of the 4th century B.C., there was a certain tendency towards a concentration of land ownership in the hands of the big farmers." Lohmann further suggests an increase in olive production at this time.

[353] Foxhall 1992 suggests slave-labor to be the primary force. However, she believes that such a conclusion should be applicable to the 5th century B.C.E, as well. She excludes the 5th century from her direct calculations due to a paucity of evidence.

While the period of the Peloponnesian Wars is extremely important as a catalyst in the urbanization of the Athenian population, it should be stressed that the development of the Athenian urban lifestyle was a longer term process begun prior and continued after. The urbanization of the city's infrastructure– both defensive walls and transportation routes– directly enabled Athenian military and commercial policies, in addition to the development of a private urban lifestyle. The Athenian urban lifestyle of the 4th century B.C.E. was characterized by a decreased interest in the private storage of both food and water. Instead it seems clear that water was regularly available due to the construction of urban infrastructure, both private and public: wells, cisterns, and fountains. Food was regularly available in the Athenian market due to urban infrastructure and civic laws. The challenge of the 4th century B.C.E. was to maintain the supply of food and water even as Athens' power diminished. However, the infrastructure and customs developed in the 5th century B.C.E. provided a framework upon which the Athenians were successfully able to continue their urban lifestyle into the Hellenistic and Roman periods when Athens was identified as symbol of higher civilization: cult, art, and education.

Chapter 4: Processing and Cooking Foodstuffs

The previous chapters describe the setting within which the Athenian urban lifestyle developed over the course of the Classical period. The development of an urban environment through infrastructural improvements and legal policies directly enabled an urban lifestyle where the acquisition and storage of food and water were not of everyday concern. However, the Athenians did engage in a wide variety of food related activity. Cooking, dining, processing, and exchanging foodstuffs were all extremely important facets of the Athenian urban lifestyle. This chapter focuses on the topic of food processing, with an emphasis on cooking due to the large body of archaeological evidence for this activity in urban Athens.

The processing of food created commodities that were exchanged in the urban market.[354] Commodities are defined here as foodstuffs, often processed, that urban Athenians acquired. Due to the lack of evidence for primary storage in the urban environment, foodstuff commodities are further identified by their low bulk. Ritual butchering, known from textual sources and faunal evidence, directly led to the sale of (specific) cuts of meat in the market. Other food processing techniques– i.e., pressing and milling– reduced the bulk of foodstuffs facilitating their transport to the market. Such large-scale processing techniques also saved time and space within the household. However, other food processing techniques, i.e., fermentation and salting, increased the shelf-life of foodstuff commodities. Many processing techniques would have created a product wholly different from the fresh version of a foodstuff, often increased in value. Both archaeological and textual evidence suggests an increase in the variety of foodstuffs available in the urban market. Similarly, an increased variety of cooking techniques were utilized over the

[354] On the commodification of Athenian foodstuffs see Wilkins 2000, 7 and on the development of this process and its effects in the Neolithic see Sherratt 1999. For more on commodities, in general, as exchangeable goods see Kopytoff 1986.

course of the 5th century B.C.E. The development of an Athenian urban cuisine emphasized diversity.

Sacrificial Butchering

Chapter 3 described the supply of meat to the urban population through both public and private sacrifices. However, the individuals conducting the sacrifice, presumably priests, were also skilled butchers.[355] Faunal remains from sacrificial deposits reveal the precision of Athenian sacrificers. Civic sacrifices often called for the distribution of equal sized chunks of meat, further demonstrating their skill. The process of butchering both enabled the specific practice of cultic ritual and directly led to the commodification of cuts of meat and other animal parts through their individual sale in the marketplace.

The ritual activity of blood sacrifice in Classical Athens has been approached by numerous scholars of Greek religion.[356] The defining feature of a Greek sanctuary was the altar where the sacrificial activity took place. Most Athenian sacrifice involved seven key activities taking place sequentially and according to specific ritual: 1) leading of the animal to the altar/appropriate place; 2) killing the animal; 3) butchering the animal; 4) dedicating part of the animal to the deity; 5 and 6) distributing the meat and cooking the meat (in either order); 7) consuming the meat.[357] Each phase of the sacrificial activity was important in its own right. Faunal remains provide evidence for the butchering of the animal and its ritual dedication to a deity. Faunal assemblages from sacrificial contexts throughout Greece, and specifically in association with the altar of Aphrodite Ourania in the Athenian Agora, demonstrate the

[355] Berthiaume 1982, 44-61.
[356] For varying approaches and bibliography see Burkert 1983 and Detienne and Vernant 1989.
[357] Different varieties of sacrifice were known including the burning of an entire animal and vegetable sacrifices; however, this section deals primarily with sacrifice wherein meat was distributed and consumed.

consistent ritual nature of the sacrificial process (Fig. 39).[358] Greek sacrificial faunal assemblages are consistently made up of burned caudal vertebrae (the tail) and femora (the thigh).[359] Textual sources and iconographic representations of sacrifice both confirm these to be the parts offered to the divinity, which provides direct evidence for the technical skill of Greek butchers.[360]

The Greek term μάγειρος was equivalent to three modern terms: sacrificer, butcher, and cook.[361] While our modern terms suggest very different contexts, the three can be reconciled through understanding that the μάγειρος dealt with the processing of food, specifically meat.[362] Jean-Louis Durand's study of the sacrificial process revealed a ritual topology of the animal.[363] Specific cuts of meat, notably the innards, were given the highest value in sacrificial ritual. The innards would have been consumed by honored participants, as well as by the sacrificer. The legs of the victims, often depicted iconographically on vases, were also considered honored body-parts often given to the sacrifice, but they were also awarded to victorious athletes, politicians, and others distinguished individuals.[364] The existence of valued cuts of meat contrasts with the democratic nature of civic sacrifice identified from inscriptions. The distribution of meat to other individuals was done in an egalitarian manner, with decrees specifying the similar size of cuts or

[358] Foster 1984 and Reese 1989 represent the only faunal analysis from Classical Athens; both study the assemblage associated with the altar of Aphrodite Ourania. Forstenpointner 2003 approaches sacrifice throughout Greece demonstrating its somewhat uniform nature in the cuts of meat dedicated to each deity.
[359] Reese 1989, 65. Of the burnt remains, 59.8% were vertebrae fragments and 16.7% femur fragments of predominantly sheep/goat. Reese provides further comparanda to other sites.
[360] Forstenpointner 2003, 203.
[361] Berthiaume 1982 provides a chapter on each role of the μάγειρος including a further chapter on the sale of meat.
[362] Rankin 1907, 9-10 describes how later lexicographers related the root of the word to μάσσω, "to knead," demonstrating its specific relationship to food processing in general and not just meat. Admittedly by Classical Athens, the μάγειρος was typically identified with meat butchering, but also cooking in general.
[363] Durand 1989.
[364] Tsoukala 2009 interprets the iconographic representation of legs on vases.

even the similar weight.[365] The skill of Athenian sacrificers created two types of commodities, honored cuts and egalitarian portions, both distributed differently.

The scale of civic sacrifices could be large– sometimes one hundred animals– and the remaining butchered parts of the animals were sold on the market, effectively becoming commodities. Animal hides seem an obvious example of this, as these were frequently awarded to sacrificers.[366] The Dermatikon Accounts from the late 4th century B.C.E. record the large-scale sale of animal hides by the polis after popular civic festivals.[367] However, additional meat from public (and private) sacrifices was sold in the market, as well.[368] The sale of leftover meat would have been necessary due to the fact that meat would not preserve for long without additional processing. Rosivach has noticed that the majority of cuts of meat mentioned in comedy as being sold in the market were low in quality, representing leftovers.[369] Several sources reveal that the sacrificer was often awarded both leftover meat and the share dedicated to the deity, left on the altar or sacrificial table.[370]

Sacrificial butchers likely acted as vendors (either wholesale or small-scale) of animal products.[371] Tsoukala has argued that cuts of meat, awarded to honored participants, were also transferred in a form of gift-exchange in Athens.[372] The two main protagonists of Aristophanes' comic play, the *Knights*, were a tanner and a sausage-seller. Both sell products deriving from

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[365] Berthiaume 1982, 50; Detienne 1989, 13; Schmitt-Pantel 1992, 49-52; Tsoukala 2009, 11-13.
[366] Tsoukala 2009, 9. Animal bones utilized for industrial purposes are also common non-food commodities created from sacrifice and these have been found in the Industrial District (Young 1951), related to the creation of bone-tools.
[367] Rosivach 1994, 48-60; *IG* II^2 1496 dating from 334-330 B.C.E.
[368] Wilkins 2000, 180; Tsoukala 2009, 11. For example, meat from the Panathenaia was sold in the Kerameikos: *SIG* I 271.
[369] Rosivach 1994, 85-86. Whether these leftovers derived from the equitable portions or not is unclear.
[370] Gill 1991, 15-19; Tsoukala 2009, 9.
[371] The question of whether animals were specifically butchered for market is fraught with difficulties. Rosivach 1994 argues no, but Berthiaume 1982, 64-67 makes a compelling case for yes. Wilkins 2000, 156-201 describes the "comic Agora," in which it seems as if meat, oftentimes specified by animal or cut (i.e., as a commodity), was sold frequently in the Athenian market.
[372] Tsoukala 2009 discusses the exchange of leg joints, as gifts, in iconographic scenes. Tsoukala suggests the leg joint symbolizes a generic honored cut of meat. Many of the images were courtship scenes.

sacrifice that have been processed into commodities.[373] Overall, it seems clear that urban sacrifice produced specific cuts of meat, understood here as commodities, available to the urban population through public distribution or sale in the market. Furthermore, the frequency of civic sacrifice, particularly the large-scale ones, demonstrates meat commodities would have been available in the market fairly regularly. The number of annual large-scale sacrifices does increase over the course of the Classical period with the addition of the anniversary of the Battle of Marathon, the Asklepieia in 420/19 B.C.E., and the sacrifice to Eirene in 374 B.C.E.[374]

Food Processing: The Commodification of Foodstuffs

There are several practical advantages to the processing of food. Some inedible products, such as certain legumes, acorns, and half-rotten food, can be made edible through soaking in water and/or cooking.[375] Food can be tenderized through processing, thus increasing our body's ability to absorb nutrients.[376] The removal of unnecessary animal and plant byproducts can decrease the bulk of foodstuffs and increase their transportability. Perhaps most importantly, effective processing of raw foodstuffs can increase their shelf-life. A combination of such processing techniques created valued commodities that were able to be stored, transported, and distributed in the Athenian marketplace, enabling the development of the urban lifestyle. Furthermore the variety of processing techniques created a diverse array of foodstuffs with an increased value. These food processing techniques formed a prominent activity in both the rural and urban environment of Athens.

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[373] Wilkins 2000, 179-183 who interprets the sausage-seller as a black-pudding (ἄλλας) seller. Regardless the point is similar.
[374] Rosivach 1994, 55-57. It should be noted that the evidence for identifying these events as large-scale sacrifices dates from the 4th century B.C.E. Without something akin to the "Dermatikon Accounts" from the 5th century, it is difficult to compare the two periods.
[375] Flint-Hamilton 1999 on legumes; Mason 1995 on acorns.
[376] Wrangham 2009, 67-76 details the calorie advantages of tenderized food, in particular its ease in digestibility.

With the exceptions of canning, refrigeration, and radiation treatment, modern food processing differs little from techniques known in antiquity. It even seems possible that Athenians could have utilized their wells and subterranean pithoi as low quality refrigerators. Furthermore, the lids created for ceramic vessels (ceramic, hide, cloth, etc.) were oftentimes tightly fitting and would have been quite effective in protecting foodstuffs. Heat-treatment (cooking), the reduction of water movement (drying and salting), the increase of acidity (fermentation and pickling), and the suspension of foodstuffs in a preservative agent possessing one or more of the above properties (olive oil, honey, vinegar) are all effective processing techniques used today and in Classical Athens that would increase the shelf-life of food products.[377] Furthermore, they all create specific commodities, increased in value and utility, and altered in form, for a consumer. While many of these techniques have left minimal archaeological traces, other techniques such as the pressing of fruits, the mashing (tenderizing) of vegetables and meat, as well as the threshing and milling of grain are extant. All of these techniques, individually or in combination, contributed to the creation of available commodities that were transportable, storable, nutritious, and delicious.

Rural areas provided a superior setting for several food processing techniques. The threshing of grain is one-such activity, and archaeological evidence for numerous threshing floors confirms its rural locale.[378] The dry Attic landscape would have favored the growth of barley, instead of wheat.[379] Furthermore, the harvest information provided from the first-fruits inscription of 329 B.C.E. seems to provide evidence for the predominance of barley agriculture

[377] The entries in Gould 1989 concerned with the mechanisms of action in modern food preservation techniques acknowledge the antiquity of specific methods.
[378] Young 1956 publishes threshing floors in Sounion specifically in relation to the Princess Tower and the Cliff Tower. Lohmann 1992 publishes several threshing floors found in the survey of Atene.
[379] Garnsey 1988, 10-11 records that barley requires 200-250 mm of rainfall, while wheat requires ca. 300 mm. Garnsey analyzes the precipitation in Attica from 1931-1960 and estimates that a barley crop would have failed (meaning not received adequate rainfall for optimal production) once every twenty years, while wheat would have failed once every four years.

in Attica.[380] Barley, as a hulled grain, would have also been less prone to damage from mildew or pests than unhulled wheat grains.[381] However, this hull would have also made it a much bulkier commodity for transport. As well, it would have required parching prior to cooking to remove the hull for its use as a foodstuff.[382]

The rural threshing of grain and perhaps parching of barley,[383] would have eased its transport to the urban area. The milling of grain into flour would have created a different product further reduced in bulkiness. Aristophanes identified a stoa in the Agora as selling processed barley-meal.[384] Presses for olives and grapes are also found primarily in rural contexts, again representing food processing creating a new commodity of increased value and decreased bulkiness.[385] As well, the rural labor input would have reduced the efforts of an urban consumer, creating commodities of increased utility and value. As long as these processed products were stored properly, they represented important commodities readily available to the urban population. Perhaps such processing steps were largely conducted in the rural environment due to the large amount of space required for such processing activities.[386]

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[380] *IG* II^2 1672 dated to 329/8 B.C.E. records the harvest of ten times more Attic barley than wheat: Garnsey 1988, 98. However, Garnsey suggests this might have been a bad harvest, which would have harmed the wheat harvest more than the barley harvest, thus skewing our data. Unfortunately there are no published botanical studies for Classical Athens.
[381] Garnsey 1988, 55.
[382] Dalby 2003, 46.
[383] There is little evidence concerning the location of barley-parching; however, I suggest the activity to have been rural due to the decreased bulk of the plant. On the other hand, unparched barley would store longer, perhaps suggesting it was parched as needed.
[384] As mentioned in Chapter 3, Ar. *Eccl.* 686 mentions a stoa in the vicinity of the Agora used to sell barley-meal (στοιὰν ἀλφιτόπωλιν). In addition to this the scholiast to Ar. *Plut.* 1037 records that flour was sold in the Agora from a make-shift wooden enclosure (τηλία). Although the presence of querns, grindstones, and possible parchers in the Agora area demonstrates that some grinding did occur within the urban environment (Sparkes 1962).
[385] Foxhall 2007, 176; 199-200 lists pressing equipment found in Attica. These are also mentioned in Lohmann 1992. Although Foxhall 2001, 174-175 lists pressing equipment found in smaller towns such as Olynthos and Halieis.
[386] I thank Kathleen Lynch for this suggestion.

Fermentation is one of the better known techniques practiced by the Athenians. This process would have converted grapes to wine and milk to cheese.[387] While beer, produced from grain, was known in the Mediterranean, most evidence reveals wine to be the most popular fermented drink in Attica and Athens.[388] Fresh grapes and milk would not have been edible for long in the warm Greek climate. Fermentation is a process that radically alters the product through the addition of a catalyst, which creates an acidic environment.[389] Through fermentation both wine and cheese would have been created. If properly stored and sealed in a vessel, perhaps further sealed by a lipid or other airtight preservative (olive oil, honey, pitch etc.), wine and cheese could have been preserved for months if not years. It seems likely that the fermentation process would have been performed in the rural countryside since milk would go bad quickly and wine required a large amount of storage and processing space. As the connoisseurship of both cheese and wine today demonstrates, individual processors could have created unique products ranging in quality and value. Athenian sources identify both wine and cheese by flavor and production region.[390] Fermentation would have created a diverse array of high-value commodities able to be stored long term. Furthermore, these products would have been easily transportable for exchange in the urban environment.

The remaining food processing techniques, with the exception of cooking, have left less trace in the archaeological and textual record. However, it does seem likely that a wide variety of

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[387] Dalby 2003, 80-81; 350-360. This evidence is mainly from literary sources, which mention both cheese and (especially) wine frequently.
[388] Dalby 2003, 50-51.
[389] Booth and Kroll 1989. Yeast was generally added to make alcohol and rennet or lactic acid was often added to make cheese.
[390] Ar. *Vesp.* 838 describes a small shaped cheese (τροφαλίς) from Sicily. Dalby 2003 80-81 provides citations for honeyed and salted cheese, and on 353 provides evidence for six different common flavors of wine derived from primarily Roman sources: salted, pitched, resonated, smoked, honeyed, and spiced. Lawall 1995 provides both archaeological (in the form of transport amphoras) and literary evidence for the extensive import of wine to Athens. Dalby 2003, 82, citing Classical Athenian sources, relates that Chian wine was particularly prized (supported by amphora remains).

foodstuffs were preserved through their suspension in products resistant to bacterial growth. Residue analysis carried out on amphoras from a shipwreck and textual sources demonstrate that meat, especially fish, was dried and/or salted. Such commodities were also transported over long distance.[391] The area around the Piraeus was known as the "halipedon" or salt fields, suggesting the Athenian use of the sea to procure salt.[392] Sausages would have had a relatively long shelf-life due to the practice of salting, high fat content, and encasement in a tightly wrapped intestinal membrane.[393] In addition to drying, salting, and animal fat, both honey and olive oil reduce the movement of water in organic material, reducing its susceptibility to bacteria in addition to altering its flavor. Vinegar could have also been used for pickling as a highly acidic preservative.[394] Several of these preservatives were processed commodities themselves. For example, vinegar was created by fermenting wine a second time through exposing it to oxygen. Most importantly, these ingredients, including charcoal for drying,[395] were all available in the urban Athenian market, representing ingredients that could be used to process storable foodstuff commodities.

The archaeological evidence for the production of honey presents an interesting case study in food processing. Honey was the primary sweetener known from ancient Greece and as such was in high demand for its flavor.[396] Greek textual sources demonstrate clearly that it was

[391] Carlson 2003 provides evidence for salted meat in amphorai found on a Classical shipwreck. Hermippus frag. 63 records beef ribs imported from Thessaly (presumably salted or dried as Rosivach 1994, 86 suggests). Salted fish is better known from textual records (Dalby 2003, 290-291), and even fermented fish remains in the form of garum quoted from Aeschylus in Ath. E 67b-c (Dalby 2003, 156-157).
[392] Other salt fields in antiquity include New Halos (Reinders and Prummel 2003, 30) and Motya (Isserlin 1971).
[393] Dalby 2003, 294-295 also relates that sausages were frequently cured with salt; however, it is unclear if he is referring to Athenian literary sources or not.
[394] Dalby 2003, 343.
[395] Tsakirgis 2006 suggests the domestic use of charcoal in Athens. Drying could have been done with both charcoal or wood; however, the consistent heat provided by charcoal would make this product superior.
[396] Dalby 2003, 314. The first ancient mention of sugar occurs after Alexander's conquest to the east.

added to wine for this purpose.[397] In addition to taste, honey would have been useful for baking since it helped brown or crisp the dough; honeyed cakes were mentioned frequently in Athenian literary sources as treats and even cultic dedications.[398] Honey is also an excellent preservative due to its low-water content, high acidity, high viscosity, and other anti-microbial properties.[399] These properties would have served to preserve any foodstuff suspended within. Euripides, in a passage quoted from Athenaeus, mentions cakes steeped in honey, which could have served to preserve their freshness longer.[400] Another passage quoted in Athenaeus by Pherecrates mentions cheese in honey.[401] While honey is mentioned in association with other foods, such as fruit and meat, by Attic writers, there is no conclusive statement that it was used as a preservative. However, in a cookbook written in the 1st century C.E., Apicius describes numerous fruits and meats that could be preserved in honey.[402] Attic honey from Mt. Hymettos, to the southeast of Athens, was renowned in antiquity.[403] It seems likely that the Athenians used honey as both a preservative and as an additive for its sweet flavor in the creation of processed foodstuff commodities: baked cakes; honeyed fruits and vegetables; sweetmeats and fish; honeyed milk, yogurt, and cheese; and as its own delicacy augmented with additional spices or flavors.

Beekeeping was a well-known practice in Classical Athens. Plato mentions the food available for bees on Mt. Hymettos, and Pseudo-Aristotle describes the technical aspects of beekeeping in the *History of Animals*.[404] The artifact assemblage from the rural Vari House, dating to the end of the 4th century B.C.E., contained thirty ceramic beehives, twenty-eight rings,

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[397] Dalby 2003, 179-180; 222-223.
[398] Dalby 2003, 68-71; 179-180.
[399] Crane 1999, 502.
[400] Ath. 14.46 = Eur. fr. 467. κροτητὰ τῆς ξουθοπτέρου πελάνῳ μελίσσης ἀφθόνως δεδευμένα. Perhaps similar to how modern honey-drenched baklava preserves rather well.
[401] Pherec. fr. 50; Wilkins 2000, 375.
[402] Crane 1999, 505.
[403] Hor. *Odes* 2.6.13; Strabo 9.399; Paus. 1.32.1; Plin. *HN* 11.32.
[404] Pl. *Criti.* 111 c-d; Arist. *Hist. an.* 9.40.624-627.

and twenty lids associated with beekeeping.[405] Literary evidence reveals that the bees would have been smoked out, and the honeycombs boiled in water to create honey.[406] Numerous examples of these ceramic beehives have been found in the Athenian Agora in deposits dating from the end of the 5th century B.C.E. into the Hellenistic period.[407] Susan Rotroff suggests the catalyst for their appearance was the Peloponnesian Wars and the movement of the Attic population into the city. Since the ceramic beehives were scattered in several different deposits throughout the Agora and a few included lead clamps applied to repair the vessel, Rotroff suggests these beehives were used in the city. While honey would not have been processed on the scale seen from the rural Vari House, its processing was an important urban domestic practice, probably in the form of a household industry. Honey processed in the urban environment could have been used in the household, sold as a commodity, or combined with other ingredients to form a further valuable commodity.

The development of the terms σῖτος (grain/bread) and ὀψον (accompanying foodstuffs) suggests that a wider variety of processed commodities were available to the urban population over the course of the Classical period. The staple of Athenian meals was the σῖτος, and while ὀψον was a necessary accompaniment to many meals, it did not figure prominently in the Athenian diet but was rather a delicious extra. In Athenian philosophical discourses and comedy, the eating of ὀψον was equated with luxury. James Davidson has reviewed the etymology and history of ὀψον.[408] It derived from the word ἕψω (= to boil), and its etymology is specifically referred to in this manner by Socrates in a discussion of ὀψοφαγία. However, in Attic comedy of

[405] Jones et al. 1973, 397-414 discusses modern analogies and consults ancient literary evidence mentioning beehives. The ceramic beehives were confirmed to contain beeswax, smeared on to attract bees, through chemical analyses.
[406] Arist. *Hist. an.*
[407] Rotroff 2006, 124-131. A total of 71 hives, covers, and rings have been found.
[408] Davidson 1997, 21-33.

the late 5th and 4th century B.C.E., the word most often meant fish as a specific form of luxury.[409] The evolution in the definition of this word is clear, the term ὀψον commonly referred to only fish (except in scholarly or etymological discussions) by the 3rd century B.C.E. or slightly later This development of meaning may reflect a change in cuisine. In both meanings, the word was equated with luxury, often in a negative light. However, a grain diet needed to be supplemented with additional nutrients, and the earlier meaning of ὀψον implied its universal consumption. Therefore, it seems possible that the Athenian grain-based diet diversified over time and the connotation of luxury applied more aptly to a specific gourmet item: expensive fish.[410] In particular, the mention of foreign fish products in Athens suggests these specialty commodities to be the essence of ὀψον.[411] It seems possible that other varieties of foodstuffs stopped being associated with ὀψον due to their increased availability and inclusion in urban cuisine.

The processing of foodstuffs created a varied assortment of commodified products available in urban Athens. Processing activities that increased the transportability of a commodity– pressing, threshing, milling, fermentation– seem to have been practiced in the rural environment. Other food processing activities such as the curing of meats seem likely to have been practiced by the urban population, perhaps due to the availability of a wide range of commodities in the urban market.[412] The example of honey demonstrates that food processing took place both in the rural and urban setting. The archaeological evidence for an increase in honey production in Agora area in the 4th century B.C.E. suggests that a larger segment of the urban population engaged in the practice of food processing at this time. In addition, the change

[409] Wilkins 2000 mentions it can still refer to non-fish food items, on occasion, in 4th century comedy; however, it is implied that the meaning fish is far more common in this genre.
[410] Davidson 1997 provides evidence for this conclusion.
[411] Kopaic eels from Beoetia are a good example: Ar. *Ach.* 880.
[412] It seems likely that processed meat derived largely from civic sacrifices, wherein the animals were transported to Athens and commodified in the city. However, it is possible meat was cured in the rural environment. In fact, the above observations should be seen as trends, not as hard and dry facts.

in meaning of the term ὀψον suggests that other urban food processing industries similarly developed over the course of the Classical period. The regular urban availability of a variety of raw and processed products certainly supports such an argument.[413] While the evidence is sparse, it seems possible that there was an increase in the variety of valuable foodstuff commodities with a long-shelf life and diverse flavors available to the urban Athenian population in the 4th century B.C.E. The only objective way to prove such a conclusion would be through the examination of food remains found in dated archaeological contexts.[414] Support for this conclusion can perhaps be found below due to an increase in the variety of both cooking and dining vessels during the Classical period.

Cooking up an Urban Athenian Cuisine

There is clear evidence for an increase in the variety of cooking techniques over the course of the Classical period. Food could be prepared by the state in both civic and religious contexts. In other contexts food was prepared by members of the household or hired professionals. These diverse methods of food preparation would involve not only separate social contexts but different types of meals.

Most importantly, public festivals, centered on the sacrificed animal, offered a cuisine far different from private meals centered on the consumption of grains.[415] Athens was reputed for the many festivals offered to residents, and many celebrations called for the consumption of specific foodstuffs. Public cuisine was prepared in a fixed location, often defined architecturally.

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[413] As mentioned in Chapter 3, Isocr. *Paneg.* 4.42 described Athens as "an emporion in the center of Greece from which could be obtained produce not readily available elsewhere" (transl. Garland 2001, 87).
[414] Since most of our literary evidence for foodstuff commodities derives from late 5th century and 4th century comic plays it is impossible to compare with the previous period.
[415] As mentioned above, Rosivach 1994 estimates citizens would have participated in ca. 40-45 sacrificial meals a year.

Sanctuaries were marked by altars used for butchering and perhaps roasting. Similarly, the Tholos in the Agora where the Athenian council members dined, was equipped with an architecturally defined kitchen.[416] The comparable, but undiscovered, Prytaneion where honored individuals, politicians, and foreign dignitaries dined was rhetorically identified as the city's hearth.[417] Public meals would have been prepared in a formal manner laid down by ritual or legal authorities. They would not have been available on demand to the population but under certain conditions. Festivals were available to a wide segment of the population but only on certain days and in set locations. On the other hand, only Athenians who were elected, chosen by lot, or awarded a particular honor would have dined on state meals.[418] Public meals provided one type of food preparation methods and urban cuisine available to the city's population, which contrasts with domestic preparation.

In contrast to the fixed location of public food preparation, the assemblage of Athenian vessels and utensils utilized for private food preparation and cooking was by nature extremely portable. Both mixing bowls and mortars for grinding or chopping were highly portable. Only one fixed hearth has been identified from an Athenian house, and it seems likely that charcoal was the main fuel source utilized in portable braziers.[419] Portable cooking-stands, able to hold a pot over a range of different fires, are also known.[420] Cookpots were most often equipped with handles, emphasizing their portability.[421] Overall, it seems as if most private food preparation could have and would have been conducted in whatever domestic space was most beneficial.

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[416] Thompson 1940, 73-84. Admittedly the broiling pits found date to the predecessor of the Tholos (Building F); however, the Tholos kitchen, as identified by Thompson 1940, was equipped with necessary drainage and its identification through exclusion suggests the room served as a kitchen. Barbara Tsakirgis (pers. comm.), who is currently studying the structure, also believes the space to be an architecturally defined kitchen.
[417] Tsakirgis 2006.
[418] i.e., at the Prytaneion or Tholos.
[419] Tsakirgis 2006.
[420] Morris 1985.
[421] Swinford 2006 analyzes the portability of braziers and cooking vessels in Athens, Olynthos, and Halieis.

During good weather such activity would have taken place outside in the courtyard where water and drainage were readily available. Furthermore, an open environment would be preferable for stoking the embers and dissipating the smoke. On the other hand, in the case of inclement weather, cooking surely occurred inside Athenian homes as well.

Over the course of the 5th century B.C.E., several changes occurred in the assemblage of vessels used for food preparation. The importation of mortars for crushing food, the addition of new cooking vessel forms, and the change in fabric of Athenian cookpots all signify important developments in urban Athenian food preparation techniques. The increase in variety of food preparation techniques is perhaps directly related to the increase in the variety of commodified foodstuffs in the urban market. New commodities available regularly encouraged new cooking techniques. For example, the 4th century B.C.E. development of the chef (μάγειρος) as a common comic character, one with professional knowledge in the elaborate preparation of foodstuffs, can be seen as reflecting the newly developed urban Athenian cuisine.

John Wilkins has suggested that the topic of food in Athenian comedy can be seen as a celebration of the good life– τα ἀγαθά.[422] Such an association emphasizes the importance of foodstuffs, in their variety, to urban life. Comedies of all periods lavishly describe utopian feasts prepared in a large variety of manners. The mention of exotic foodstuffs and esoteric food-preparation techniques served to display the linguistic comedic skill of the poet, as well as the public celebration of food, as an ingredient of the good life. In addition, foodstuffs carried cultural meanings, which were exaggerated in order to characterize individuals. Wilkins has identified a shift in the act of preparing a meal in Middle and New Comedy, around 370-350 B.C.E.[423] In Aristophanes' complete plays and other fragments of Old Comedy, food

[422] Wilkins 2000, 47-51.
[423] Wilkins 2000, 369-415.

preparation, specifically communal sacrifice, was often conducted or managed by the protagonist of the play. However in Middle and New Comedy, a professional chef became a stock character and prominent role in many plays. This comic chef would expound upon recipes and cooking methods in a comedically boastful manner:

> Chef: So I tell you to boil the little glaukos, as on other occasions, in salt water.
> A: And the little sea bass?
> Chef: Roast whole.
> A: The sturgeon?
> Chef: Boil in a sour mince.
> A: The little eel?
> Chef: Salt, oregano, water.
> A: The conger?
> Chef: The same.
> A: The ray?
> Chef: Green herbs.
> A: There's also a tuna cutlet.
> Chef: You will roast it.
> A: Kid meat.
> Chef: Roasted.
> A: The Other.
> Chef: The opposite.
> A: The spleen?
> Chef: Let it be stuffed.
> A: The empty jejunum?
> Chef: This man will be the end of me![424]

The ability of the Athenian audience in the 4th century B.C.E. to recognize increasingly varied cooking techniques corresponds with an increase in the variety of food preparation vessels utilized by the Athenians.

The care Athenians took on a domestic level to process their food properly can be seen in the import of querns and grinders, both made of abrasive volcanic stone not available in Attica

[424] Antiphanes, *Philotis* fr. 221 (transl. Wilkins 2000, 380-381). Other examples describing a variety of culinary techniques from Attic Middle and New Comedy include Sotades *Locked Up Women*, fr. 1; Menander *False Herakles,* fr. 409; Dionysius *Thesmophoros*, fr. 2.

(Fig. 40).[425] Volcanic groundstone was imported to Attica from an early period. These materials ensured a finer, more uniform grinding, particularly for flour. Tenderizing and grinding of food is an activity done to improve the taste of food and it also greatly aids in absorbing nutrients (digesting).

Similarly, the Athenians imported Corinthian-produced ceramic mortars beginning in the late 6th century B.C.E (Fig. 40). In the course of the 5th century B.C.E. locally produced mortars all but disappear and imported Corinthian mortars dominate the domestic assemblage throughout the Agora and surroundings up until Corinth's destruction in 146 B.C.E.[426] Ceramic mortars were wide, shallow vessels equipped with a spout (implying use with a liquid). Identified with the Greek terms θυεία and ἴδρις, these multi-purpose utensils seem to have been primarily used for chopping, pounding, crushing, and mixing.[427] A wide range of specific functions has been suggested including cheese-making, grain grinding, and sauce preparation.[428] Their functional characteristics allow for a wide variety of food processing, and it is possible to imagine other suitable activities: meat-tenderizing, cracking nuts, the juicing of fruits or vegetables, the pounding of pâté, or even the scrubbing of clothes.[429] Athens is traditionally known as a high quality ceramic producer and a large scale ceramic exporter; however, Corinthian mortars were one of only a few vessel-types commonly imported.[430] These mortars, in Corinthian sandy class tile fabric, were moldmade unlike most Athenian vessels of the Classical period. Their fabric included a heavy temper of shale and hornfels, and the interior surface of the mortars was often

[425] Sparkes 1962, 125. A quern and grinder are large stone implements used together to grind grain (i.e., a mano and metate as referred to in the American Southwest). One would kneel in front of the quern and use the stone grinder.
[426] Sparkes and Talcott 1970, 222. Rotroff 2006, 100-102.
[427] Amyx 1958, 235-238; Sparkes 1962, 125-126; Sparkes and Talcott 1970, 221-223; Rotroff 2006, 99-103.
[428] Rotroff 2006, 99-103 argues against their use for cheese-making and grain grinding; although, it seems at least possible these activities could have been conducted, in connection with domestic practices.
[429] The crushing of pigments has been suggested as well, cited above in Rotroff 2006.
[430] Sparkes and Talcott 1970, 36-37. Basins and louteria were also made of Corinthian tile fabric. For cooking pots see below. Such an importation contrasts with other coarse fabric food processing vessels such as lekanai.

graveled, increasing its grittiness. The import of Corinthian mortars demonstrates a significant choice made by Classical Athenian consumers revealing the care they attached to the processing of food.[431]

There is evidence to suggest that Athenian cookpots also could have also been imported in large quantity. It is impossible to distinguish by the naked eye whether the cooking ware fabric of these vessels originated in Athens or Aegina. Mineralogical tests of a small sample have confirmed both locations, but the proportion is unknown. Furthermore, Aegina was known in antiquity as a producer of fine cookpots.[432] While this cooking ware fabric is not found in deposits much later than 400 B.C.E., the majority of inventoried cookpots in the Hellenistic period are foreign in origin. However, each vessel-type of proposed foreign origin is only represented at most in a few examples, and Rotroff argues them not to be evidence of regular importation. As well, Rotroff's study of an objective and large deposit sample has demonstrated the large proportion of inventoried foreign cookpots to be a factor of modern collection and publication practices.[433] In fact, "locally produced" cookpots seem to dominate the assemblage in Rotroff's deposit sample.[434] Overall, it seems impossible at this time to determine whether cookpots were ever imported in large quantities at anytime in Athens. That said, they are present in the Athenian archaeological record in a quantity that is seemingly larger than other vessel-types. Perhaps these foreign vessels were frequent odd accompaniments to a traveler or migrant and could represent an archaeological signature for the mobile segment of the population.

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[431] While they were moldmade, suggesting mass-production, the cost of transporting such bulky objects must have been high.

[432] Admittedly this is circular logic, since the citations provided in Farnsworth 1964, 223 aided in the identification of Aegina as a possible production center. Jones 1986, 724-727 mentions that while Aegina does seem a plausible source, it is not proven.

[433] Rotroff 2006, 165-166: "… excavators tended to dismiss the standard chytrai as uninteresting because they were so common, while they inventoried each instance of an unusual shape."

[434] On the other hand, Rotroff 2006, 165 admits: "No rigorous division between Attic and non-Attic has been attempted. A number of forms emerge, however, as typical of the assemblage, and we are probably correct to regard them as primarily of Attic manufacture."

Cookpots of the Archaic period were one-handled, narrow-mouthed, lidless pots, and around 500 B.C.E. a two-handled, wide-mouthed, lidded[435] cookpot variety was added to the assemblage (Fig. 41).[436] Both were fairly large, equivalent to a modern stewpot, and were made of a coarse cooking fabric that had been anvil beaten providing low weight, low porosity, and thin walls beneficial for thermal conductivity.[437] Michel Bats has identified the lidless pot as the Greek χύτρα and the lidded pot as the κακκαβή.[438] The fact that these two forms both existed contemporaneously throughout the Classical period demonstrates a utility for each. In particular the lid would have been useful to prevent the escape of heat and/or the evaporation of water, useful for slow-cooking, as in stewing or baking.[439] These pots were often equipped with a spout that developed merely into a steam outlet[440] further suggesting slow-cooking, which is also supported by their wide-squat nature promoting even thermal conductivity. Similarly, in a comic play by Philemon, a chef brags, "I set the fire so low and gentle for baking the fish that I won't be believed."[441] The lidless variety would have been used for rapid boiling, where evaporation was not an issue, as for a soup. However, it should be noted that a user of the lidded variety could have omitted the lid or vice versa.

A third cookpot shape, known as the lopas (λοπάς), was added in the third quarter of the 5th century B.C.E.[442] In literature this vessel is predominantly associated with the cooking of

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[435] Identified through an interior ledge designed to hold a tight-fitting lid.
[436] Sparkes and Talcott 1970, 224-226; Rotroff 2006, 165-178.
[437] The cooking ware fabric of the 8th-5th centuries in Athens is similar if not identical to that used for water vessels described in Chapter 2. See Schiffer 1990 on the benefits of low porosity to thermal conductivity.
[438] Bats 1988, 43-48 provides ancient citations for each to suggest specific function. The χύτρα was used to boil vegetables and meat in water to create porridge, purées, soups, and broths. The κακκαβή, only mentioned in a few literary examples, was used to bake fish, prepare meat stew, and for braising. While it is important to understand their functional characteristics Rotroff 2006, 167 reminds us that attaching such specificity from name to form or even form to task is a dangerous practice.
[439] Isaakidou 2007, 12-13 applies similar conclusions to two Minoan cookpot forms.
[440] Although some of these are not pierced and could not have been used in such a way; Sparkes 1962, 131 suggests a function as a ladle holder.
[441] Philemon *The Soldier* fr. 82 (transl. Wilkins 2000, 388).
[442] Sparkes and Talcott 1970, 227-228; Rotroff 2006, 178-186.

fish, either by baking, frying, braising, or stewing.[443] It is a smaller, lidded vessel and has been suggested to have enabled frying, in general.[444] The co-existence of three popular cooking vessels at this point in time seems to demonstrate a development of a finer sophistication in cooking techniques. The development of these cookpots provides evidence for the large variety of dishes prepared in Athenian cuisine and related by comic poets. A chef from *Locked Up Women* by Sotades demonstrates boiling, baking, and frying in one meal:

> First I got some prawns. I fried these up. A large sturgeon has been acquired. I baked the middle section and the other bits and pieces I shall boil up suing a mulberry sauce. I carry in two huge heads of the glaukos, these in a mighty stewpot [ἐν λοπάδι μεγάλῃ], lightly adding green herbs, cumin, salt, water, and some oil.[445]

By the second half of the 5th century B.C.E., it seems as if the urban population developed a variety of cooking techniques appropriate to the variety of processed foodstuff commodities available in the city.[446]

After the Peloponnesian Wars, these three cookpot forms all continued to be produced and used but were produced in a different fabric. The classical cooking fabric of the 4th century and early 3rd century B.C.E. was not produced through beating on an anvil but formed by hand and/or by wheel.[447] This technique would have produced a thicker, less porous fabric, reducing thermal conductivity. However, a thin glaze wash was often applied decreasing porosity, and the addition of feldspar as a temper would have acted to further increase thermal conductivity. The thicker walls would have created a heavier vessel, although these were never too large or heavy as to be a problem. An additional advantage of the increased porosity of the 4th and 3rd century

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[443] Bats 1988, 50 mentions only one example where the λοπάς is associated with cooking legumes.
[444] Sparkes and Talcott 1970, 227.
[445] Sotades fr. 1 (transl. Wilkins 2000, 382).
[446] Notably the emphasis on fish in these passages is directly due to their association with luxury (ὄψον).
[447] Sparkes and Talcott 1970, 34-36; Rotroff 2006, 38-39; although on pg. 173 she notes one example (no. 595) that was "perhaps formed by the beater-and-anvil method" but on pg. 307 she suggests it was probably handmade.

cooking ware fabric could have been the seasoning of a cookpot. Foodstuff commodities were often suspended in a preservative (honey, olive oil, vinegar, salt) that could have acted to reduce the porosity of the vessel and would have left a distinctive taste in the vessel. By cooking such commodities in vessels with an increased porosity, the vessels would have been better seasoned, perhaps improving the taste imparted by the cooking vessel and also reducing its porosity. However, the most evident advantage of this change in fabric was the ease in production. This would have permitted potters to mass-produce the vessels for the urban market, a topic discussed more fully in the next chapter.

While cookpots could be placed directly on coals, the use of a brazier would have enabled more control over the applied heat (Fig. 42).[448] Coals would have been placed within the bottom of a brazier and the cookpot set on top, enabling even thermal conductivity. Braziers were used in Athens from the 7th century B.C.E. through the Hellenistic period. The introduction of the eschara in the 5th century B.C.E. added further variety to cooking techniques.[449] Escharai were equipped with spit-rests on either side, enabling the controlled grilling of meat.[450] In addition, escharai could have served as portable heaters, or even braziers upon which to rest pots. The advantage of both escharai and braziers is their portability.[451] Both a large and a small form of escharai are known. Other cooking devices including cooking-bells, barrel-cookers, and ovens are known in ceramic from both the Archaic and Classical periods.[452] These cooking devices would have primarily been used for baking, especially bread or cakes. However, the few published examples provide minimal detail concerning chronological development. Overall, the

[448] Sparkes and Talcott 1970, 232-233.
[449] Sparkes and Talcott 1970, 234-235.
[450] Similar to modern Greek souvlaki.
[451] Swinford 2006.
[452] Sparkes 1962; Sparkes and Talcott 1970, 233-234; Sparkes 1981.

the Classical Athenian cooking vessel assemblage is remarkably varied, and clearly increases in diversity with time.

Over the course of the Classical period a number of developments in the preparation of food seem to have taken place. The interest of the urban Athenians in cuisine is revealed through the evidence from comic plays, which correlates to archaeological evidence seen in the import of Corinthian mortars, the development of a variety of cookpot forms, and the mass production of such vessels. Overall, it appears as if more food preparation options were available, particularly when considering both public and professionally prepared meals alongside private domestic preparation. These trends correspond well with other forms of Attic food processing, particularly those taking place in the urban environment (meat and honey processing). It is possible that a more varied set of commodities– both increased in value (in a nutritional, economic, and flavorful sense) and able to be preserved longer– were available in the Athenian Agora and surroundings. The increased variety of processed commodities, implied from the evolution of the term ὄψον, promoted an urban cuisine prepared in a diverse manner. The urban lifestyle that developed over the course of the Classical period in Athens was far more concerned with activities relating to the skilled processing of food rather than simple sustenance.

Chapter 5: Eat, Drink and Be Merry

Unlike the previous topics, the consumption– and vessels utilized for the consumption– of foodstuffs in Classical Athens is well studied in modern scholarship. The limited goal here is to build upon the results of the previous chapters to demonstrate cultural change through the Classical period, specifically change that can be identified as the development of an Athenian urban lifestyle. In particular, food and drinking vessels provide evidence for democratic dining, group drinking, and an increased importance in the consumption of food. An argument is presented that the success of Athenian democracy was due in part to democratic dining practices. Democratic dining is defined here as the dining activity engaged by state officials.[453] The state provided pay to those who chose to attend assembly meetings and volunteer as jurors. However, several state magistracies, often chosen by lot, involved a more serious commitment of time. For these positions the state provided a food allowance and a place to dine, enabling participation in these posts. In this way democratic dining is seen as essential to the success of the Athenian democracy, which stressed the involvement of a large proportion of the citizens.

The importance of the activity of wine drinking is often singled out as exemplifying Athenian culture. The prominence of the symposium, the specific ritual of wine drinking, is quite evident from both literary and archaeological datasets. While Plato's *Symposium* might be the most famous example of this practice, the ceramic evidence from Athens demonstrates the importance of wine drinking. Ceramics associated with the activity of wine drinking vastly outnumber other table vessels in the archaeological record. This prominence continues throughout Classical Athens; however, changes in the assemblage of vessels associated with drinking reflect the rise of the Athenian urban lifestyle. Notably, vessels become less elegant,

[453] Democratic dining can be seen as a subset of civic dining, which would, for example, include sacrificial events where all citizens were welcome.

sturdier (more resistant to mechanical stress), and increasingly mass-produced. These traits signify that the activity of group drinking becomes more accessible to the Athenian urban population over the course of the Classical period. Most importantly, near the end of the 5th century B.C.E. vessels purposefully designed for the consumption of food become a more visible feature of the Athenian archaeological record. It is argued here that the development of an increasingly varied dining assemblage directly relates to the changes in the Athenian urban cuisine revealed in the previous chapters– an increased availability and variety of foodstuffs and methods of preparation. In such a manner, Athenian cultural changes concerning the consumption of food directly testify to the development and specific character of the Athenian urban lifestyle.

Democratic Dining and Democratic Participation

While Athenian democracy was established by Kleisthenes in 508 B.C.E., it was largely dominated by the elite class until the reforms of Ephialtes in 462 B.C.E.[454] The example of Kimon, the leading Athenian statesman from ca. 475 B.C.E.-463 B.C.E., demonstrates the utility of elite patronage, a practice which continued into the Classical period. Later authors often highlight Kimon's overuse of favors to influence the people. He even gained support by allowing citizens to collect crops from his fields.[455] After the Ephialtic reforms, the powers of the elite-dominated Areopagos, consisting of ex-Archons selected from the highest two classes of the Athenian population, was distributed to a variety of institutions controlled by Athenian citizens. Arguably, the three most prominent institutions of the Athenian democracy were the courts, assembly, and council. The council and jurors were selected by lot from those who volunteered.

[454] Fine 1983, 383-391; Arist. [*Ath. Pol.*] 25.1-2.
[455] Plut. *Cim.,* 10; Schmitt-Pantel 1992, 182-186.

The assembly consisted of those who attended. Citizens of all classes participated in these three institutions. Until the mid-5th century B.C.E., it seems most likely that only those who were able– i.e., the elite– would have voluntarily participated in the Athenian democracy. However, the democratic reforms of Ephialtes and later Perikles enabled a broader spectrum of the population to participate.

Civic sponsored provision of food has already been discussed in the form of civic festivals, wherein (cooked and/or raw) meat was provided to citizens. Civic festivals were an occasion in which the population celebrated itself, its success, and its identity. The largest festival was the Panathenaia celebrating the birthday of Athena, the city's matron deity. The Panathenaia, especially the quadrennial Greater Panathenaia, was a multi-day festival filled with contests, feasts, and carousing that emphasized the success and identity of the Athenians. Civic festivals were funded through imperial tribute, state-owned property, and liturgies paid by the elite classes.[456] Liturgies were obligatory, and often chosen by lot from the top economic class; furthermore, it is evident that the elite would have advertised their public contributions. While such advertisement seems to have been less ostentatious than later Hellenistic propaganda, inscriptions and literary sources often identify the beneficence of the elite, and information passed on in conversation is unquantifiable.[457]

Such liturgies, in addition to other customs and administrative positions preserved from the early democratic period, enabled the elite to continue to exert influence within the government. However, the dominant force within the Classical Athenian democracy was the urban population: those who were able to attend the assembly and participate in juries regularly, as well as serve on the council when chosen by lot. Normal government activity was suspended

[456] Schmitt-Pantel 1992, 121-131.
[457] Schmitt-Pantel 1992, 131-143.

during the frequent Athenian festivals; therefore, civic festivals would not have encouraged participation in the government.[458] In general, the individuals able to participate seem to have been the urban population, since the rural population would have had to travel a greater distance.[459] Included in the mid to late 5th century reforms was the establishment of pay for both assembly attendance and jury participation.[460] Comic scenes portray family meals, provisions for the elderly, and the purchase of booze, all enabled through pay received due to participation in the Athenian government.[461] It does seem likely that the hundreds of people who participated in the jury and the thousands in the assembly were encouraged to participate through the provision of such pay. Since those able to participate in the government would have been those unable to produce food personally, the state income would have stimulated demand in the Athenian market for foodstuff commodities.[462]

Participation in the Athenian council was a notably time intensive activity. The council was a key component of the Athenian state, and the members, from all classes of Athenian citizens, were chosen by lot.[463] It was responsible for legislative, administrative, and judicial matters through setting the agenda for council meetings and overseeing the variety of democratic magistracies. The council consisted of 500 members who served for a year and who could only serve a maximum of two non-consecutive terms. Thus, a significant proportion of the Athenian population can be presumed to have participated in the council.[464] The civic calendar was split into ten sections, and for each the members of a particular tribe (the prytaneis) were the presiders

[458] Mikalson 1975, 182-196.
[459] Fine 1983, 408-409. Meetings in the assembly occurred on average 40 times a year and lasted from dawn to dusk.
[460] Fine 1983, 392-394. The dates for the establishment of pay for civic institutions are unclear. Perikles seems to have established pay for the council members and jurors. However, pay for attending the assembly might have begun at the start of the 4th century B.C.E..
[461] Ar. *Vesp.* 605-620 relates all the commodities Philokleon plans on purchasing with jury pay.
[462] One could add the income paid to other state positions such as rowers.
[463] Fine 1983, 400-407.
[464] Hansen 2006, 23-33 on the requirements of the citizen population to fill the council.

and the most active participants. For this reason, the prytaneis were not only given an allotment with which to purchase food, but in the 460s, a structure was constructed in the Agora, known as the Tholos, where regular meals took place.[465] In addition, thirty members of the prytaneis would spend each night in the Tholos in case of emergency. This structure was conveniently located near the Bouleuterion, where the council met, and its identification for such purposes is secure from literary sources, primarily Pausanias.[466] Several objects retrieved from the excavations of the Tholos and surroundings, both drinking vessels and the official weights and measures of the state, bore an inscription ΔE that identified them as public property.[467]

The Tholos was equipped with a nearby kitchen, and in Aristotle's time the diners received an obol each, presumably to purchase food, hire a chef, etc.[468] This was not a large amount of money, and textual sources indicate that the prytaneis often consumed barley cakes; however, the sources suggest they consumed wheat bread for festivals and meat during numerous sacrifices.[469] It is unclear the form democratic dining in the Tholos took; the round shape of the Tholos has intrigued many scholars, who often refer to it as a "democratic" form promoting equality.[470] One reconstruction of the structure's internal arrangement provides couches for reclined dining, as used in the symposium. However, there was not enough room to provide a couch for each diner, perhaps suggesting dining in shifts.[471] Another reconstruction has proposed an arrangement for seated dining, due to the elite connotation of reclined dining.[472] Regardless of configuration, it seems clear that the Tholos successfully functioned for the purpose of

[465] Thompson 1940; Thompson and Wycherley 1972, 41-46; Miller 1978, 54-62; Schmitt-Pantel 1992, 168-177.
[466] Pausanias 1.5.1 identifies its round plan, position in the Agora, and function in the Athenian democracy.
[467] Thompson 1940, 141-142. For more on the ΔE inscription see below.
[468] Arist. [*Ath. Pol.*] 43.3.
[469] Rotroff and Oakley, 46-50 with citations concerning the menu at democratic dining establishments.
[470] Cooper and Morris 1990, 78-79.
[471] Miller 1978, 58-59.
[472] Cooper and Morris 1990.

democratic dining, which enabled Athenian citizens of all classes to participate in the council when chosen.

The South Stoa, constructed in the last quarter of the 5th century B.C.E., has also been associated with democratic dining in addition to other possible functions.[473] This structure included a colonnade with a row of rooms behind. Several of these rooms contained offset doorways and floor surfaces suitable for the emplacement of couches in the appropriate manner for a symposium. As well, traces of ash have been found perhaps associated with cooking conducted in the rooms themselves. Additional small finds imply the commercial, sacred, and civic nature of the structure, and it has been proposed that magistrates from various democratic boards dined here. While the specific details of such democratic dining are unpublished to date, the evidence suggests yet another candidate for the location of democratic dining.[474]

Textual sources reveal several other groups of individuals who were hosted by the democratic state. The most prominent example of civic dining is that which took place at the Prytaneion, where the symbolic hearth of the city was located. While this structure has not been identified archaeologically, the textual evidence referring to dining in the Prytaneion reveals a dramatic change over time in who was hosted.[475] Pauline Schmitt-Pantel's analysis of dining in the Prytaneion reveals that for the late 6th century and throughout the 5th century B.C.E. it was a preserve of the elite.[476] *IG* I^3 131, dated to the middle of the 5th century B.C.E., decreed that those to receive the lifelong honor of public dining at the Prytaneion included the Eleusinian priestly family, the descendents of Harmodios and Aristogeiton, a prophet chosen by Apollo, and

[473] Thompson and Wycherley 1972, 74-78.
[474] Although, nothing I have seen published concerning the South Stoa would exclude the possibility that these rooms were commercial dining rooms (perhaps restaurants), rather than public dining rooms. A 2nd century B.C.E. inscription mentioning that public measures were kept here is the only reference to the public nature of the structure (Rotroff and Oakley 1992, 38). I keep this structure in this section due to the consensus opinion concerning the public nature of the dining, but do believe a closer look at the evidence might reveal some interesting conclusions.
[475] This structure must have been located to the East of the Acropolis (see citations in Chapter 3).
[476] Schmitt-Pantel 1992, 147-168.

victors of Panhellenic athletic festivals.[477] Beginning in the first half of the 4th century B.C.E., Schmitt-Pantel argues, based on evidence from rhetorical speeches, the honor of dining in the Prytaneion for life was awarded to a broader group of individuals.[478] In the same period multiple inscriptions survive awarding the honor of dining in the Prytaneion for a single day.[479] In the second half of the 4th century, inscriptions begin appearing in increasing frequency awarding the honor of dining in the Prytaneion to a variety of individuals including both foreigners and citizens.[480] As mentioned in Chapter 3, individuals awarded with the honor of dining in the Prytaneion included those who helped provision the city with food– both citizens and foreigners. Provisioning the Athenian population with food was repaid in kind, through state meals. The public hearth at the Prytaneion and the honor of dining there were symbols of Athenian identity and its developing interests in different periods.

Two large deposits of dining debris, both well-published, found in the area of the Stoa of Zeus Eleutherios provide further insight into the ceramic assemblage associated with democratic dining during the 5th century B.C.E.[481] The structures related to these deposits were destroyed by the construction of the stoa; but, they have been tentatively associated with the functions of storage, cooking, and dining.[482] Several vessels from both deposits were inscribed with the

[477] Schmitt-Pantel 1992, 148-149. "Ainsi les convives à vie du prytanée symbolisent les valeurs d'une cité aristocratique."
[478] Schmitt-Pantel 1992, 150-163. The orators of the period generally disapproved of the broader awarding of the honor of *sitesis*. In the latter part of the 4th century into the Hellenistic period several inscriptions also record this honor to both citizens and foreigners. Schmitt-Pantel 1992, 162 concludes, "Le Ve siècle paraît avoir conservé des règles d'attribution datant peut-être de l'époque archaïque et avoir été très avare de loctroi de cet honneur. Au IVe siècle la cite donne la *sitesis* à de nouvelles categories de personnes et le fait plus largement qu'auparavant."
[479] Schmitt-Pantel 1992, 163-168.
[480] Schmitt-Pantel 1992, 155-163.
[481] Talcott 1936; Rotroff and Oakley 1992; Steiner 2002. The deposits are pit H 4:5 (dated to ca. 425 B.C.E.) and well H 6:5 (ca. 460s B.C.E.). Pit H 4:5 is the focus of the present discussion due to the depth of study in Rotroff and Oakley 1992.
[482] On the fragmentary remains of these structures see Rotroff and Oakley 1992, 3-7.

marking ΔE, identified by Lucy Talcott as referring to ΔΕΜΟΣΙΟΝ (public).[483] It has been strongly argued that the assemblage found within these deposits consisted of vessels used by Athenian officials, perhaps the archons and thesmothetai and/or the cavalry officers.[484] The thesmothetai and archons are known to have dined together in the democratic period and received a rather large allotment for food: four obols each.[485] Like the prytaneis, the archons and thesmothetai were chosen by lot; however, they were chosen from the top three economic classes of the Athenian citizens.[486] In such a manner, it seems possible to suggest that the Athenian state was obliged to provide a per diem and an area for dining to democratic officials whose participation in the state required a large time-investment. The archons and thesmothetai of elite status received a larger allowance than the prytaneis.

Even though over three quarters of the sherds from plain vessels had been discarded by the excavators as well as any faunal remains, the assemblage of plain vessels in these deposits shows a great deal of diversity.[487] Fifty escharai rims were counted by the excavators, all blackened by fire, and these seem to have been used for the grilling of meat due to the large number of noted faunal remains.[488] Marine shells were also noted further emphasizing the diverse cuisine.[489] Several cookpots were retrieved, and these consisted of all the varieties discussed in the previous chapter– lidless chytrai, lidded chytrai, and lopades– although lidded

[483] Talcott 1936. Rotroff and Oakley 1992, 41-46 review the examples found in the Agora (including at the Tholos, as mentioned above) and their interpretation.
[484] Rotroff and Oakley 1992, 37-38.
[485] Rotroff and Oakley 1992, 49 citing Arist. [*Ath. Pol.*] 62.2.
[486] Prior to the reforms of Ephialtes they were chosen from only the top two economic classes; however, the majority of the material in question (from H 4:5) primarily dates to after the reforms in 462 B.C.E.
[487] Rotroff and Oakley 1992, 28; 46. Only seven of the 34 tins of plain wares excavated were retained and studied.
[488] Rotroff and Oakley 1992, 29; 47. "Numerous" animal bones were noted." Other than this notation specificity is lacking due to their discard.
[489] Rotroff and Oakley 1992, 48 note an unspecified quantity and variety of marine shells.

chytrai were the most numerous.[490] As well, the deposit contained several vessels used in the distribution of condiments.[491] A large variety of vessels associated with the consumption of food was also found: several plates, one-handlers, bowls, and stemmed dishes.[492] The variety of the cuisine prepared correlates well with the variety of dishes used for consumption.[493]

The assemblage associated with wine drinking provides the most detail concerning ancient public dining. The majority of 32 vessels marked with ΔE were drinking cups.[494] Rotroff and Oakley conservatively estimate around 840 different drinking cups were present in pit H 4:5 (ca. 425 B.C.E.).[495] Red-figure kraters dominated the assemblage of figured vases (87 of 172).[496] None of the figured vessels were marked with ΔE, and these figured vessels, in particular the kraters, have been interpreted as gifts dedicated by participating individuals.[497] Such an activity can be viewed as a display of status by these individuals. The transport amphoras reveal wine deriving from Chios, Lesbos, Corinth, and perhaps Mende.[498] Chian amphoras, holding a valued vintage, were the most numerous, confirming the elite nature of these meals. In addition, Ann Steiner has studied the inscriptions present on several vessels from both deposits. The types of inscriptions were reminiscent of typical games played at the traditional symposium, and Steiner has interpreted these as "conversational graffiti" reflecting entertainment during these public symposia.[499] They represented sexual jokes and mock-ostracisms interpreted as discussions over

[490] Rotroff and Oakley 1992, 29. Such a variety is impressive for one assemblage, particularly since the lopas was only recently introduced in Athens (ca. 450-425 B.C.E.).
[491] Rotroff and Oakley 1992, 48 on the oil jugs (askoi, lekythoi, and olpai) and saltcellars.
[492] Rotroff and Oakley 1992, 12; 20-23.
[493] See below for further detail on the interpretation of these vessels types and affirmation of their elite nature.
[494] Rotroff and Oakley 1992, 46.
[495] Rotroff and Oakley 1992, 41 suggest this to be a conservative estimate.
[496] Rotroff and Oakley 1992, 11.
[497] Rotroff and Oakley 1992, 44-45. The variety of hands, all common in Athens at this time, on the figured vases demonstrates to the authors that these vessels were purchased on the market and not commissioned by the state (11-14). Interestingly several figured drinking sets of different vessel forms, each from a different recognizable workshop, were identified.
[498] Rotroff and Oakley 1992, 47.
[499] Steiner 2002, 356-361.

who was handsome.[500] Steiner interprets these as representative of the elite participation and symposiastic practices in this democratic dining establishment.

The above examples clearly demonstrate that civic dining was essential to the daily operation of the Athenian democracy. Active participation in the state was a hallmark of the Athenian democracy, and the introduction of pay has been interpreted as crucial to its success. Similarly, the specific practice of democratic dining enabled and encouraged the participation of both the elite and non-elite citizens in particular for time-intensive posts.

Athenian Group Drinking Rituals

In modern scholarship the activity of wine drinking, in the form of the Athenian symposium, vastly overshadows the activity of eating. The archaeological and textual record both legitimately contribute to this bias. The activity of drinking is described in detail in many literary sources, while the activity of eating is often glossed over.[501] Table vessels associated with wine drinking excavated throughout the Agora and surroundings greatly outnumber other table vessels both in variety and quantity.[502] The only room in the Athenian house whose function can be identified on the basis of architectural features was the andron, where the symposium took place. An andron is identified through the presence of an off-center door, proportions, the decorative setting, and/or features specifically denoting the emplacement of couches.[503] The large number of wine transport amphoras in Athens, deriving from multiple locations throughout the Mediterranean, suggests wine as an important processed foodstuff

[500] Steiner 2002, 361-368. She interprets these inscriptions as "a parody of ostracism and the larger culture of fame…." (366). The inscriptions from these deposits form a large percentage of the number of known inscribed sherds expressing an opinion of the inscriber.
[501] The example of Ar. *Vesp.* 1175-1264 (described below) is telling where eating is barely mentioned and drinking described in detail. The same is true for Pl. *Symp*.
[502] Sparkes and Talcott 1970, 10; Rotroff and Oakley 1992, 46 where the high proportion of vessels associated with drinking in a number of deposits is cited.
[503] Bergquist 1990, 37.

commodity of the period.[504] As a commodity, wine possessed numerous advantages: easy transportability, high in calories, a varied and delicious taste, and alcoholic content. This study aims to identify changes over time to the activity of wine drinking in Classical Athens and relate these changes to developments concerning the consumption of food.

The drinking of wine often took the form of a cultic ritual associated with Dionysos. Several public festivals were associated with Dionysos, and private drinking was often commemorated in his honor. The day of the *choes*, the second day of the Anthesterion festival, exemplifies both the private and public nature of ritual wine drinking.[505] The first day of the festival marked the opening of the pithoi and the first-tasting of the year's wine. The second day, the day of the *choes*, was focused upon the ritual consumption of wine and even included slaves and children as participants.[506] While groups would often gather to celebrate the occasion, each participant was given his own chous (jug), filled with wine, and would consume it at his own table, in silence.[507] The chous contained a measure of wine (around two and a half liters) and half-sized versions were given to children at the age of three as an initiation ritual.[508] An official drinking contest took place in the Agora, and the first to finish his chous was crowned in ivy and received a wine-skin.[509] Oinochoai with figured decoration oftentimes feature images associated with the event.[510] At the end of the 5th century into the 4th century both black-glazed and cooking

[504] Lawall 1995.
[505] Burkert 1983, 216-226; Hamilton 1992 reviews the sources for this festival and excludes a large number of late or non-Athenian sources. In particular, he argues against the name Anthesterion, preferring instead "the Choes" (58-62).
[506] Burkert 1983, 218; Hamilton 1992.
[507] Burkert 1983, 219-220. Burkert emphasizes the festival's nature as filled with pollution (miasma). This aspect is not focused on here, but surely existed.
[508] Sparkes and Talcott 1970, 62.
[509] Simon 1983, 95.
[510] Hamilton 1992, 83-111 identifies the tableaux of iconographic elements related to this event. These include foodstuffs, participants, and the garlands placed around vessels.

ware choes, decorated with ivy leaf garlands appear.[511] This is exceptional for cooking ware vessels and relatively rare for black-glaze. The Anthesterion emphasizes the ritual nature of wine consumption, a practice seen in numerous other festivals.[512]

The symposium took the appearance of a formal ritual in Athenian society, often prescribed by certain customs and rules. Group drinking, in the form of the symposium, was a social ritual, taking place in a private setting. The couches were placed along the sides of the room, promoting commensality and intimacy as each participant would be facing each other. The Archaic symposium has been interpreted as an expression of aristocratic commensality.[513] The primary evidence of this derives from iconography and textual references. It was an occasion to establish social bonds among the governing elite class. The association of the symposium with elite culture and identity remained in the Classical period. The drunken komos performed by elite citizens recurs as a setting of activity throughout Athenian literature.[514] Images on vases represent the common inclusion of hired women, musicians, and dancers.[515] A scene from Aristophanes' *Wasps* reveals the elite nature of the formal symposium in opposition to a less refined drinking culture.[516] In the scene, an aspiring youth, Bdelykleon, instructs his father, Philokleon, in the appropriate manners and small talk suitable to the elite symposium. Philokleon is instructed in the appropriate ways of reclining, singing drinking songs, and conversing. It is apparent from the scene that not everyone who drank was accustomed to such formal elite mannerisms.[517] However, Philokleon returns home in the manner of an elite individual, accompanied by several women.

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[511] Sparkes and Talcott 1970, 61-62; 205.
[512] The practice of pouring libations suggests the consumption of wine as a common act linked with sacrifice.
[513] Lissarrague 1990, 95; Schmitt-Pantel 1990, 15.
[514] For example the destruction of the herms (Thuc. 6.27).
[515] Pellizer 1990; Fehr 1990; Davidson 1997.
[516] Ar. *Vesp.* 1175-1264.
[517] See Lynch 2006, 247 on this passage.

The practices associated with the Athenian symposium can also be identified as formal ritual activity.[518] The course of a symposium reveals a variety of repeated actions: the mixing, serving, and drinking of wine. The focal point of the ritual was the large krater in which the wine was mixed.[519] The krater's central place in the symposium made it a highly visible vessel. Consequently, most Classical Athenian ceramic kraters were elaborately decorated with red-figure images.[520] The mixed wine would be transferred from the krater to a serving vessel suited to pouring. Several formal varieties of vessels are associated with wine-pouring; the most numerous is named the oinochoe.[521] Finally the mixed wine would be poured into each individual's cup in order to be consumed. The consumption of wine was conducted in a formal manner oftentimes at an equal pace amongst the participants.[522] Drinking games, particularly kottabos, were also a common activity in these social rituals. Large numbers of wine pouring and wine drinking vessels exist both in figured and unfigured varieties. The fact that most fine fabric vessels were used in the symposium emphasizes the social value attached to the activity.[523]

The symposium ritual emphasized the intoxicating effects of wine. On the one hand, drunkenness often led to amusement in the form of singing, sexual activity, vandalism, and general carousing. On the other hand, drunkenness was also frowned upon, and a level of moderation was often praised.[524] A passage from Plato's *Symposium* suggests the co-existence of both drinking behaviors. In this passage, the participants discuss the number of kraters to drink

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[518] Kyriakidis 2007 provides an excellent methodology for identifying ritual archaeologically.
[519] Lissarrague 1987, 19-46.
[520] Rotroff 1996 provides numerical evidence for the predominance of red-figure decoration on kraters. Sparkes and Talcott 1970, 55 mention that unfigured varieties were relatively rare.
[521] Sparkes and Talcott 1970, 58-69.
[522] Pl. *Symp.* 176c-e suggests the equal drinking pace since, in this case, each drinker is suggested to drink at their own pace.
[523] Metal vessels are also known and would represent similar investment, although their rare deposition limits our own quantification and understanding of them.
[524] Theognis 509-510; 837-840.

and decide to drink moderately due to excessive drinking the night before.[525] The delicate nature of Athenian wine vessels suggests the dexterity the ritual demanded. Like wine glasses today, Athenian wine vessels were often stemmed, signifying the minimal sobriety that formal group drinking required. Mental and physical dexterity would have been further useful in the course of the game of kottabos, which involved accurately flinging droplets of wine, as well as in the course of the sophisticated conversation or the singing of traditional songs that could take place.

While the formal nature of both the Anthesterion and the symposium demonstrate the sophisticated ritual associated with the symposium, Kathleen Lynch has argued that it is possible to conceive of a broader notion of Athenian group drinking.[526] Lynch challenged the orthodox notion that the symposium only took place in a formal andron, equipped with couches. She identifies scenes on vases where drinking took place on the ground and even outside.[527] The development of Athenian drinking cups signifies a further reduction in formality to the symposium over time. The vast majority of drinking vessels from the 6th century and first half of the 5th century B.C.E. featured stems, emphasizing their formal nature (Fig. 44). However, after 480 B.C.E. stemmed drinking cups slowly lose their popularity, representing a loss of formality.[528] In addition, the handles of drinking vessels drop lower along the vessel wall to its center, making them easier to grasp and resistant to mechanical stress.[529] The walls of drinking vessels also become markedly thicker and sturdier by the end of the 5th century B.C.E.[530] While elegant, fragile drinking cups continued to be produced (i.e., Rhenaia cups), these developments led to more utilitarian vessels popular in 4th century B.C.E. Athens, such as the skyphos of this

[525] Pl. *Symp.* 176c-e.
[526] Lynch 2006, 243.
[527] Lynch 2006, 243-245.
[528] Sparkes and Talcott 1970, 88. The presence of stemmed cups in the public dining assemblage (Rotroff and Oakley 1992), mentioned above, further emphasizes the elite formal nature of the symposium activity taking place ca. 425 B.C.E. by these officials.
[529] Sparkes and Talcott 1970, 10-11.
[530] Sparkes and Talcott 1970, 10-11.

period. Perhaps these developments signify a reduction in formality to the ritual drinking of wine and a broadening of its availability.[531]

Most significantly, Lynch identified a strong democratization of the symposium that takes place immediately upon the creation of a democratic state.[532] The number of vessels associated with the drinking of wine– the entire symposium assemblage– increases dramatically at the end of the 6th century B.C.E., in comparison to the preceding period.[533] A large number of 5th century houses in Athens, Piraeus, and Attica included an andron for formal drinking.[534] In addition to a restructuring of the democratic society and the population's identity, the wider practice of the symposium in the 5th century B.C.E. reflects the wider availability of wine to the populace. This wide availability of wine is further emphasized by the production of cheaper, mass-produced drinking sets.[535] The decoration on vessels associated with the drinking of wine becomes simpler and less elaborate in the 4th century B.C.E. Black-figured drinking cups cease to be produced ca. 475 B.C.E., and the red-figured drawing on vessels is done in a hastier manner until this decoration style too disappears in the 3rd century B.C.E.[536] Alongside these developments, black-glazed vessels become more popular perhaps due to their similarities to metal vessels. These trends correspond well with the late 5th century B.C.E. creation of popular black-glaze jugs for the Anthesterion. The sum of this evidence signifies the wider availability of wine, wine vessels, and ritual consumption to the urban population, as a whole.

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[531] This is not to say formal drinking did not exist, as the customs, not the vessels determined the formality. Yet, these observed changes do seem to represent a cultural change in the activity of wine drinking: i.e., Sparkes and Talcott 1970, 85 mention the "inelegance" and "utilitarian nature" of the 4th century skyphos.
[532] Lynch 2001; Lynch 2006, 247-248.
[533] Lynch 2006, 248 cites the mean number of kylikes (drinking cups) in deposits dating 600-525 B.C.E. was less than five and more than 20 in deposits dating 525-480 B.C.E.
[534] Lynch 2006, 248. The implication is both elite and non-elite houses were equipped with an andron. However, it should be noted that many of the smaller houses did not have an andron, so it was not an essential room to a house.
[535] Lynch 2001 mentions the lower quality of iconographic representations found on drinking sets in the late 6th century B.C.E. as opposed to the middle of the 6th century B.C.E.
[536] Robertson 1992, 237-242; 268-275.

Overall the mass-production of more utilitarian vessels associated with wine-drinking is a hallmark of the Athenian urban lifestyle. Similar changes to the drinking assemblage continue into the 4th century B.C.E. and Hellenistic period. The numerous and often rapid developments concerning various drinking cup forms can be perhaps seen as innovation spurred by the increasing availability of products. As each shape became mass-produced and available to a wider group of individuals, a new finer shape would be produced for the elites. This is exemplified by the vessel form termed the kantharos (Fig. 44).[537] Its predecessor, the cup-skyphos was elegant, with fine, fragile handles; however, by the second half of the 4th century, the kantharos shape became increasingly mass-produced, popular, and sturdier. The handles grew thicker and were moldmade. The distinctive molded rim[538] popular in the 1st half of the 4th century B.C.E. gave way to a plainer, easier to produce rim by the Hellenistic period.[539]

Chronological developments in the drinking assemblage represent changes in the nature of group drinking. Over the course of the Hellenistic period, the krater all but disappears from the Athenian assemblage, perhaps only owned in metal by elites.[540] Rotroff relates this change to an increase in the size of drinking cups, suggesting that individuals mixed their own wine. The commensal formality associated with the symposium ritual practiced by an intimate, yet closed group in the early Archaic period seems to slowly disappear. The wider availability of mass-produced drinking sets, in addition to wine, for the urban population can be postulated as an explanation for the overall reduction in formality. Furthermore, Lynch has suggested that a late Archaic assemblage, identified as belonging to a single household, included multiple drinking

[537] Sparkes and Talcott 1970, 123; Rotroff 1997, 83.
[538] Although this is a misnomer as the rims were actually thrown (Lynch pers. comm.).
[539] Sparkes and Talcott 1970, 123; Rotroff 1997, 83 mentions that by the Hellenistic period the plain rim was three times more common than the moldmade.
[540] Rotroff 1996.

sets usable for a variety of group drinking activities.[541] Both elegant, formal vessels were identified, in addition to less formal, mass-produced vessels. The increasing mass-production of drinking sets, particularly in the end of the 5th and throughout the 4th centuries B.C.E. signifies the increased availability of group drinking to the population.

Plates, Bowls, and the Athenian Urban Lifestyle

The previous chapters have demonstrated several changes in the development of an Athenian urban cuisine. A diverse number of foodstuffs were prepared in a number of different manners. Such developments coincide directly with changes in Athenian attitudes towards the consumption of particular foodstuffs. The availability of variety in both foodstuffs and cooking techniques is related to the creation of a varied dining assemblage, evident from the last quarter of the 5th century B.C.E. A diverse array of plates and bowls first become popular at this time, and over the course of the 4th century B.C.E. these vessels are increasingly mass produced for the urban population. The presence of a varied cuisine, accompanied by varied consumption practices, exemplifies the developed Athenian urban lifestyle identified here.

Cooking utensils of the Archaic and early Classical period reveal the common practice of boiling/stewing through the evidence of the lidless cooking pot. In particular it seems likely that boiled food– soups and stews– dominated Archaic Athenian cuisine for the majority of the population. While plates and stemmed dishes do exist in the Archaic period, these were not numerous and should probably be viewed as representative of elite dining practices.[542] The elaborate decoration of the plates and the stemmed form of the dishes signifies the elite nature of these vessels. The Archaic elites consumed food prepared in a variety of manners, including

[541] Lynch 2001.
[542] In addition, a large number of Archaic plates included suspension holes (i.e., *Agora* XII, no. 1002), implying their dedication as votives. Although, this is not true of all Archaic plates (i.e., *Agora* XII, no. 1005).

grilled meat and baked bread: figured images on vases depict a variety of foods resting on both plates and stemmed dishes.[543] Since plates and stemmed dishes were not evident in a mass-produced form, it seems likely that the non-elite population regularly consumed soup or stew, rather than solid food. With the establishment of the democracy, when the dining assemblage democratized, both plates and stemmed dishes practically disappear from the archaeological record of the Agora.[544] The reliance on boiled food corresponds well with the etymology of ὄψον from ἕψω (=boil), noted in Chapter 3; Plato has Socrates describe it as peasant food.[545] The consumption of liquid stews and soups fits rather well with a lifestyle without regular access to a varied supply of food or foodstuff commodities. Soups and stews would not waste the drippings of an animal or vegetable while cooking but would rather incorporate them into dish, thus conserving calories and improving the taste of bland staples.

The vessel known as the one-handler seems to be a likely candidate for soup and/or stew eating.[546] The single handle would have made it more portable and easier to carry hot contents. In addition the handle suggests the vessel's ability to self-serve by doubling as a ladle or scoop. The rim often projected on the inside, helping prevent spillage in just such an activity. The walls of the one-handler were thick, demonstrating their utilitarian nature. These vessels were as common in the archaeological record of the Classical period as the skyphos, the most popular Classical drinking cup.[547] In the late Archaic period, one-handlers were often decorated with bands; however, in the Classical period the majority of these vessels were merely black-

[543] Schmitt-Pantel 1990.
[544] Sparkes and Talcott 1970, 139; 144. These vessels seem to have all but disappeared after 480 B.C.E. The interpretation of the assemblage as democratizing deliberately echoes Lynch's interpretation of the symposium assemblage, mentioned above.
[545] Pl. *Resp.* 372a-373a.
[546] Barbara Tsakirgis (pers. comm.) suggested this identification to me. Sparkes and Talcott 1970, 125 identify it as a τρύβλιον or "porringer" for soup and stews. Rotroff 1997 highlights the multifunctionality of this vessel.
[547] Sparkes and Talcott 1970, 125.

glazed.[548] Figured one-handlers did not exist.[549] Around the middle of the 5th century B.C.E., a deeper version of the one-handler was produced alongside the original version, representing an increase in the variety of the food consumption assemblage. Overall, one-handlers seem to be the most likely candidate for a soup/stew dish from the late 6th century B.C.E. through most of the 5th century B.C.E. However, just as it has been suggested that one-handlers could have served as drinking cups, it seems possible that vessels traditionally interpreted as drinking cups were also re-used for dining.[550] The existence of wooden plates is also possible, mentioned in one occasion by Aristophanes, but they are unquantifiable.[551] As well, Attica did not have abundant wood supplies, and the creation of ceramic vessels would have required far less investment and effort.[552]

The fact that the majority of ceramic vessels from the 6th and 5th century B.C.E. were designed to hold liquid makes it difficult to identify appropriate vessels used for the consumption of soups and stews. While a variety of vessels designed to hold liquid existed, most of these are interpreted to have been used exclusively for wine drinking. The large, handleless bowl a form commonly used today for soup or stews was not produced popularly in ceramic in Athens until the late 5th century B.C.E. Yet the many forms of cups used by the Athenians could have functioned admirably as a soup/stew dish, much as we drink soup out of a mug today; they were certainly large enough. This is not to say that the more elaborate vessels clearly associated with wine drinking from figured imagery were used for dining. Since the activity of eating was never

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[548] Sparkes and Talcott 1970, 126.
[549] Sparkes and Talcott 1970, 127.
[550] The evidence above from the POU deposits demonstrates the varieties of uses and re-uses of different vessel-forms. In fact, a large number of oinochoai decorated with ivy-leafs and other motifs recalling the Anthesterion were found in POU deposits. Just because a vessel was designed for wine service does not exclude other uses (even figured oinochoai have been found in POU deposits). This is further emphasized by the large number of kantharoi in POU deposits. It is hypothesized that their form would have function admirably as a low-capacity water vessel for a quick drink.
[551] Ar. *Plut.* 813. Gourds could have also been utilized for vessels (Lynch pers. comm.)
[552] Garland 2001, 90 relates how Athens acquired timber for ships (also see Xen. [*Ath. Pol.*] 2.31).

featured prominently in the literary or archaeological evidence for the 5th century B.C.E., one would expect these vessels to be less elaborate and perhaps more utilitarian.

Near the end of the 5th century B.C.E., the assemblage of vessels specifically associated with food consumption increases dramatically in variety. Handleless bowls first become popular at this time.[553] In some ways their introduction can be seen as a reverse to the trend observed in the drinking cup assemblage: an increase in formality. Handleless bowls require foodstuffs to be ladled into them, revealing an added formality to the serving of food. This formality is emphasized by the common addition of impressed or stamped decorative elements to black-glazed varieties. However, only in the Hellenistic period do handless bowls become more popular than one-handlers.[554]

The rilled rim plate first appears around 430 B.C.E. and represents a further addition the diversity of dining assemblages.[555] Its first form was quite elegant with a thin wall, complicated profile, molded underside, and elaborate stamped patterns. By the end of the century the form becomes more utilitarian, and the examples in the 4th century were thick walled and referred to as rolled rim plates.[556] It seems possible that this was originally an elite shape that became mass produced for urban consumption, similar to the development of drinking forms. This shape becomes increasingly popular in the 4th century into the Hellenistic period. The addition of this vessel form added an important element to the dining assemblage. Its shallow form resembles modern plates, and as such, it would not have been suitable to the consumption of liquid food. It is tempting to connect the introduction of this form to the contemporary introduction of the lopas. The lopas, as suitable for frying, perhaps necessitated the introduction of a vessel, the

[553] Sparkes and Talcott 1970, 128-133; Rotroff 1997, 156-165.
[554] Sparkes and Talcott 1970, 131; Rotroff 1997, 156.
[555] Sparkes and Talcott 1970, 147; Rotroff 1997, 151.
[556] Sparkes and Talcott 1970, 148; Rotroff 1997, 142.

plate, used for the consumption of dry, cooked food.[557] Regardless, the increased popularity of plates clearly represents an increase in the variety of the dining assemblage and activity.

A final innovation, introduced ca. 400 B.C.E., was the addition of the fish-plate to the dining assemblage. The fish-plate was characterized by a broad floor sloping down to a central depression. It is generally suggested that this depression was used to collect runny sauce and/or to hold condiments.[558] Fish-plates were commonly made in both red-figure and black-glaze from their introduction. In particular, red-figure fish-plates were decorated in an elegant manner, and the term fish-plate derives from their typical figured decoration. In the 4th century B.C.E., the majority of high-quality Athenian red-figure production was created for export, rather than local consumption. However, the fish-plate represents one of the few shapes receiving high quality red-figure imagery, utilized locally.[559] The presence of red-figure fish-plates speaks to the new importance high quality cuisine was awarded in the Athenian urban environment of the first half of the 4th century. The use of fish as an iconographic element at this time relates to the contemporary evolution of the term ὀψον to refer to fish as a luxury commodity. However, its large-scale production in black glaze, particularly in the early Hellenistic period, also testifies to the increased availability of varied cuisine, both dry and liquid food, enjoyed by the urban population.[560]

The introduction of a greater variety and quantity of vessels relating to food consumption relates to the increased availability of foodstuff commodities and increased diversity of cooking techniques. Developments in dining practices continued into the Hellenistic period. Small bowls and saltcellars were common throughout the Classical period and have been interpreted as being

[557] The popularity of escharai in the 5th century B.C.E. for grilling also would have produced dry food (I thank Kathleen Lynch for this suggestion).
[558] Sparkes and Talcott 1970, 148. Rotroff 1997, 146-149.
[559] Mcphee and Trendall 1987, 151 list nine examples from the Agora.
[560] Rotroff 1997, 147 mentions over 80 examples of this vessel in black-glaze (59 are from the Hellenistic period).

used to contain condiments. It has been suggested that the reason for their discontinuation in the Hellenistic period is due to an increase in seasoning added to food during preparation.[561] Again, this evidence testifies to the growing availability of spices as exchangeable commodities to the urban population and the increased use of these in the food preparation process. Food practices in Classical Athens, ranging from acquisition, storage, preparation, and consumption, were all inter-related. The diversity of food consumption practices introduced at the end of the 5th century B.C.E. can only be understood in the context presented by other Athenian food-related practices.

[561] Sparkes and Talcott 1970, 132. Perhaps due to an increase in oriental spices available at this time after Alexander's conquests.

Chapter 6: Analyzing the Recipe

The study of Athenian food practices is directly dependent upon the quality and variety of available datasets. As mentioned in the introduction, the available evidence is restricted due to multiple factors. The published evidence of Athenian ceramics contains its own limitations introduced by both archaeological formation processes and modern scholarly agendas. This study provides the occasion to discuss these limitations, suggest future research, and analyze the general strengths and weaknesses of the conclusions.

Few primary contexts are found in urban Athens, an environment that has been continuously inhabited and utilized. Clean up and construction were ever-present activities that removed most traces of primary deposition. The POU deposits studied in Chapter 2 represent an important type of primary context relating directly to the collection of water. However, the simultaneous disappearance of water vessels and POU deposits in the period ca. 475-425 B.C.E. in the urban Athenian archaeological record is an important factor to consider. The disappearance of both a deposit type and its related assemblage demonstrates how susceptible the archaeological record, even over a large excavated area, was to formation processes. Surely the Athenians utilized water vessels during this period, but their cleaning activities removed almost all trace from the archaeological record. It seems likely that cleanup was a regular activity in the urban center of Athens, and in fact, many items were eventually deposited away from this area.

However, the examples of public dining debris in the Agora and the household debris within Persian destruction wells suggest a local character for several deposits. The deposition of artifacts occurred in relation to specific activities– cleanup and most often construction. On the one hand, sediment with entrained artifacts has been suggested to have been transported great distances prior to deposition. Leveling fills on the Acropolis indicate that 40,000-45,000 m^3 of

sediment, rubble, and artifacts was moved from the lower city.[562] On the other hand, the assemblages in several deposits around the Agora are argued to relate to local activity. Such an argument seems likely, given the existence of provisional discard areas and a desire to minimize effort; however, each deposit must be interpreted independently. In general the archaeological formation processes of the Agora and environs have yet to be explicitly analyzed and a deposit based approach is impossible from the published dataset.

Furthermore, Susan Rotroff has repeatedly called attention to the irretrievable loss induced by the discard of plain pottery by excavators. Rotroff and Oakley mention that plain wares make up the bulk of ceramic finds discovered by the Agora excavations; yet, these vessels receive minimal publication. Out of the 34 tins of plain wares collected from the public dining deposit, only seven were retained, heavily weeded to contain only diagnostic sherds.[563] Rotroff has noted a similar trend relating to Hellenistic plain wares in their entirety.[564] In addition to plain ceramics, faunal and botanical remains have been consistently discarded in the course of modern excavation. Casual mentions of faunal remains demonstrate their ubiquitous presence in the archaeological record; however, these have been minimally published.[565] For these reasons it is impossible to directly relate food processing techniques to cooking techniques.[566]

In addition, the lack of publication of complete assemblages from deposits severely hinders a context-related approach.[567] Only one complete assemblage has been published from the urban area of Athens in the Classical period to which will soon be added the forthcoming

[562] Stewart 2008, 389.
[563] Rotroff and Oakley 1992, 28; 46.
[564] Rotroff 2006, 1-3.
[565] I.e., Rotroff and Oakley 1992, 47-48.
[566] Isaakidou 2007 shows the potential of such analysis for Late Minoan cuisine in Knossos through an examination of butchering techniques evident from faunal remains and the capacity of cookpots.
[567] Rotroff 1999.

publication of another by Kathleen Lynch.[568] An additional two complete assemblages were published for rural houses in Attica.[569] Rotroff laments the difficulty in comparing these assemblages, which derive from vastly different locations and different dates.[570] The conclusions reached in this paper were gleaned from a broad dataset, representing a synthesis of the published data as they exist. The only way to test these conclusions, concerning the change in food related activity in urban Athens, is to approach the evidence as it is presented in specific contexts. It is possible to test and refine the hypotheses presented here only through thorough analysis of specific deposits.

Foodways: Living the Athenian Urban Lifestyle

However, the strength of this study of urban food practices lies in its inclusive nature. Athenian aristocrats, citizens (both rural and urban), women, children, foreigners, and slaves all participated in the Athenian urban lifestyle. In fact, the study of food has proved to be exceptionally egalitarian, unusual for most studies of Classical Athenian culture. All the above groups of people were involved to a varying degree in the production, distribution, processing, cooking, and consumption of food. Perhaps the more menial tasks were carried out by marginalized populations: slaves, women, foreigners, poor citizens, and children. The emphasis on foodways, i.e., the entire range of food related activities, emphasizes the importance of even these menial tasks in the development of the Athenian urban lifestyle.

The importation of mortars stands out as an example of private investment improving the quality of such menial labor. The construction of fountains, cisterns, and wells made life easier for those fetching water, whether slaves or wives. However, the addition of water sources,

[568] Boulter 1953 (well N 7:3); Lynch forthcoming (well J 2:4).
[569] Jones et al. 1962 (Dema House); Jones et al. 1973 (Vari House).
[570] Rotroff 1999, 67-68.

particularly utilizing running water, probably improved the quality of life for the entire population. On a broader scale, Athenian ceramic vessels used in food related activities become more mass-produced during the Classical period. The beaten fabric used to produce both water vessels and cookpots transitions to a wheel-thrown fabric in the 4th century B.C.E. Large coil-made pithoi were replaced by smaller wheel-thrown storage-bins. The time-consuming figured decoration applied to large numbers of drinking and dining vessels eventually disappeared in favor of quicker decorative techniques. In fact, most ceramics used in urban Athens became increasingly mass produced over time the course of the Classical period. The mass-production of these vessels, in all their varieties, signifies that these vessels and their implied food-related activities were more widely available to the urban population.

Life in Athens, on both a private and public level, was directly concerned with foodways. Civic sacrifices reveal the commensal nature of Athenian cult. The seasonal aspects of agrarian cult relates to the rural production of food. Even democratic dining practices directly contributed to the success of the Athenian system of government. The democratic state concerned itself directly with the acquisition of food and the provision of water for the population as a whole. Finally, the example of the Parthenon, portraying the scene of Athena's gift of the olive tree and a sacrificial procession, makes obvious the importance accorded to food by the Athenians. The population identified with food, as a commodity and activity, which pervaded all contexts of Athenian urban life. Poets, playwrights, philosophers, architects, potters, soldiers, nor statesmen could function without being provided with food. While this fact seems trivial, it should be emphasized that the topic of food proliferated in all these manifestations of Athenian culture.

Even though Athenian foodways have been divided into discrete topics for this study– water, storage and supply, processing and cooking, drinking and dining– the subject is clearly

interrelated. This can be seen clearly when considering the seasons of the year. Athenian food practices were largely geared around the annual cycle, which dictated the production and availability of foodstuffs. The number of large-scale civic sacrifices during the warm months can be partly attributed to the weather enabling both cooking and dining outside. The more private nature of sacrifices conducted in Gamelion is probably associated with the cold weather and its hindrance to traveling and benefit to the storage of food.[571] The interrelated nature of Athenian foodways enables different datasets to relate to one another. Urban storage vessels testify to the nature of food distribution. The construction of monumental fountains created a new urban environment in which water vessels of decreased capacity were preferred. An increase in the variety of foodstuff commodities, cooking techniques, and dining practices all appear during the Classical period.

The development of the topic of food practices as a legitimate field of inquiry in the ancient Mediterranean is inevitable. Evidence pertaining to the topic of food is ubiquitous in both textual and archaeological datasets. Individual studies of food and water in Athens have often been related to specific classes of evidence, and the potential for the study of Athenian foodways has yet to be realized.[572] While the topic of Athenian foodways has been the driving force behind this thesis, the conclusions are largely evident from the utilitarian nature of ceramic vessels. This often ignored class of evidence, particularly from plain vessels, proves to be extremely pertinent to the modern understanding of foodways. These vessels have often been ignored because the chronological development of their fabrics and forms is not precise enough to provide dates to

[571] Interestingly, American holidays in which the consumption food is a major element follow a similar pattern. With the exception of New Year's Eve, the holidays which often involve a large gathering of individuals (often not related) are in the summer: Memorial Day, July 4th , and Labor Day. However, the winter holidays are generally more private gatherings: Thanksgiving and the religious holidays in December. Interestingly, Valentine's Day also occurs in the middle of winter, similar to the symbolism in the winter Athenian month of Gamelion (marriages).
[572] Camp 1977 studies architectural water sources; Garnsey 1988 studies the supply of food; Wilkins 2000 studies food in comedy.

individual deposits. However, their developmental histories provide a chronological framework for Athenian food related activity. Chronological changes in Athenian food practices are directly relatable to evidence provided from architecture, comic plays, decrees of the Athenian state, regional survey, and, hopefully in the future, an analysis of food remains, themselves.

In conclusion, Athenian urban culture concerning food– its acquisition, storage, processing, and consumption– developed in tandem. The process of urbanism can be split into two categories: the urbanization of space and the subsequent development of a private urban lifestyle. The development of infrastructure created an urban environment to which daily Athenian practices adapted. As food and water acquisition became easier due to the construction of fountains and roadways, large-scale domestic storage became a less important activity. Correspondingly, water transport and food storage vessels decreased in capacity. The regular supply of food in the Classical period, and perhaps an increase in the variety of foodstuff commodities, related to changes in urban cuisine. Additional cookpot forms enabled the creation of new dishes, echoed in both the development of the comic chef and the evolution of the term ὀψον. The development of the Athenian urban cuisine related to innovation in the consumption of food as new vessels and habits were utilized by the population. The study of urban Athenian foodways involves much more than determining what they ate but instead focuses on answering the more provocative question of how the Athenians interacted with their food. An analysis of Athenian food practices provides direct evidence to the development of the Classical Athenian urban lifestyle.

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Figures

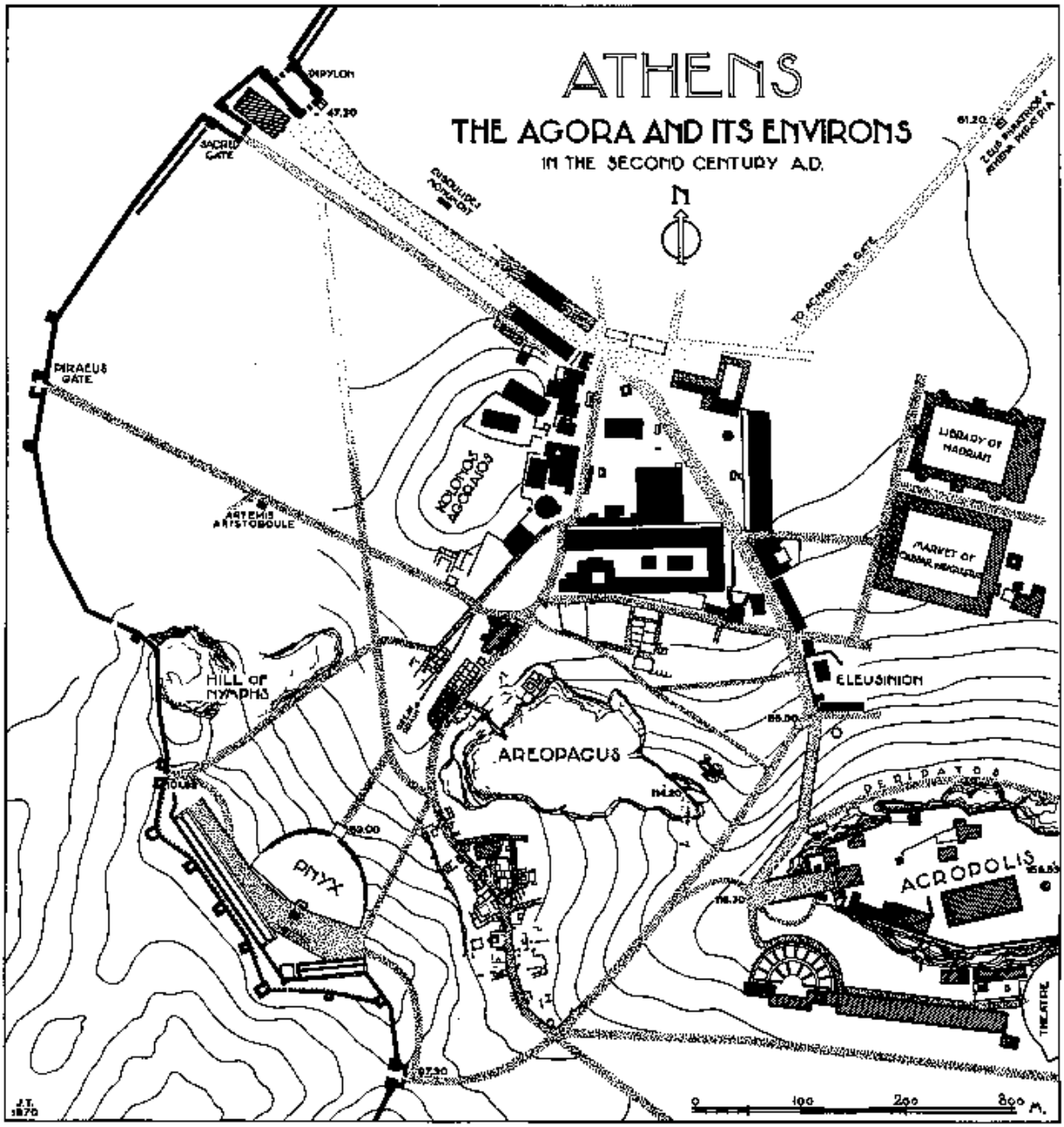

Figure 1– Athens: The Agora and its environs in the 2nd century C.E.

(Thompson and Wycherley 1972, pl. 1).

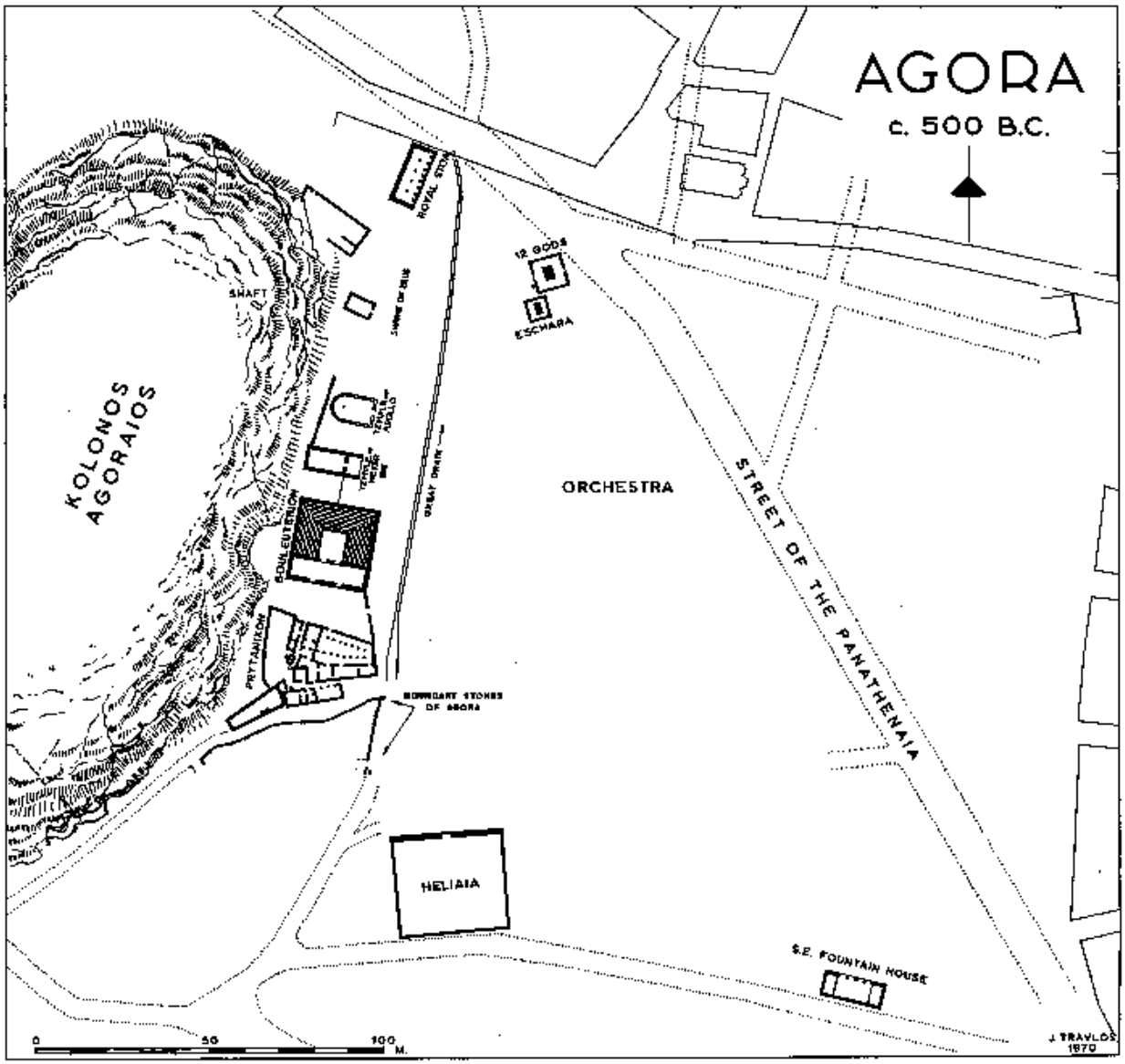

Figure 2– The Athenian Agora ca. 500 B.C.E. (Thompson and Wycherley 1972, pl. 4).

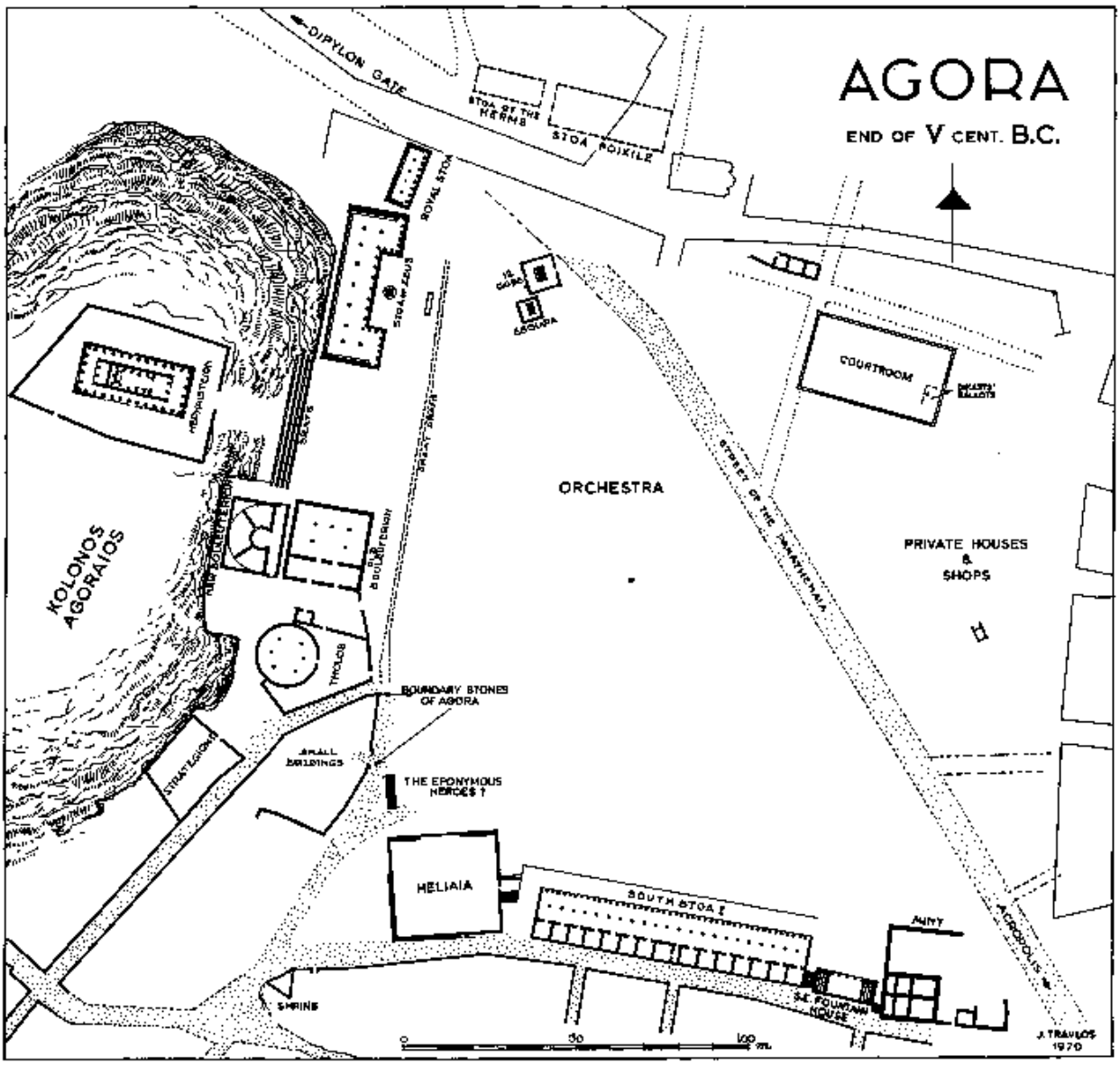

Figure 3– The Athenian Agora at the end of the 5th century B.C.E. (Thompson and Wycherley 1972, pl. 5).

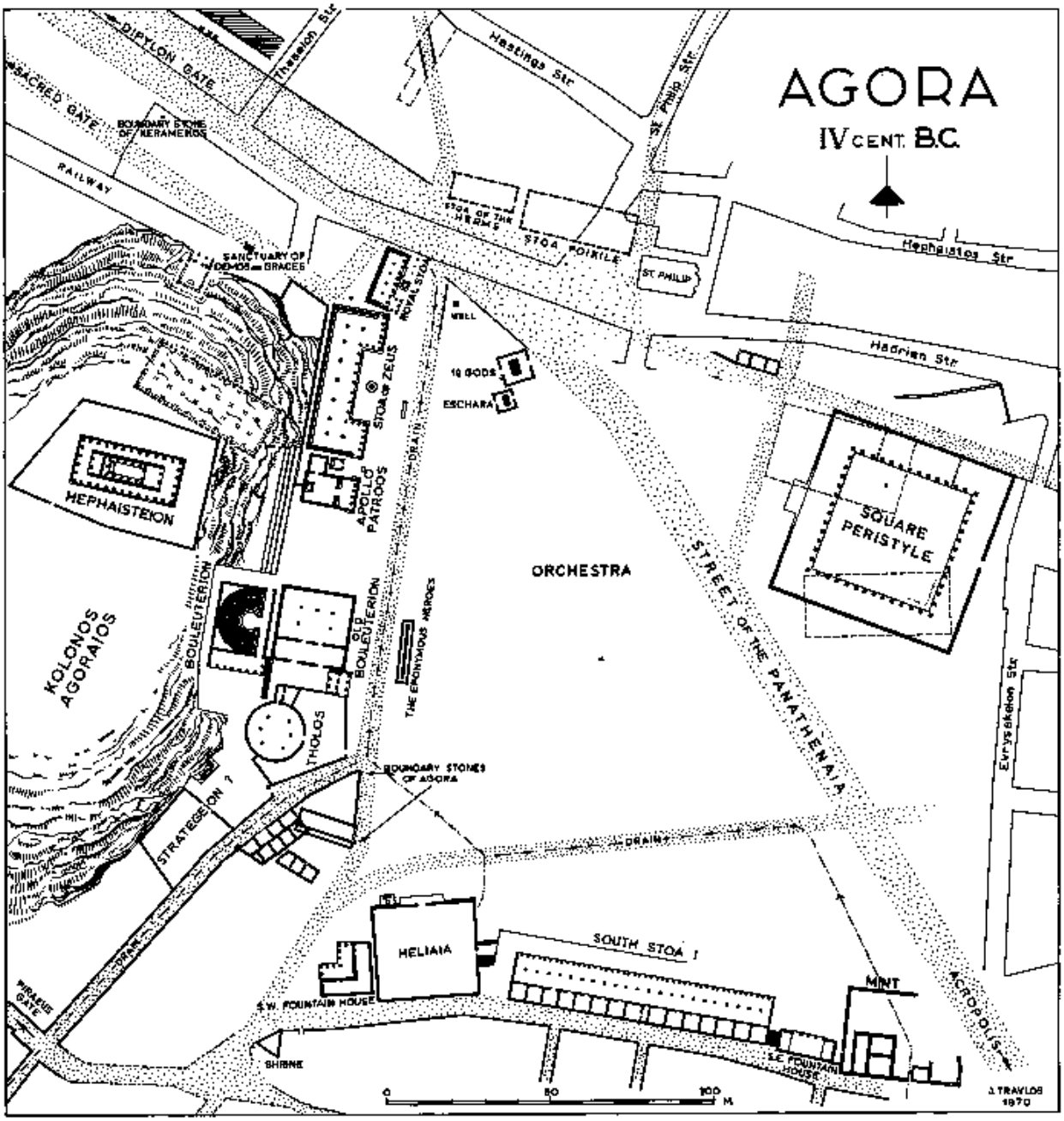

Figure 4– The Athenian Agora at the end of the 4th century B.C.E. (Thompson and Wycherley 1972, pl. 6).

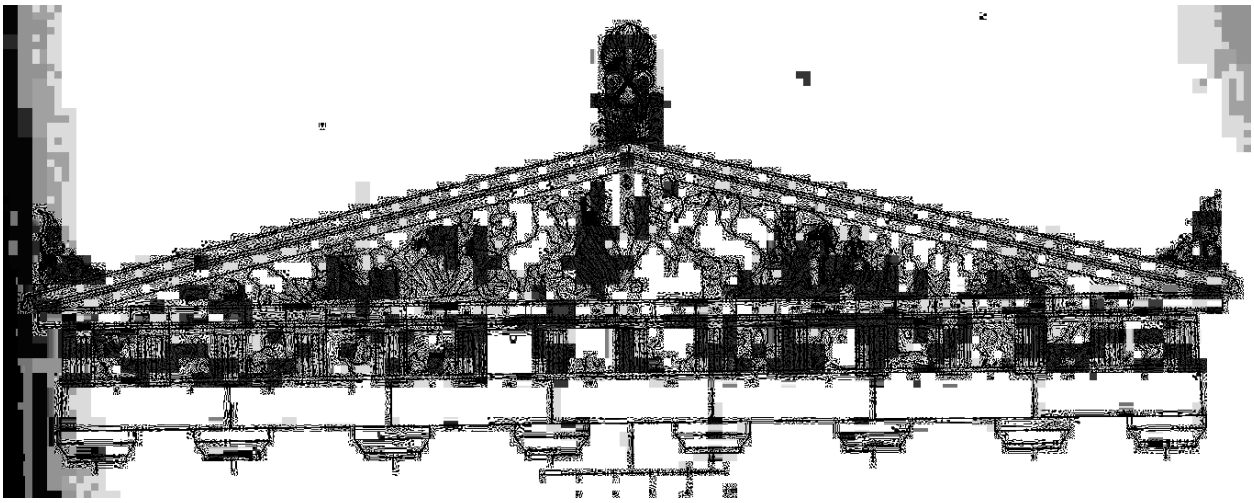

Figure 5– The Western Pediment of the Parthenon (Hurwit 1999, 177, fig. 143).

Figure 6– Slab from the South side of the Parthenon Frieze (Brommer 1977, pl. 153).

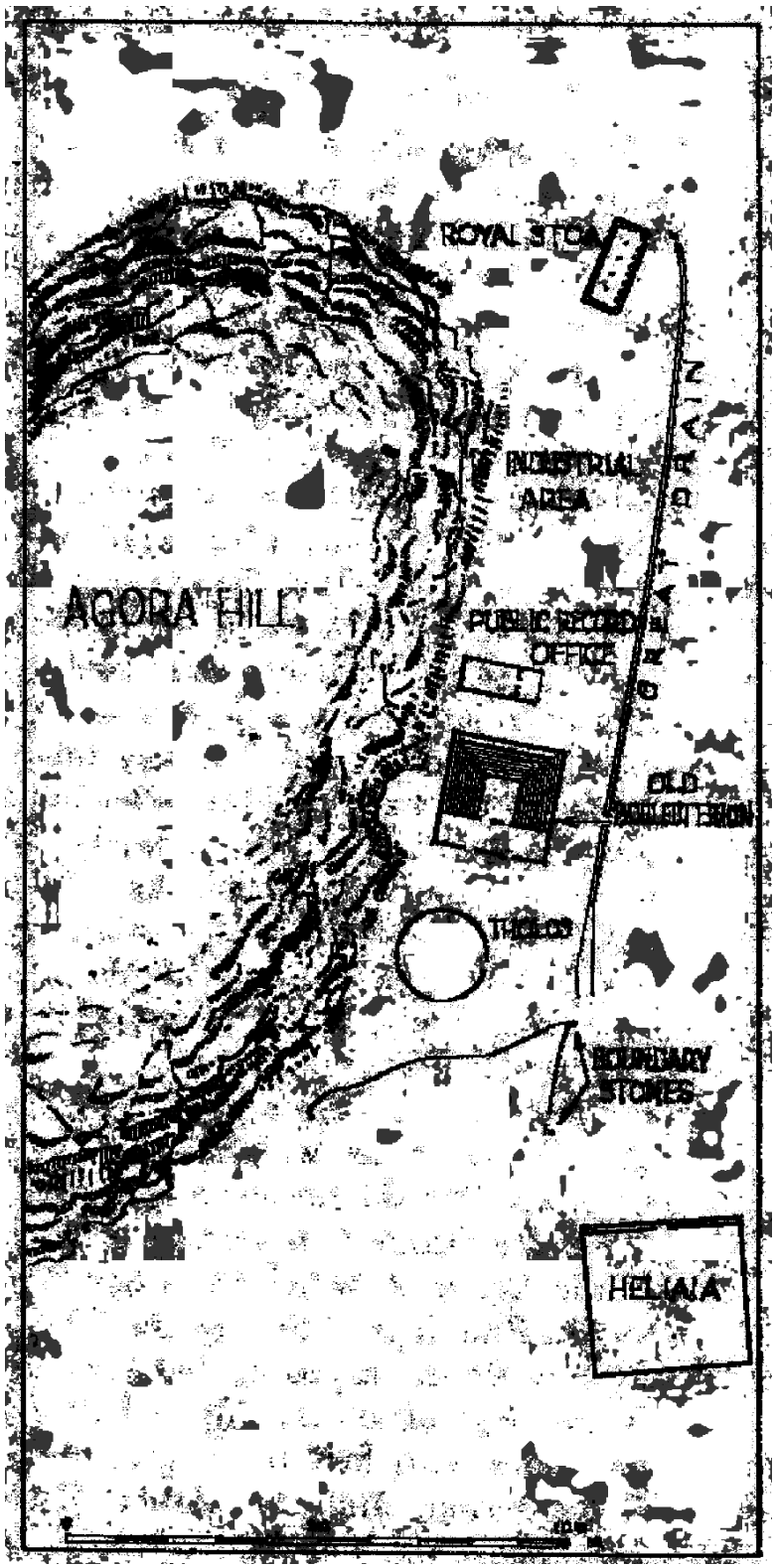

Figure 7– The West side of the Agora with the Great Drain (Francis and Vickers 1988, 164, fig. 7).

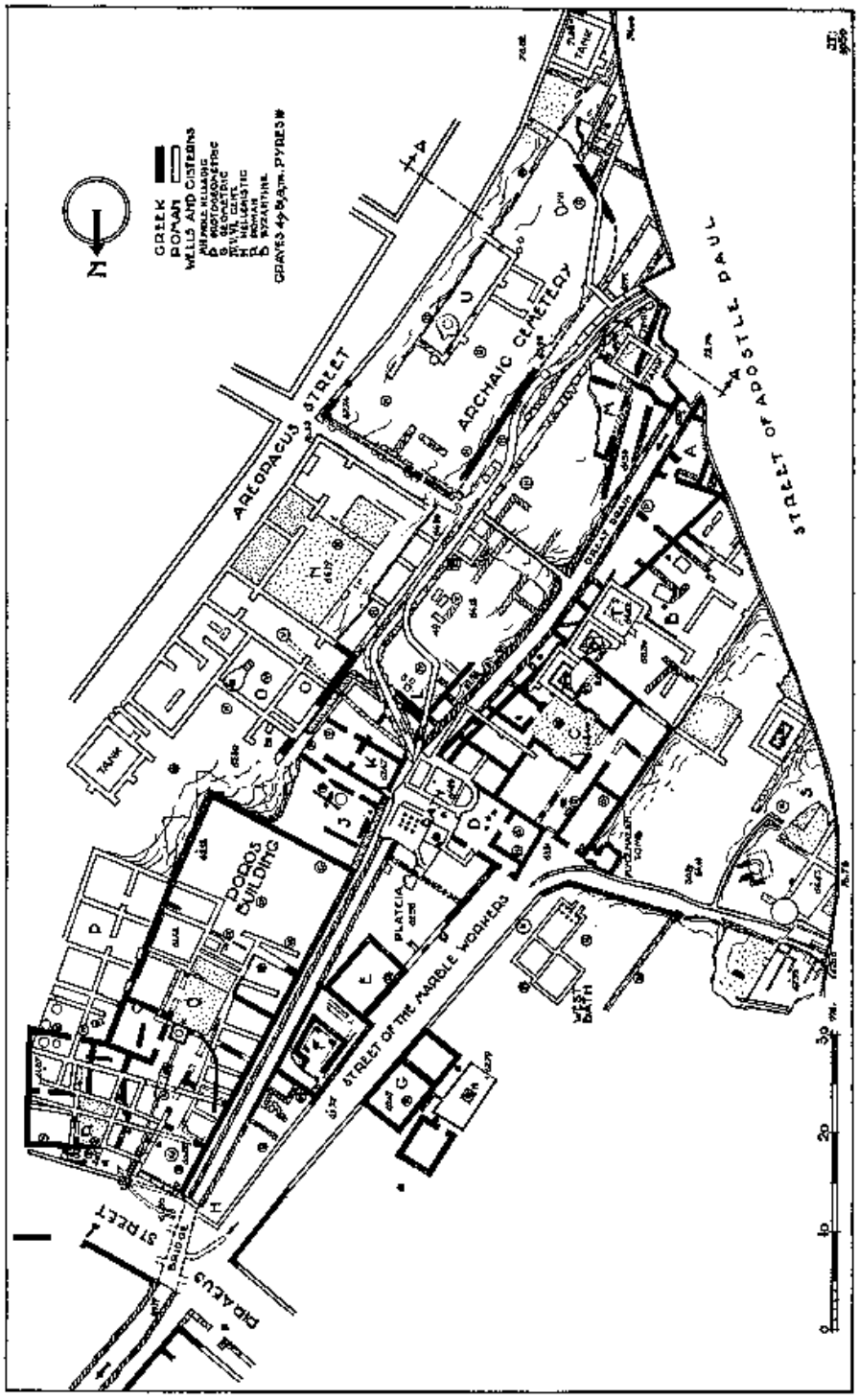

Figure 8– General plan of the Industrial District (Young 1951, 136, fig. 1).

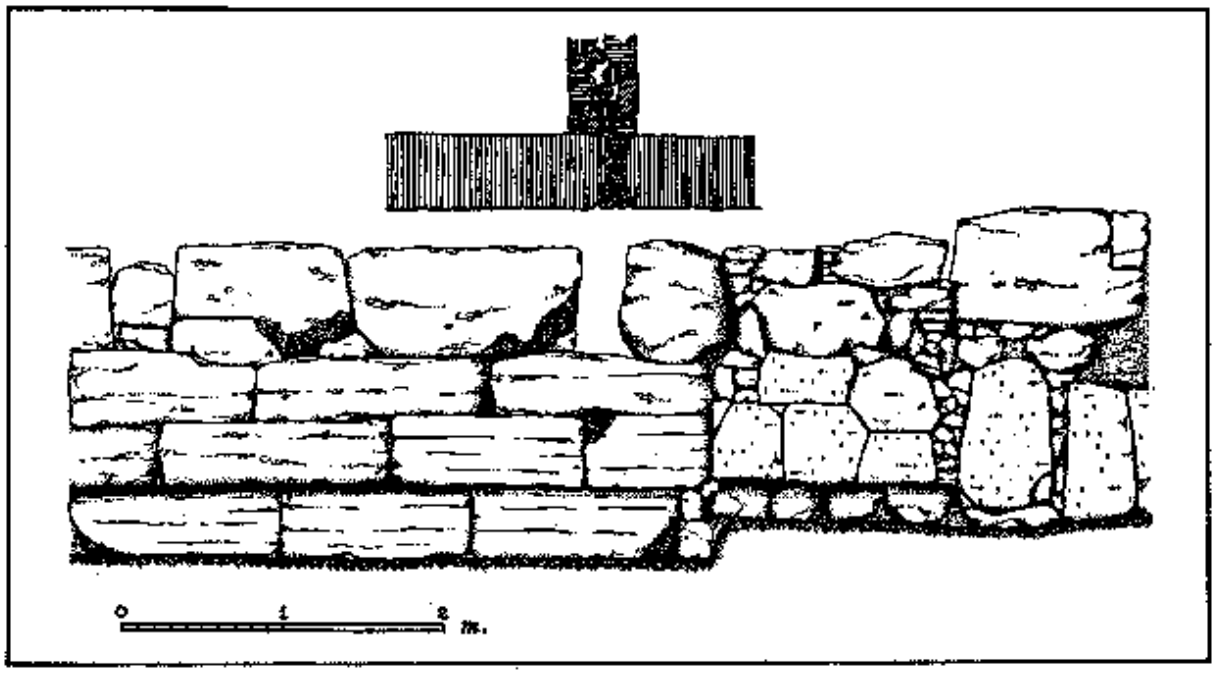

Figure 9– East wall of drain from House J to House K in the Industrial District (Young 1951, 259, fig. 20).

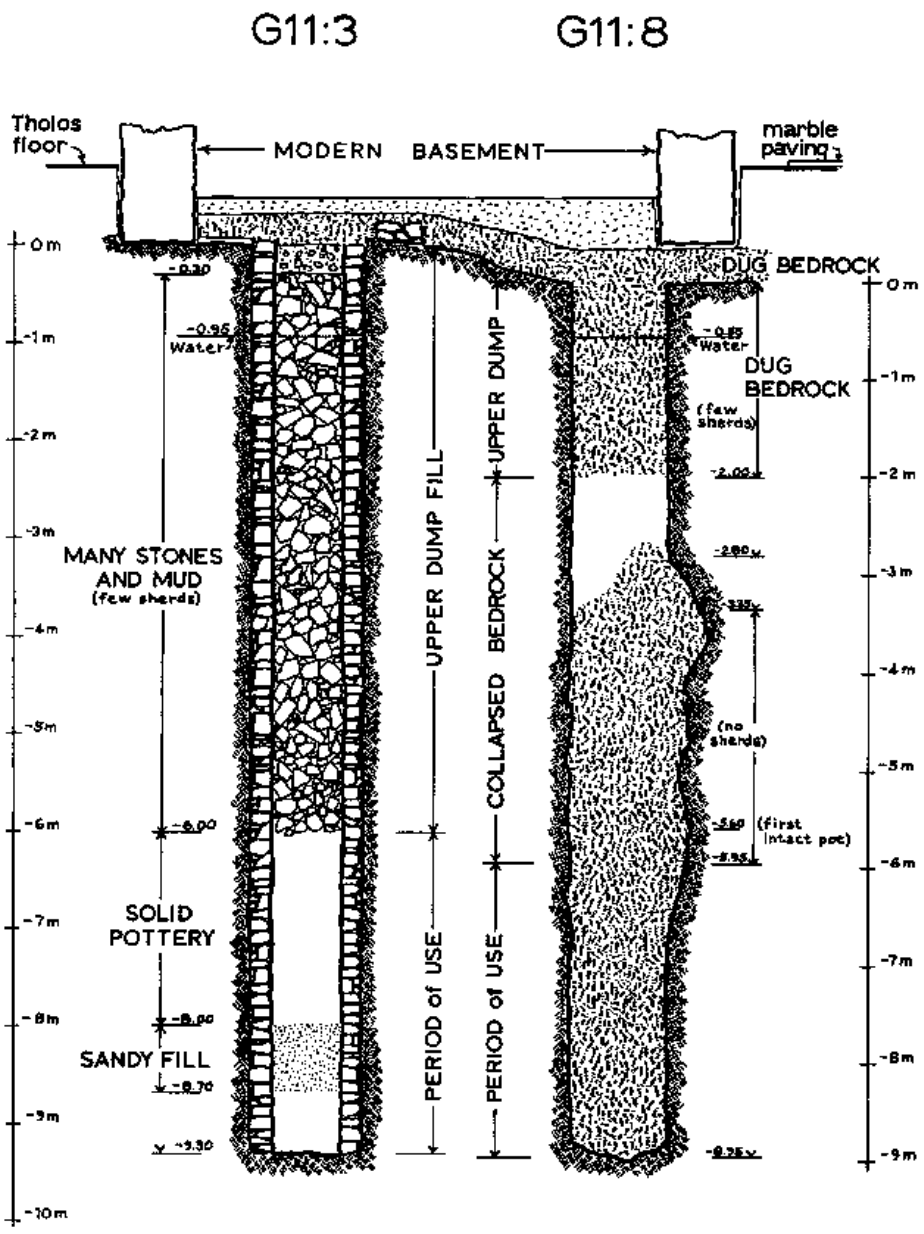

FIG. 8. Sections of Wells G 11:3 and G 11:8

Figure 10– Sections of wells G 11:3 and G 11:8 (Shear Jr. 1993, 450, fig. 8).

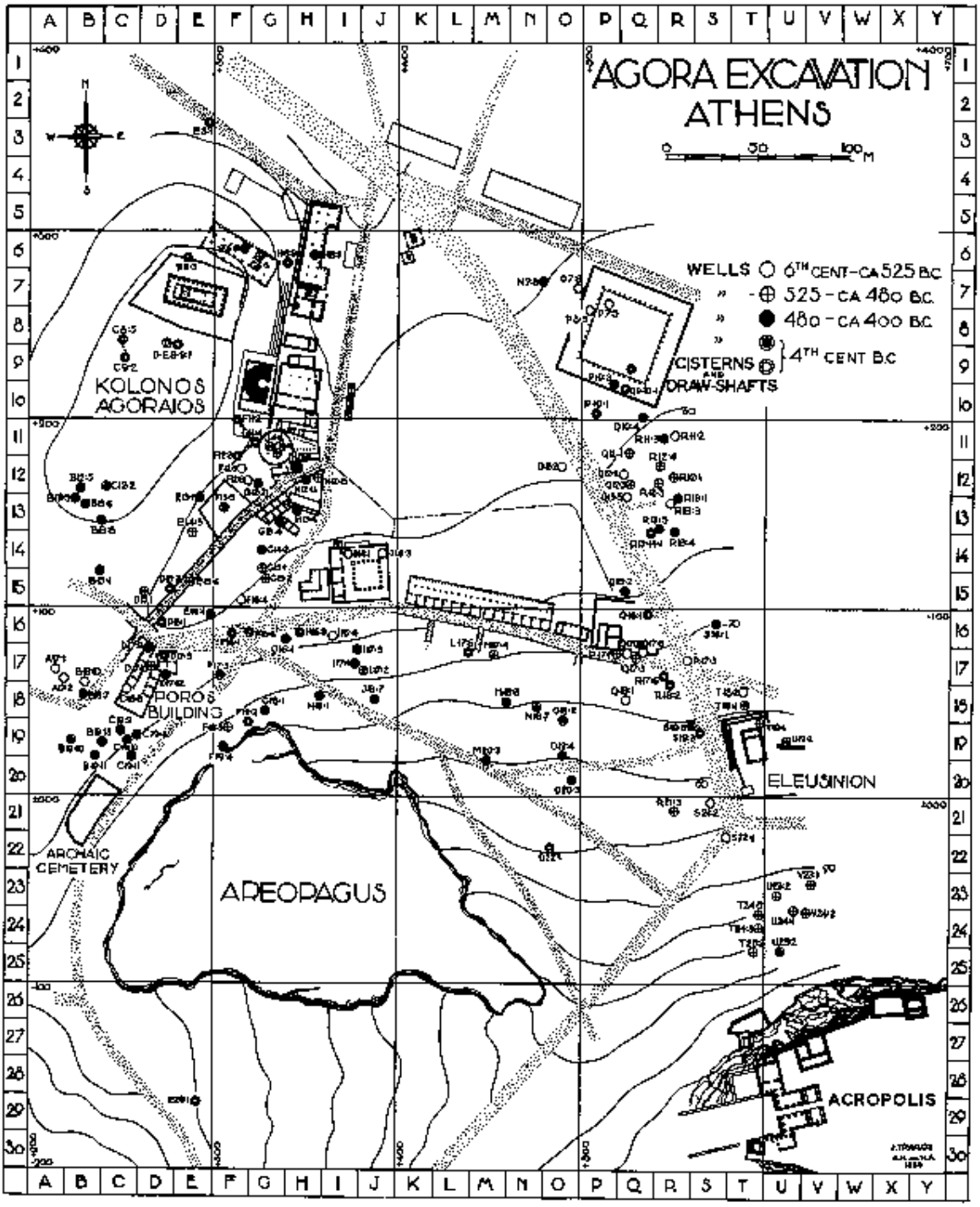

Figure 11– Wells and cisterns in the Athenian Agora Area (Sparkes and Talcott 1970, fig. 25).

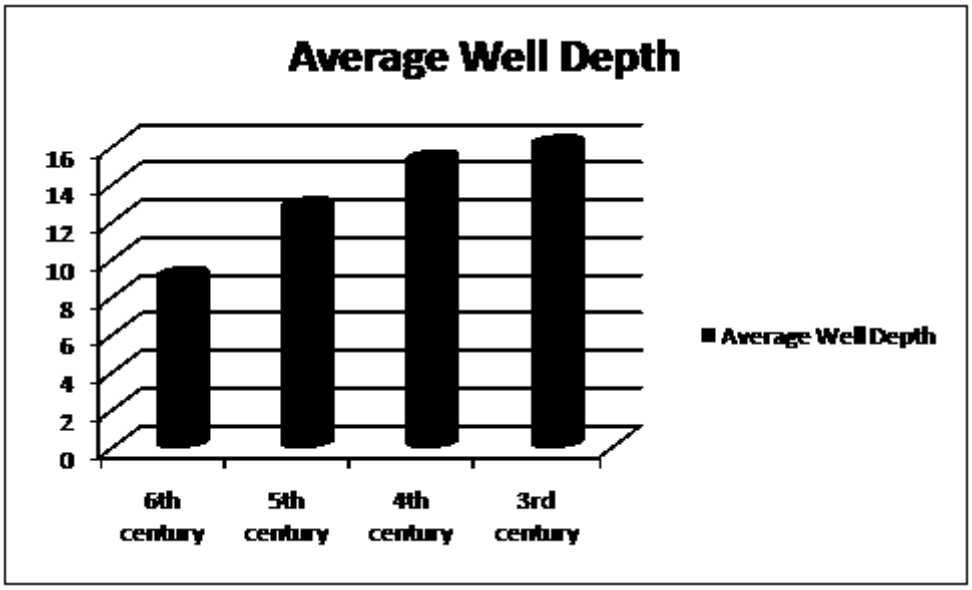

Figure 12– Average depth of Athenian wells by century (data from Camp 1977).

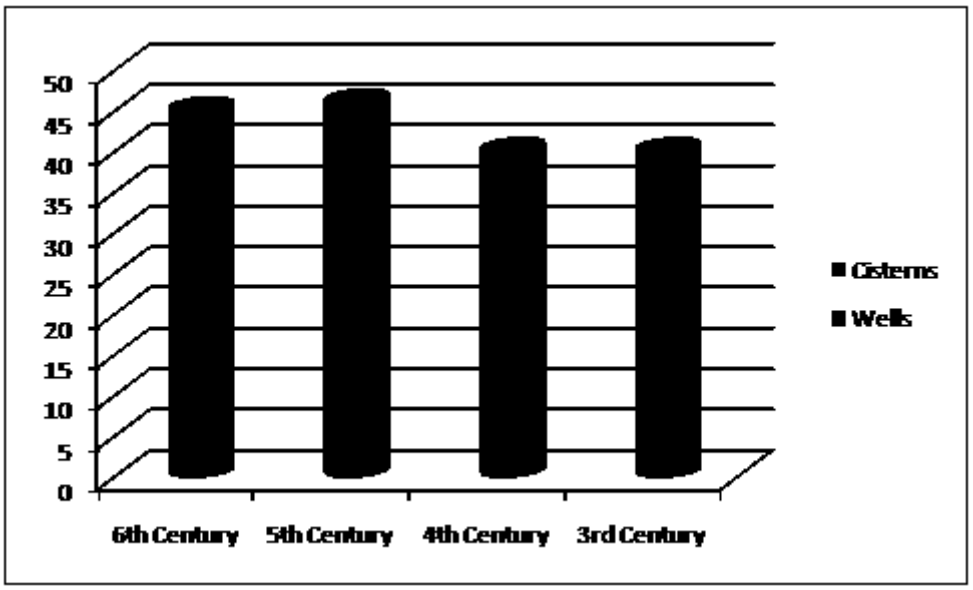

Figure 13– Well and cistern closings by century (data from Camp 1977).

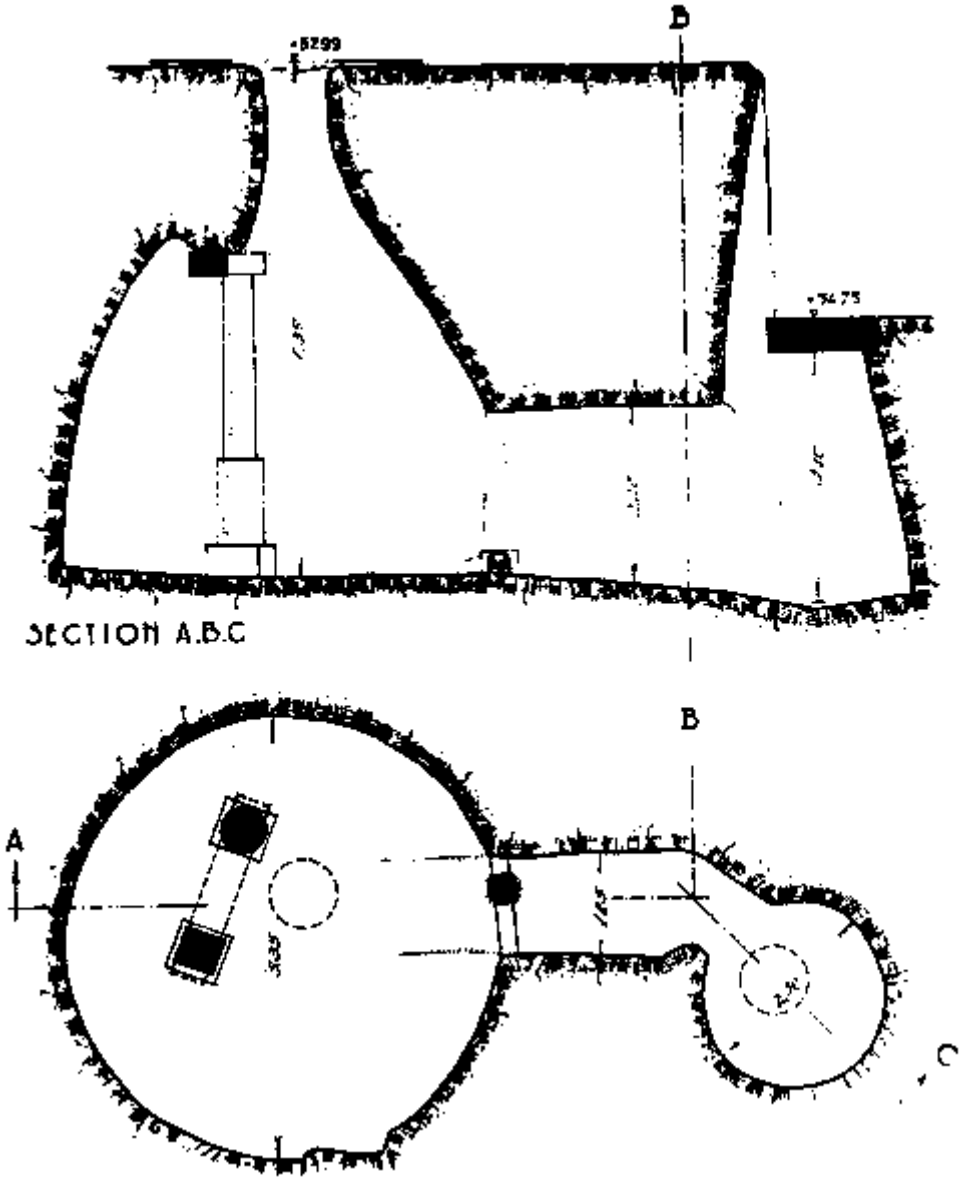

Figure 14– Plan and section of the Cave Cistern System (Rotroff 1983, 259, fig. 1).

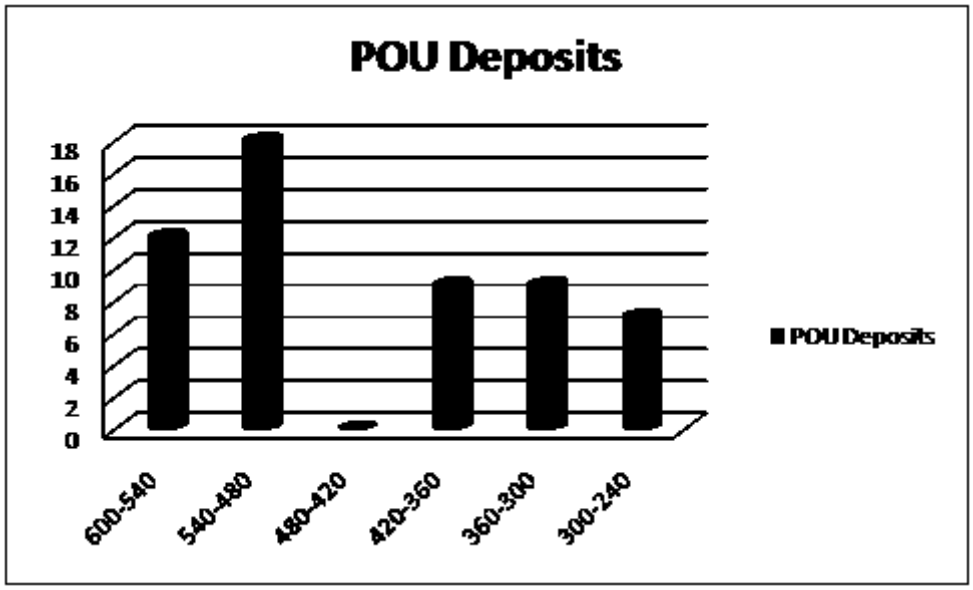

Figure 15– Chronological distribution of period of use deposits (data from Sparkes and Talcott 1970; Camp 1977; and Rotroff 2006).

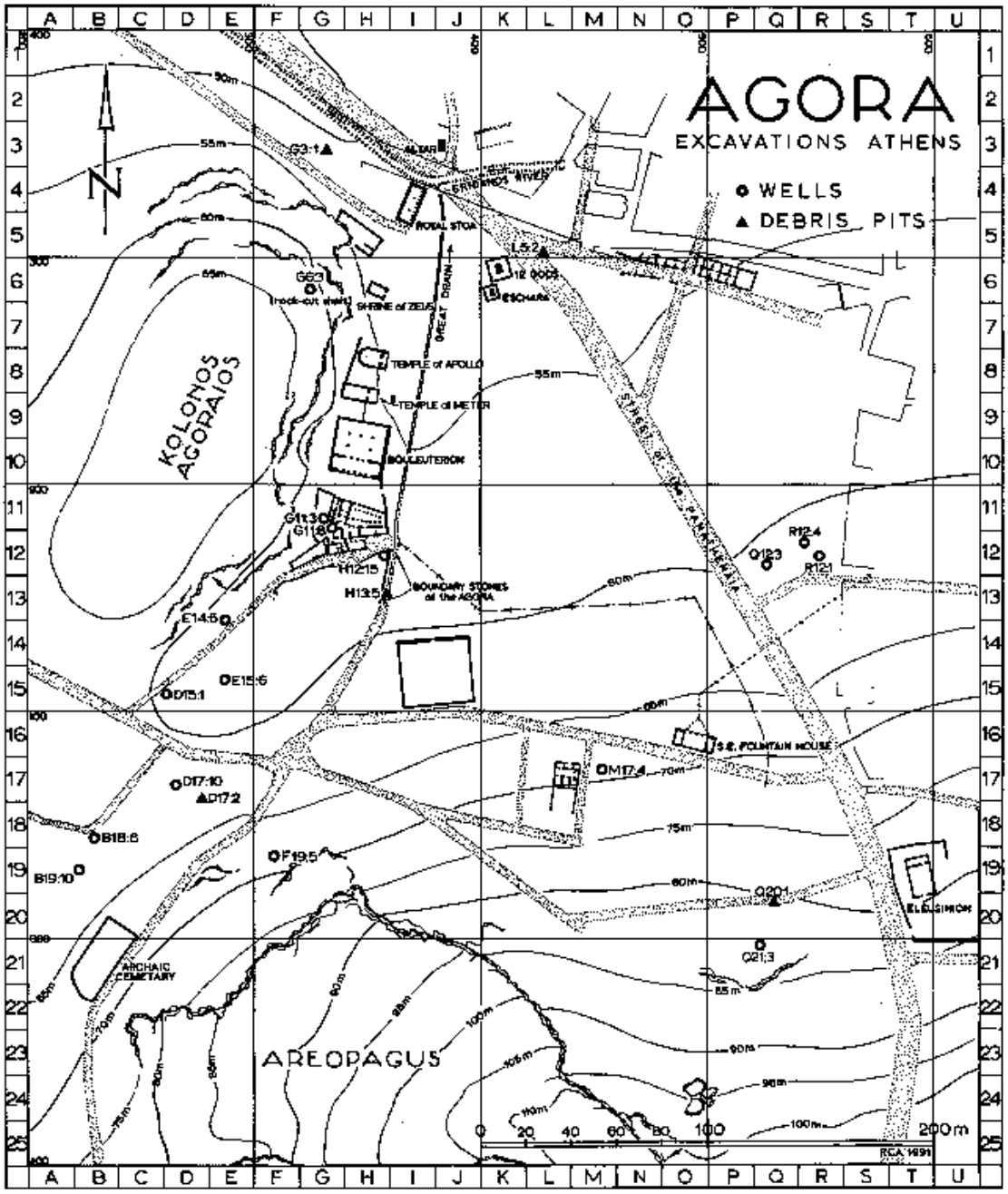

Figure 16– Distribution of Persian destruction deposits in the Agora area (Shear Jr. 1993, 385, fig. 1).

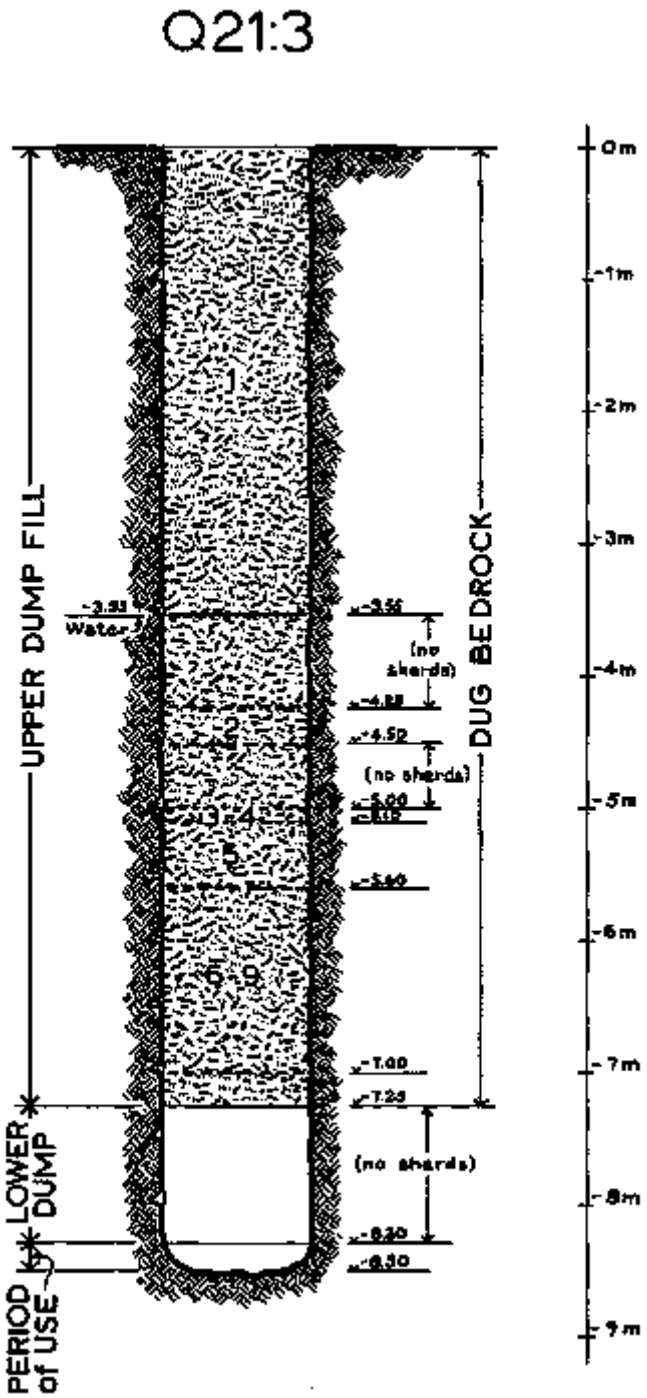

Figure 17– Section of well Q 21:3 showing large deposit of dug bedrock (Shear Jr. 1993, 465, fig. 9).

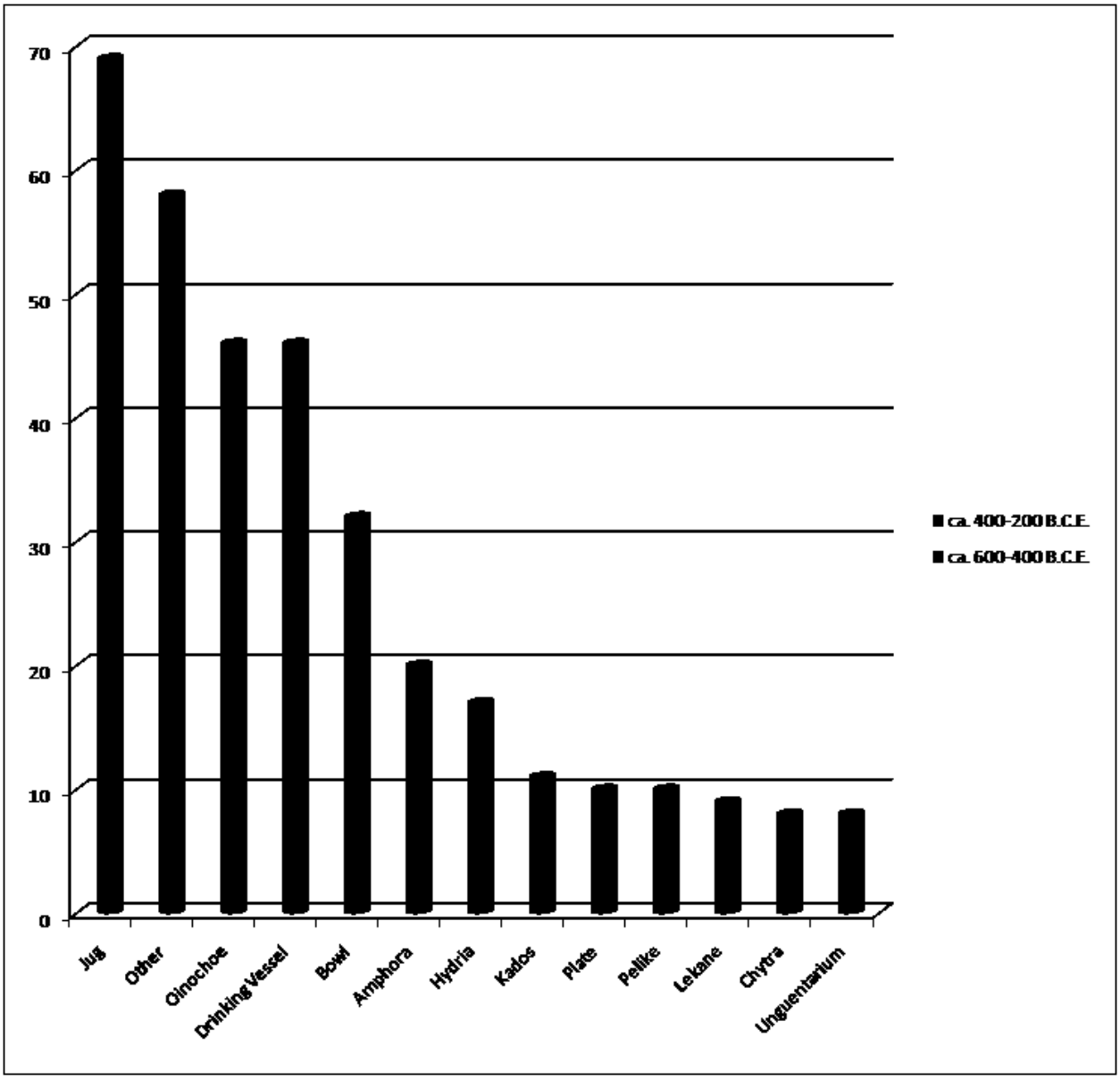

Figure 18– Vessel-type totals found in POU sample.

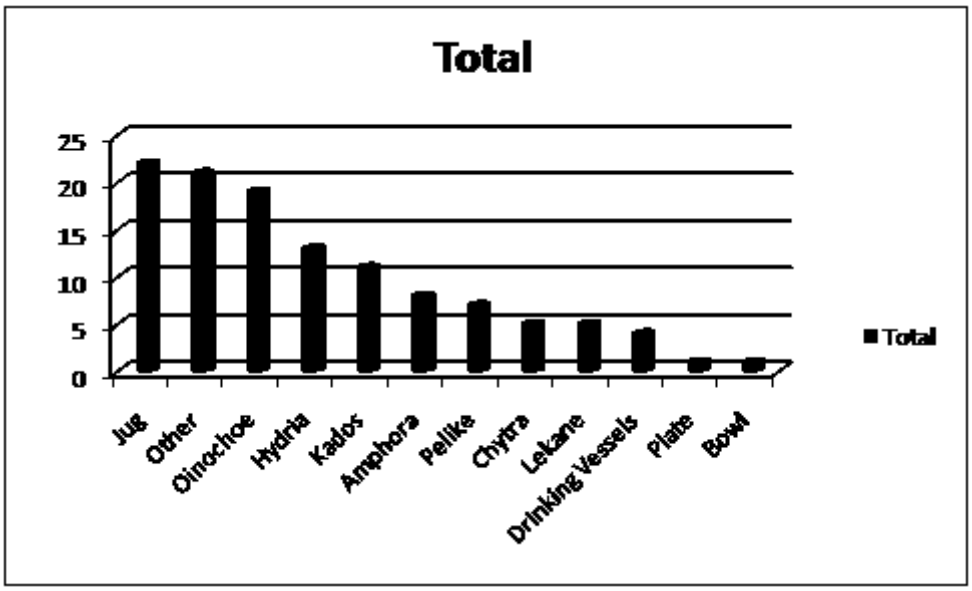

Figure 19– Vessel-type totals for Archaic deposits in POU sample.

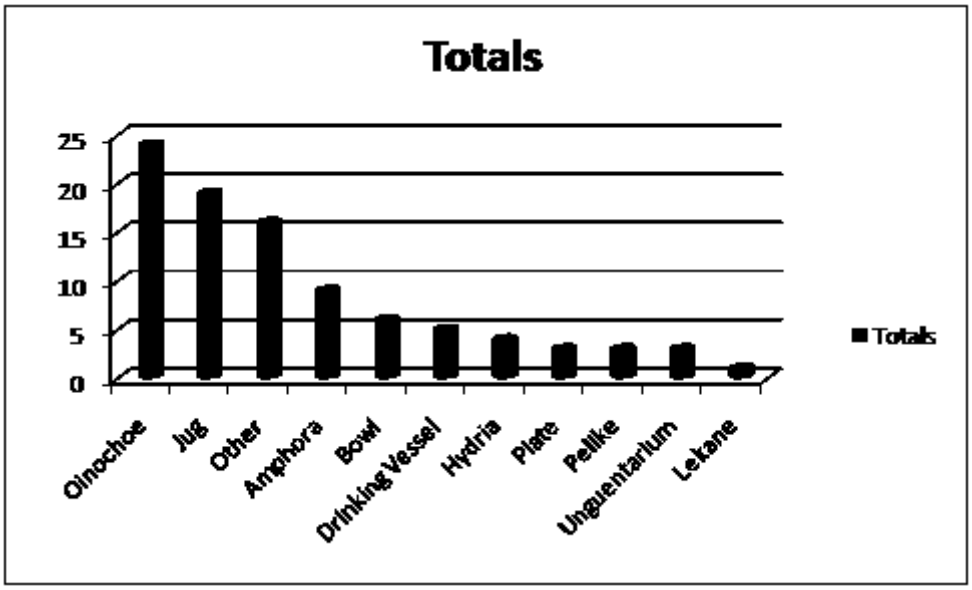

Figure 20– Vessel-type totals for Classical deposits in POU sample.

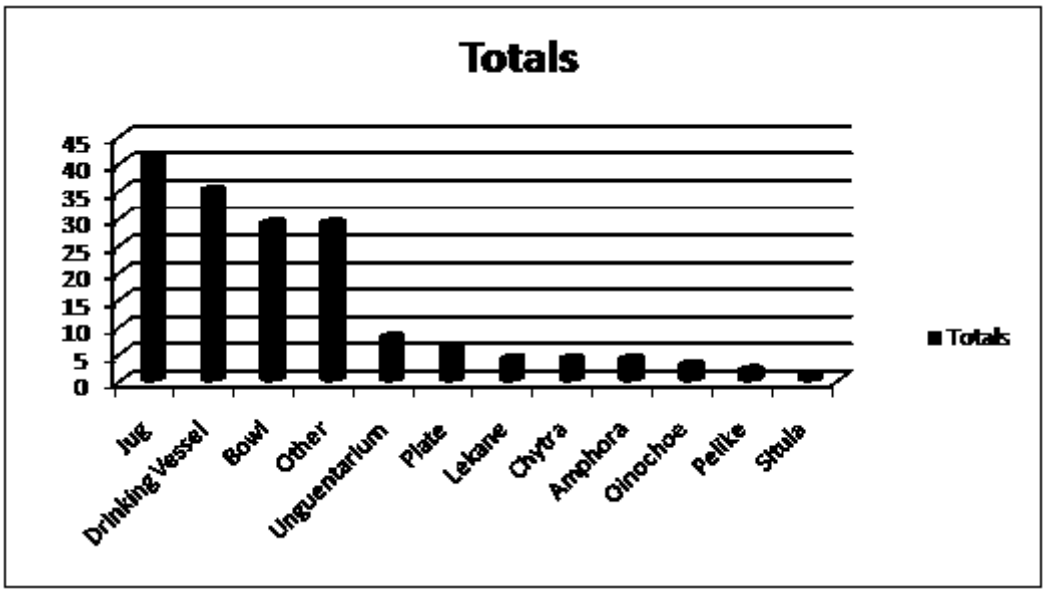

Figure 21– Vessel-type totals for Hellenistic deposits in POU sample.

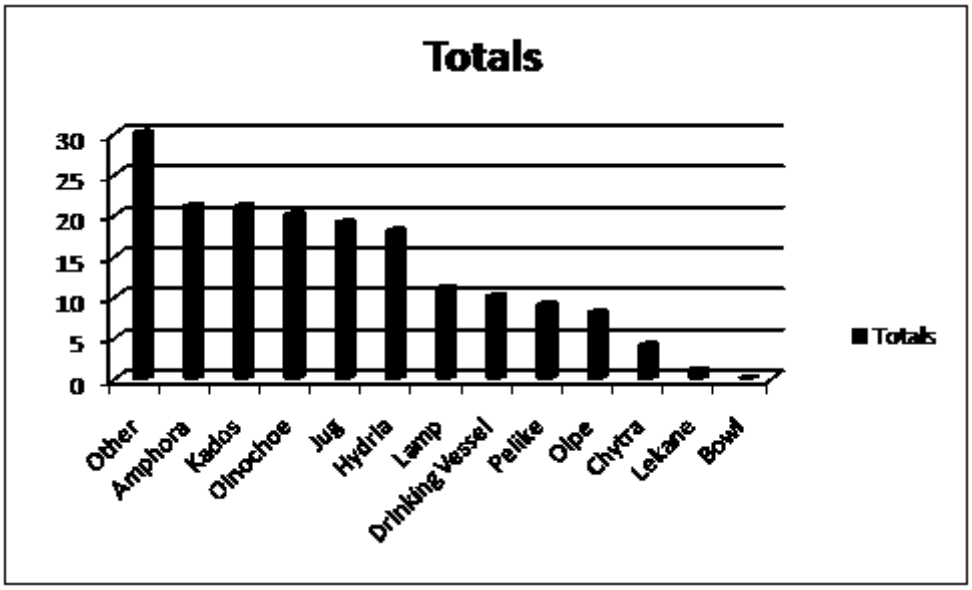

Figure 22– Vessel-type totals from the POU deposits in Persian destruction wells (data from Shear Jr. 1993).

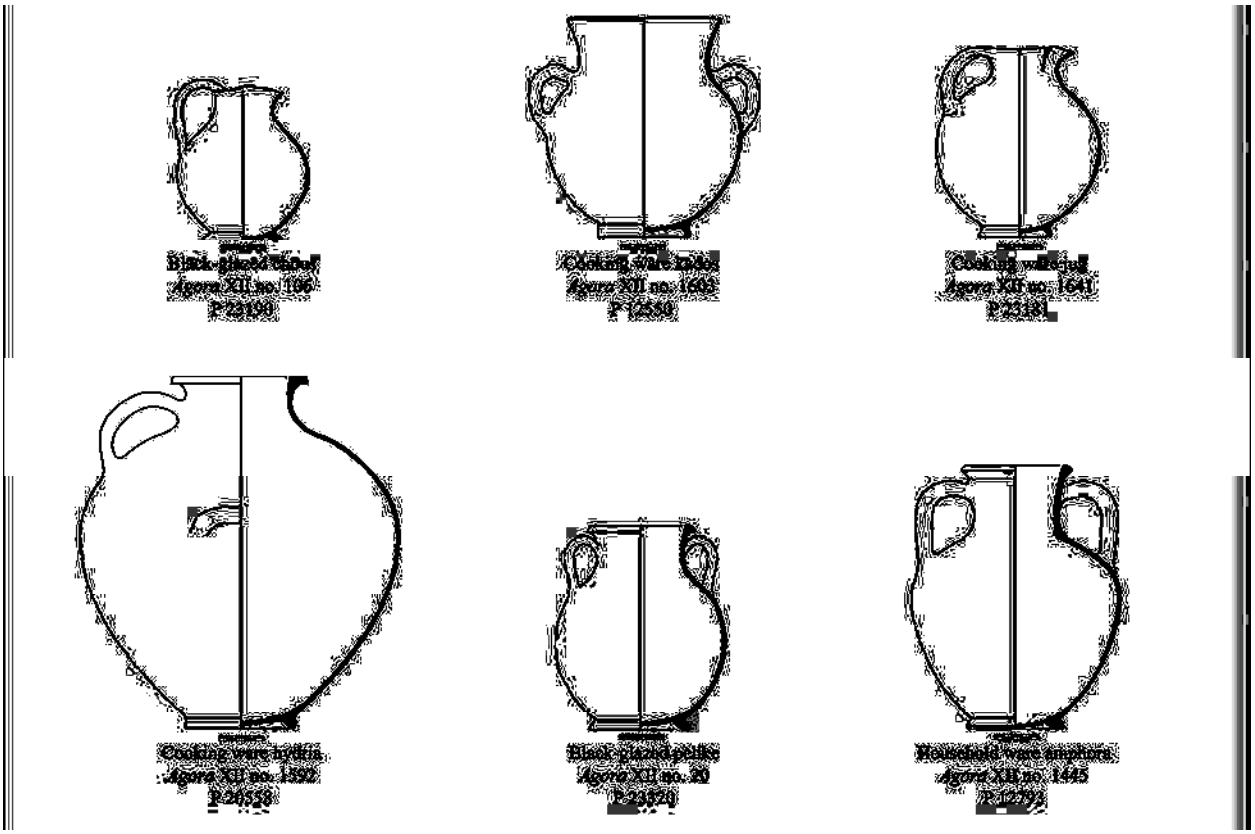

Figure 23– The Archaic POU assemblage (drawings from Lynch's forthcoming publication of *Agora* XII).

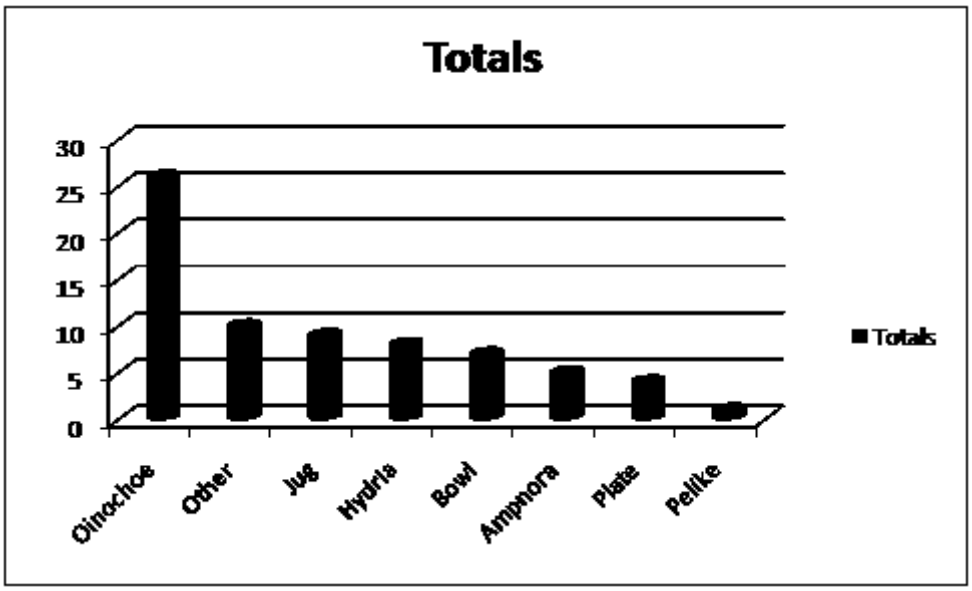

Figure 24– Vessel-type totals from POU deposits dating ca. 425-390 B.C.E. (data from Young 1939; Sparkes and Talcott 1970; Shear Jr. 1975; Moore et al. 1986).

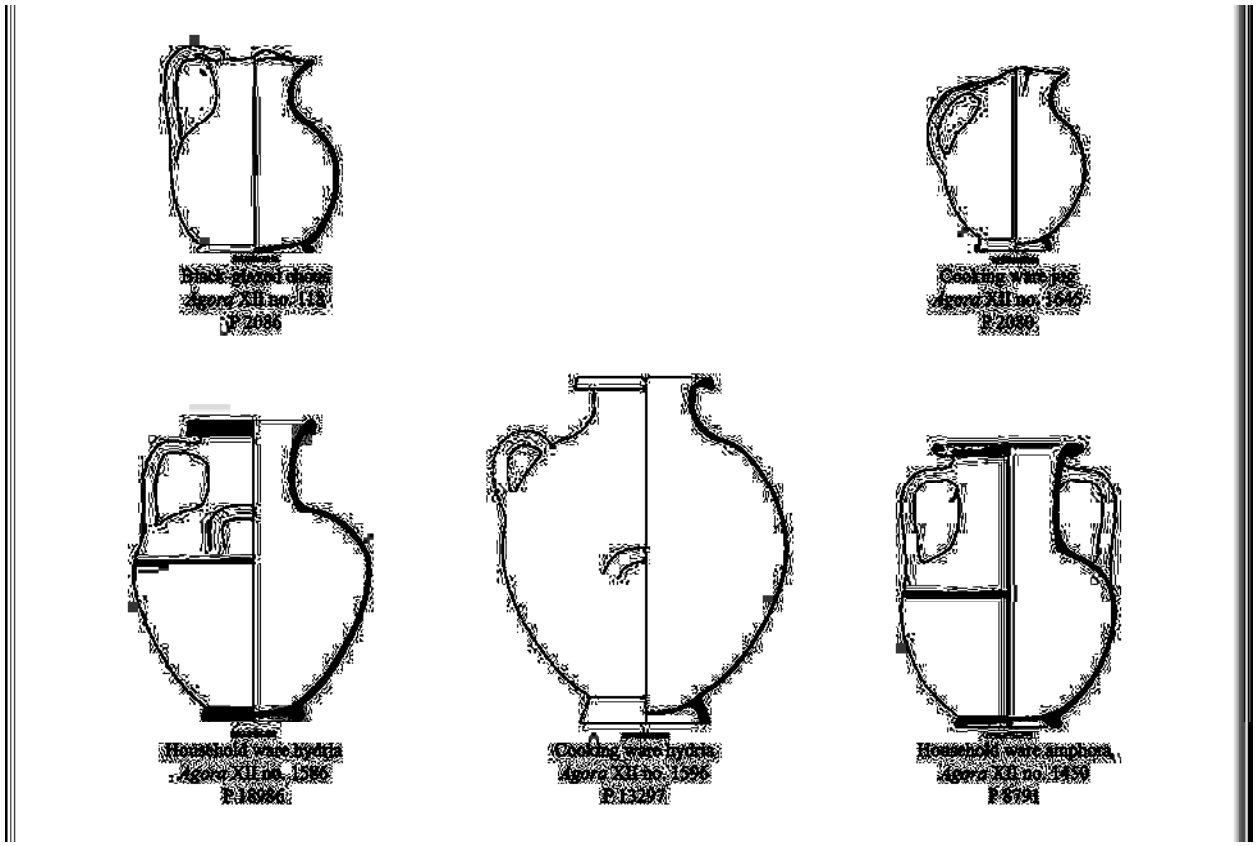

Figure 25– The POU assemblage ca. 425-390 B.C.E. (drawings from Lynch's forthcoming republication of *Agora* XII).

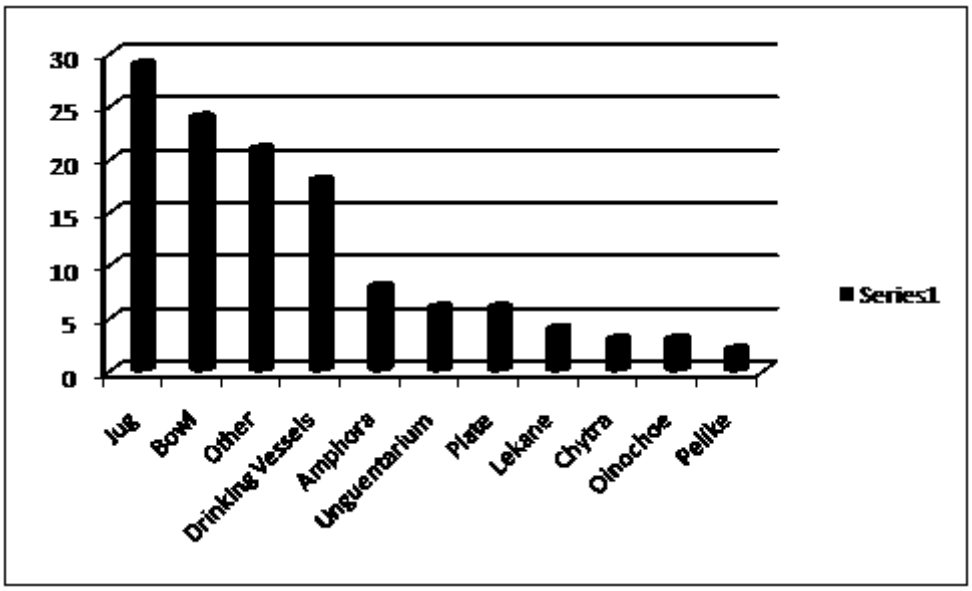

Figure 26– Vessel-type totals from POU deposits dating ca. 360-260 B.C.E. (data from POU sample).

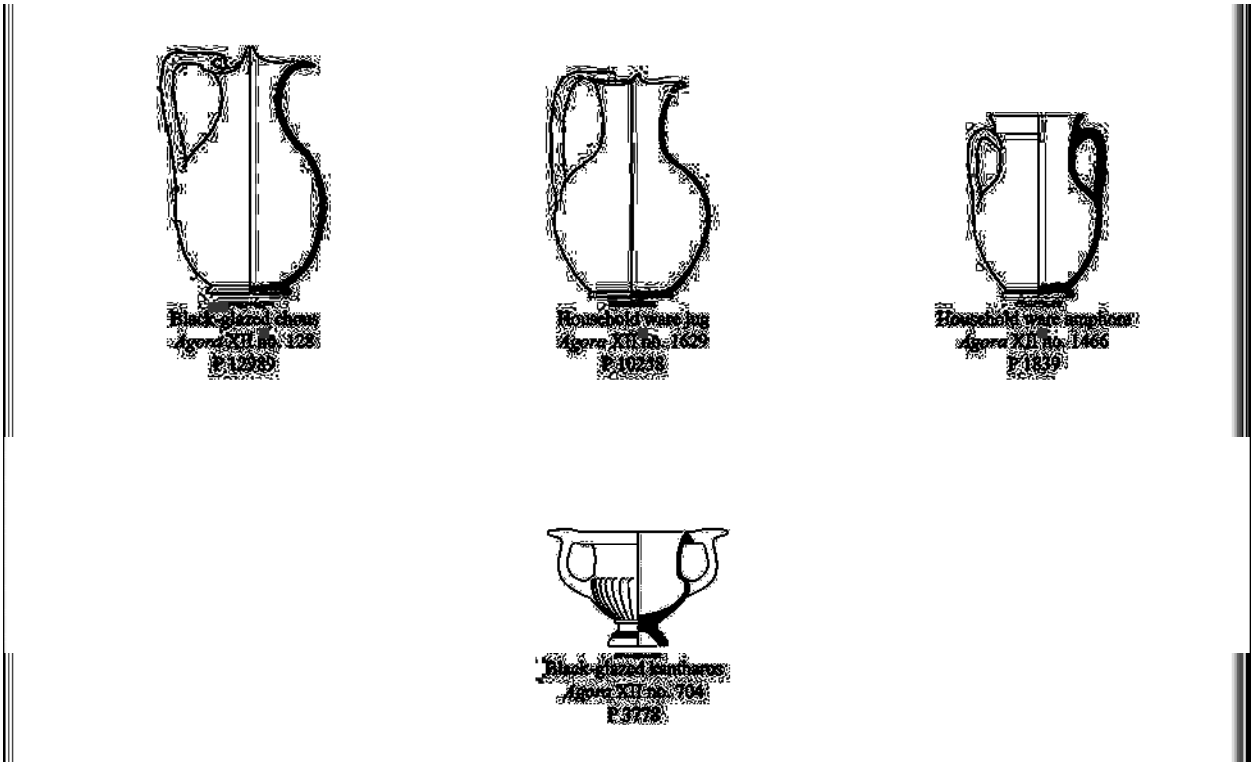

Figure 27– The POU assemblage ca. 360-260 B.C.E. (drawings from Lynch's forthcoming republication of *Agora* XII).

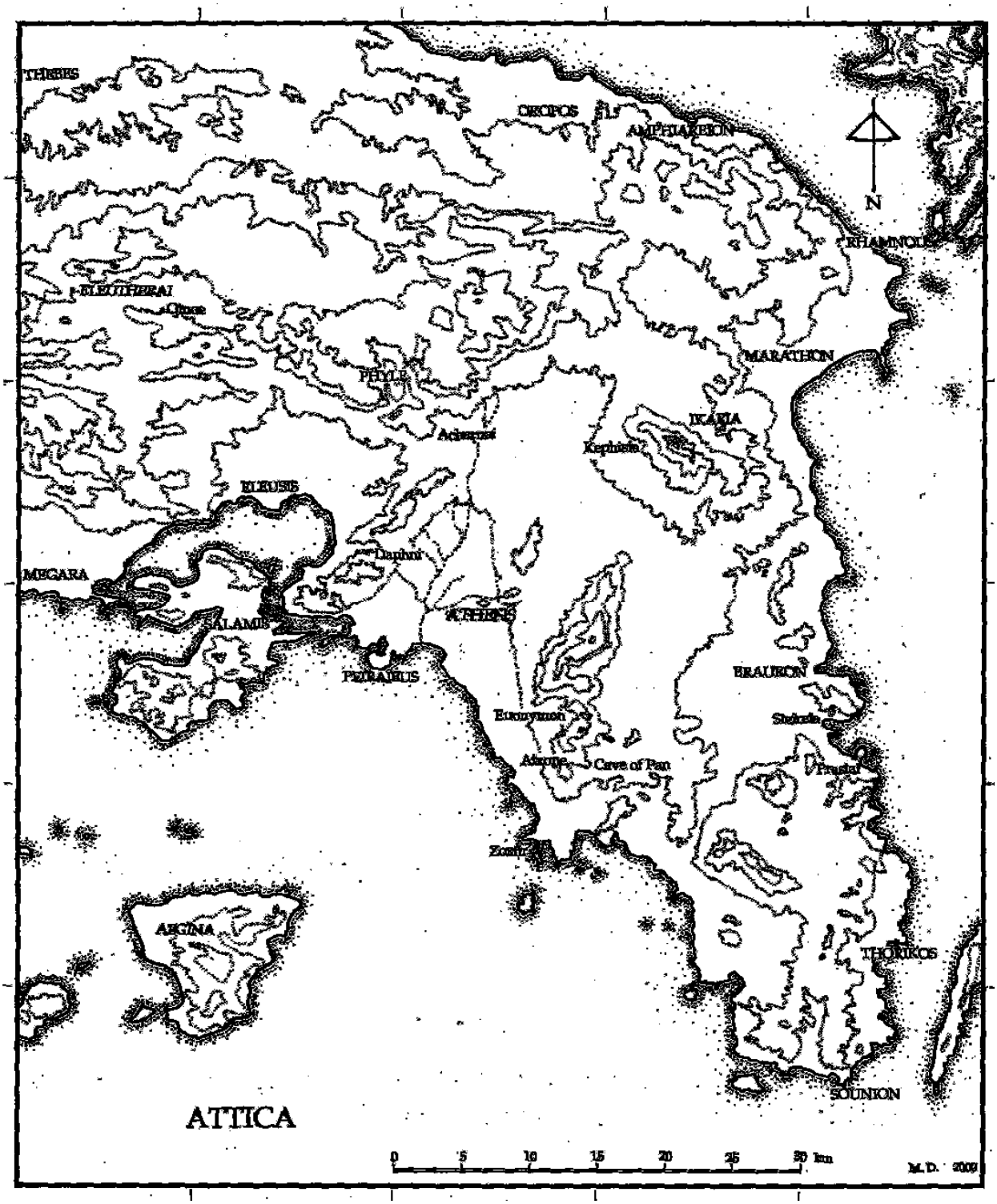

Figure 28– Map of Attica (Camp 2001, 272, fig. 248).

Attic Month	Modern Month	Festival	Agricultural Season/Jobs
Hekatombaion	June/July	**Eirene Sacrifice; Panathenaia**	Late cereal/legume harvest; Threshing and processing for storage; Fallow plowing; Watering trees and vines
Metageitnion	July/Aug	Eleusinia ?	Threshing and processing for storage; Fallow plowing; Watering trees and vines
Boedromion	Aug/Sept	**Commemoration of Marathon; Greater Mysteries of Eleusis**	Field preparation and manuring; Watering trees and vines; Tree-crop harvest; Vintage and pressing
Pyanopsion	Sept/Oct	**Oschophoria; Theseia;** Thesmophoria; Proeresia; Pyanapsion	Plowing and sowing cereals and legumes; Tree-crop and vine harvest and/or pruning; olive picking (biennial), pressing, pruning, and/or manuring
Maimakterion	Oct/Nov		Plowing and sowing cereals and legumes; Pruning/planting of trees and vines; olive picking (biennial), pressing, pruning, and/or manuring; Lambing and kidding
Poseideon	Nov/Dec	Rural Dionysia	Lambing and kidding
Gamelion	Dec/Jan	Lenaion	Fallow plowing; Lambing and kidding; Milking and processing
Anthesterion	Jan/Feb	Lesser Mysteries; Anthesterion	Fallow plowing; Weeding/pruning; Opening of wine-casks; Milking and processing
Elaphebolion	Feb/March	**City Dionysia**	Early cereal (barley)/legume harvest; Weeding/pruning; Grafting of olive trees; Milking and processing;
Mounichion	March/April	**Olympieia**	Early cereal (barley)/legume harvest; Weeding/pruning; Grafting of olive trees; Milking and processing
Thargelion	April/May	Thargelion	Cereal/legume harvest; Threshing and processing for storage; Fertilizing of tree-crops; Watering trees and vines; Milking and processing
Skirophorion	May/June	**Dipoleia**	Cereal/legume harvest; Threshing and processing for storage; Fertilizing of tree-crops; Watering trees and vines; Milking and processing

Figure 29– Attic Sacred and Agricultural Calendar with large-scale sacrifices in bold (data primarily from Mikalson 1975; Rosivach 1994; Foxhall 2007).

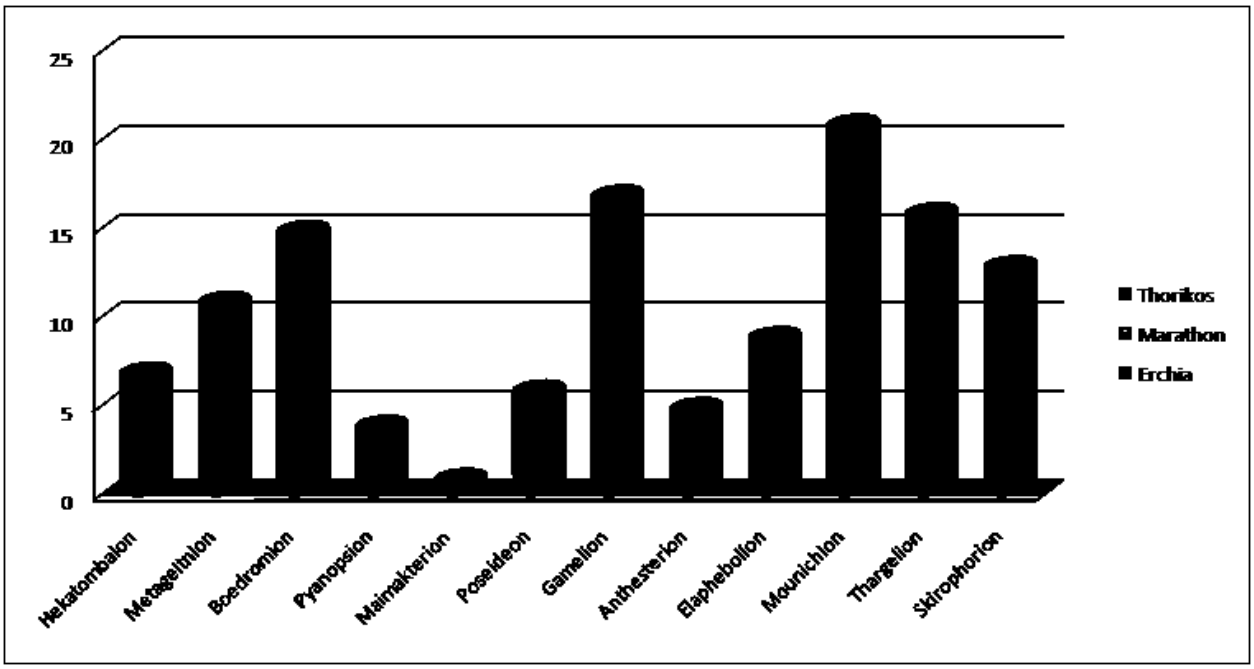

Figure 30– Number of sacrificed animals (excluding piglets) by month in the festival calendars of the demes of Erchia, Thorikos, and Marathon (data from Rosivach 1994).[573]

[573] Some sacrifices in the Marathon calendar were every other year, and have therefore been halved here.

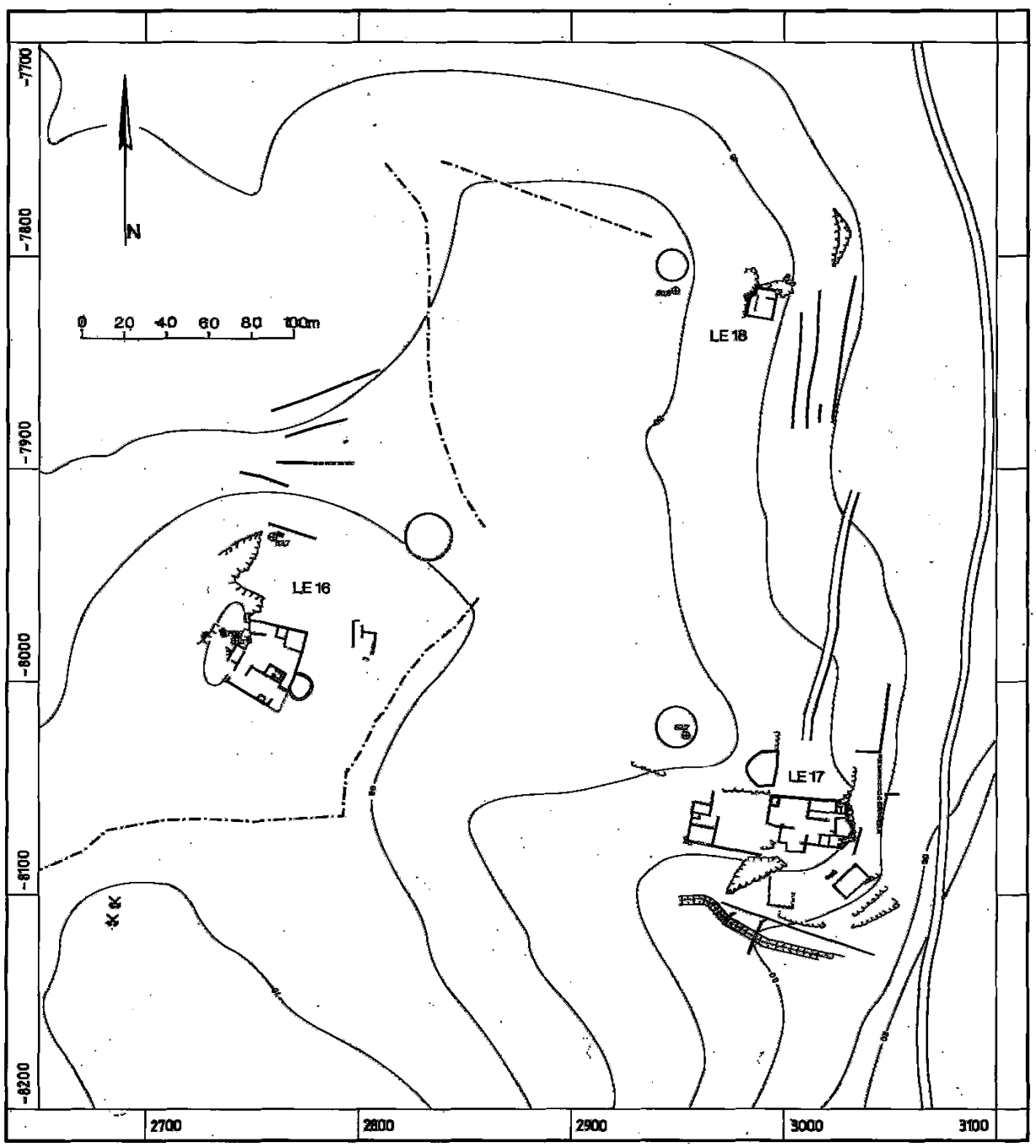

Figure 31– Legraina, Palaia Kopraisia, Classical farmhouses, threshing floors, and boundary field-wall (from the Atene survey: Lohmann 1993, 46, fig. 21).

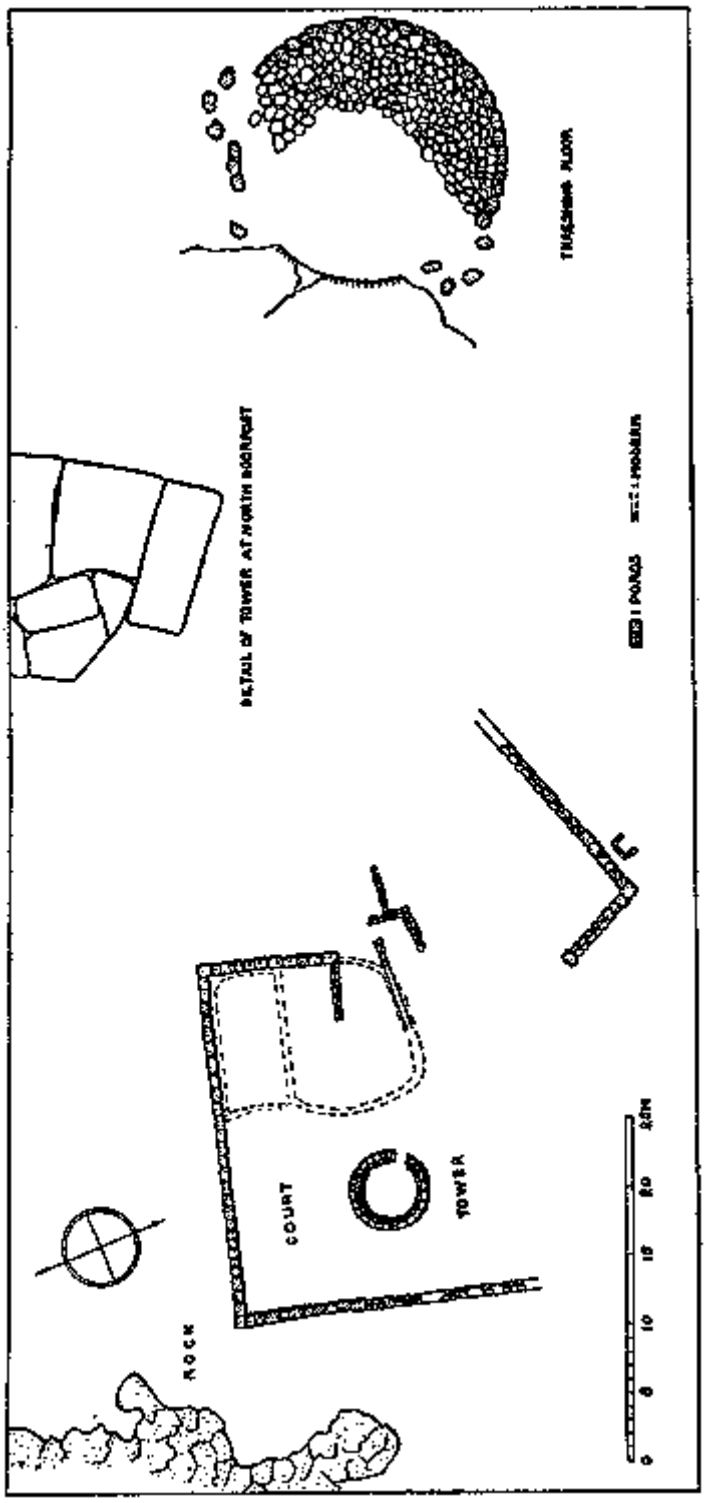

Figure 32– The Princess Tower and threshing floor (Sounion area, Young 1956, 123, fig. 1).

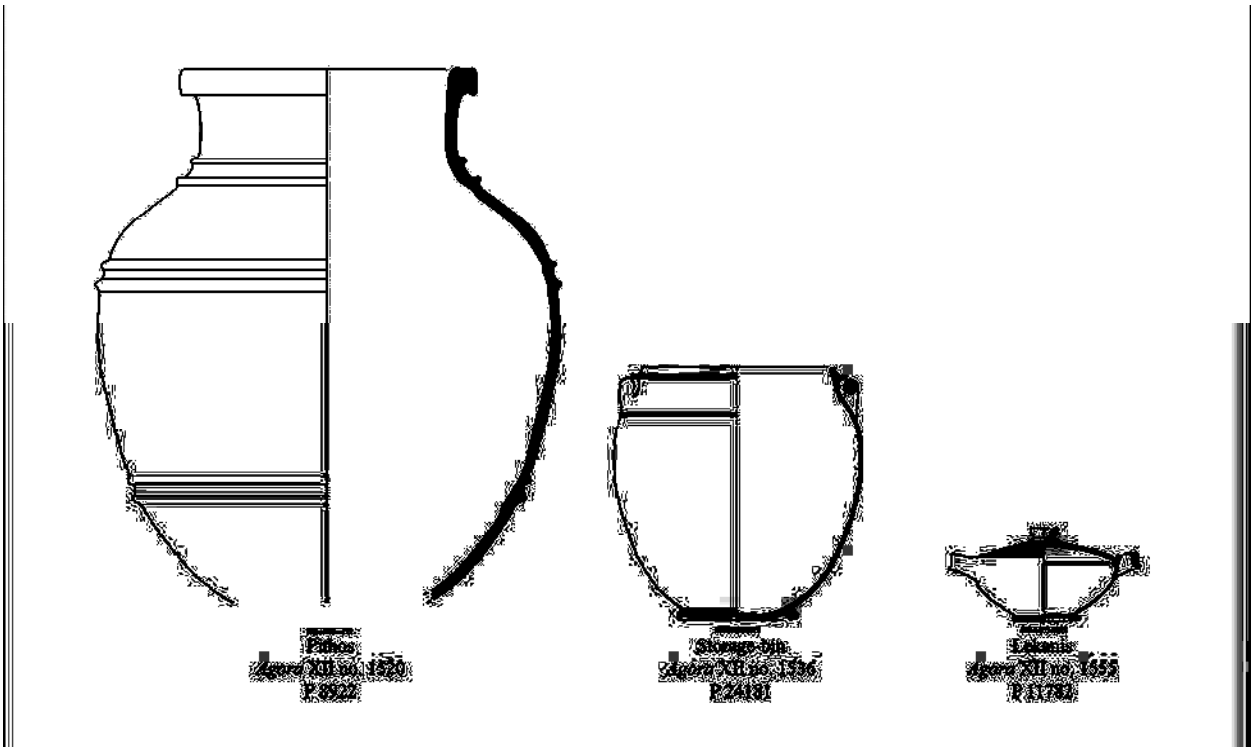

Figure 33– Athenian storage vessels (drawings from Lynch's forthcoming republication of *Agora* XII).

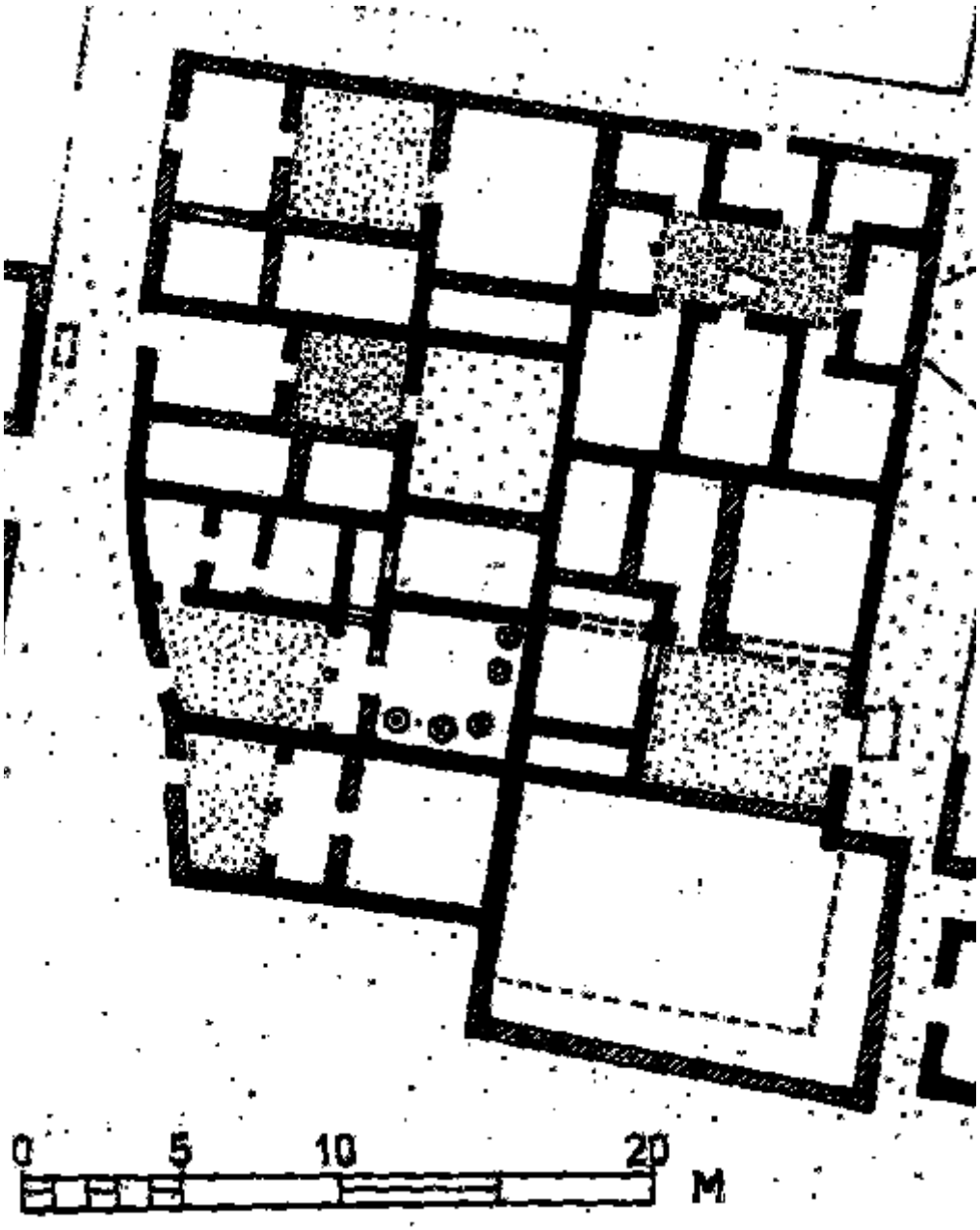

Figure 34– Fifth century B.C.E. house with store-room (marked by pithos emplacements) on the North slope of the Areopagus (Jones 1975, 83, fig. 6).

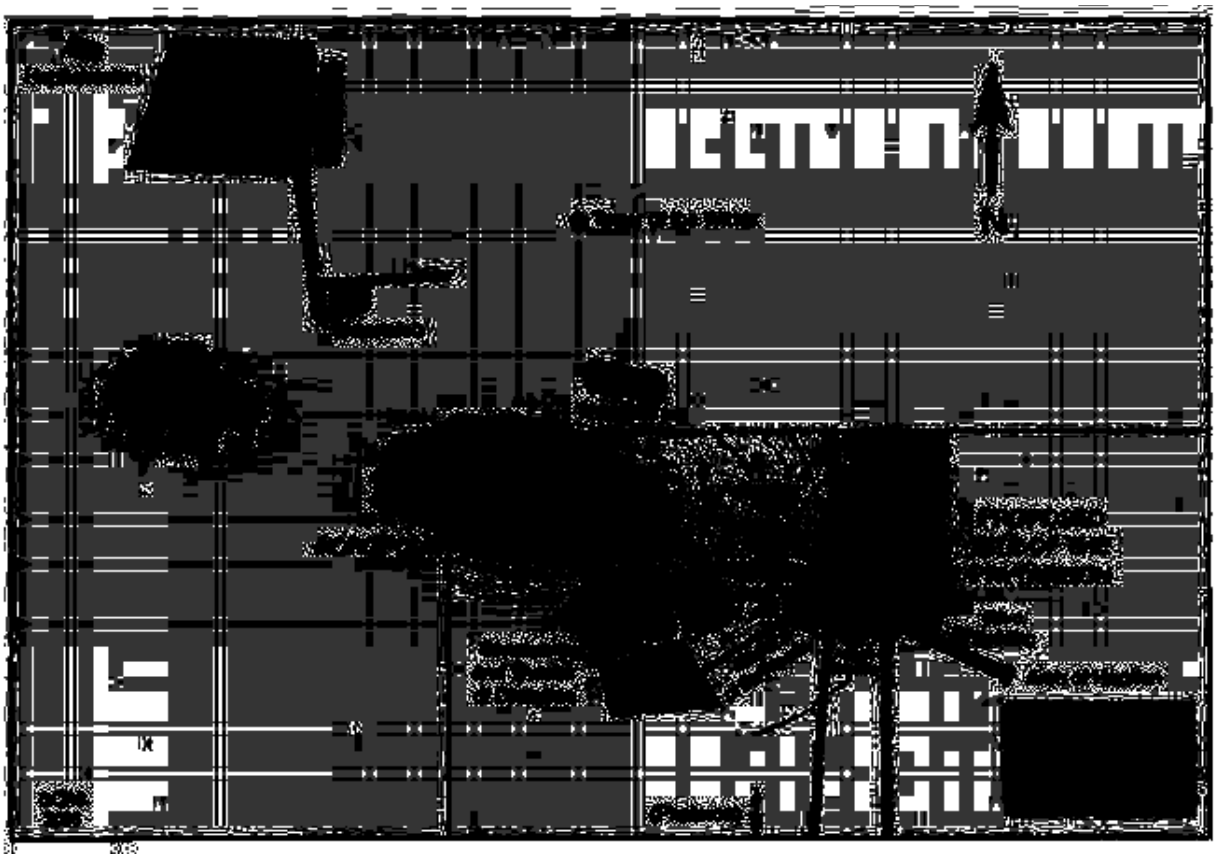

Figure 35– Tentative location of the Archaic Agora (Schmalz 2006, 35, fig. 1).

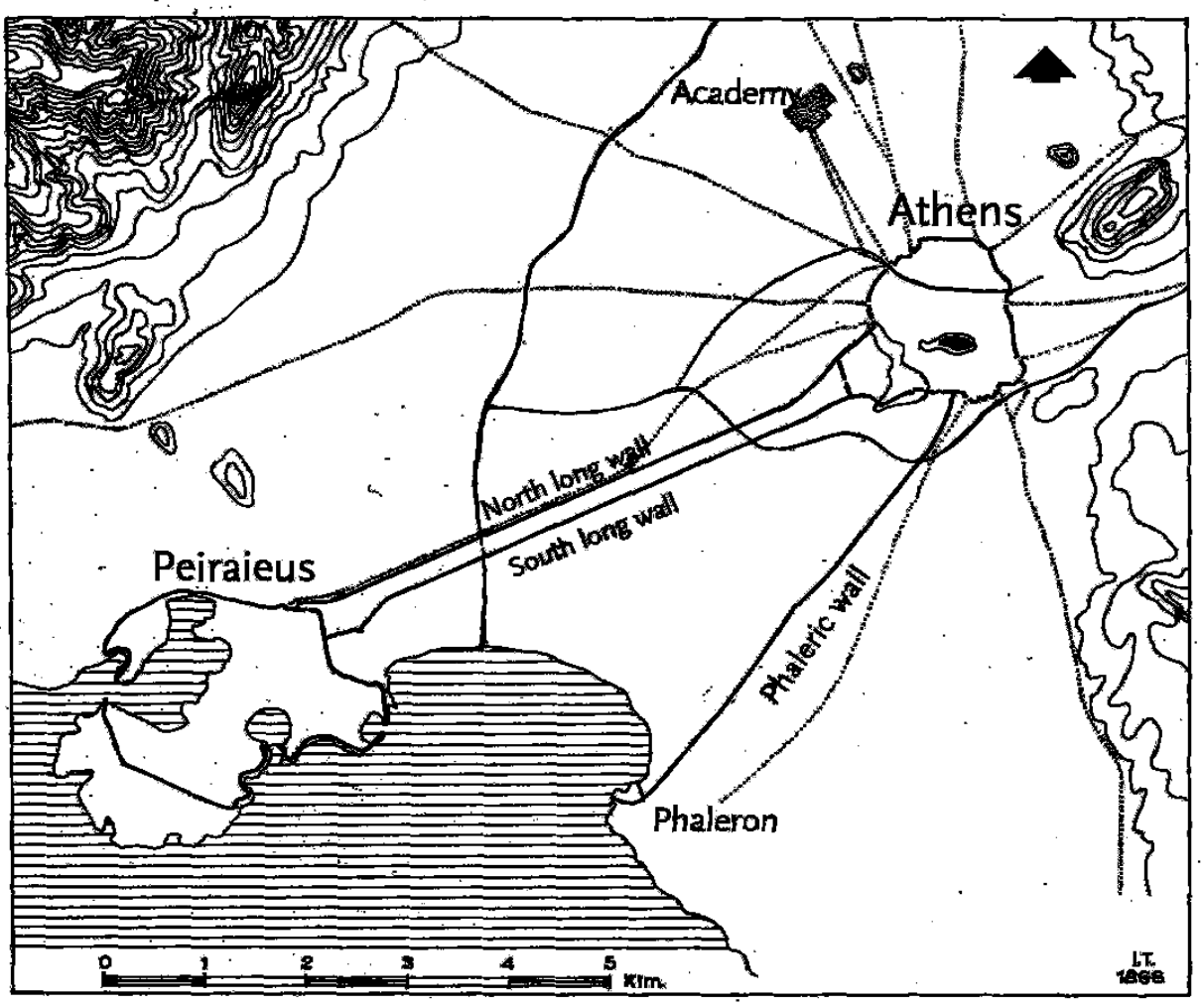

Figure 36– Plan of Athens, Peiraios, and Phaleron with long walls (Camp 2001, 66, fig. 63).

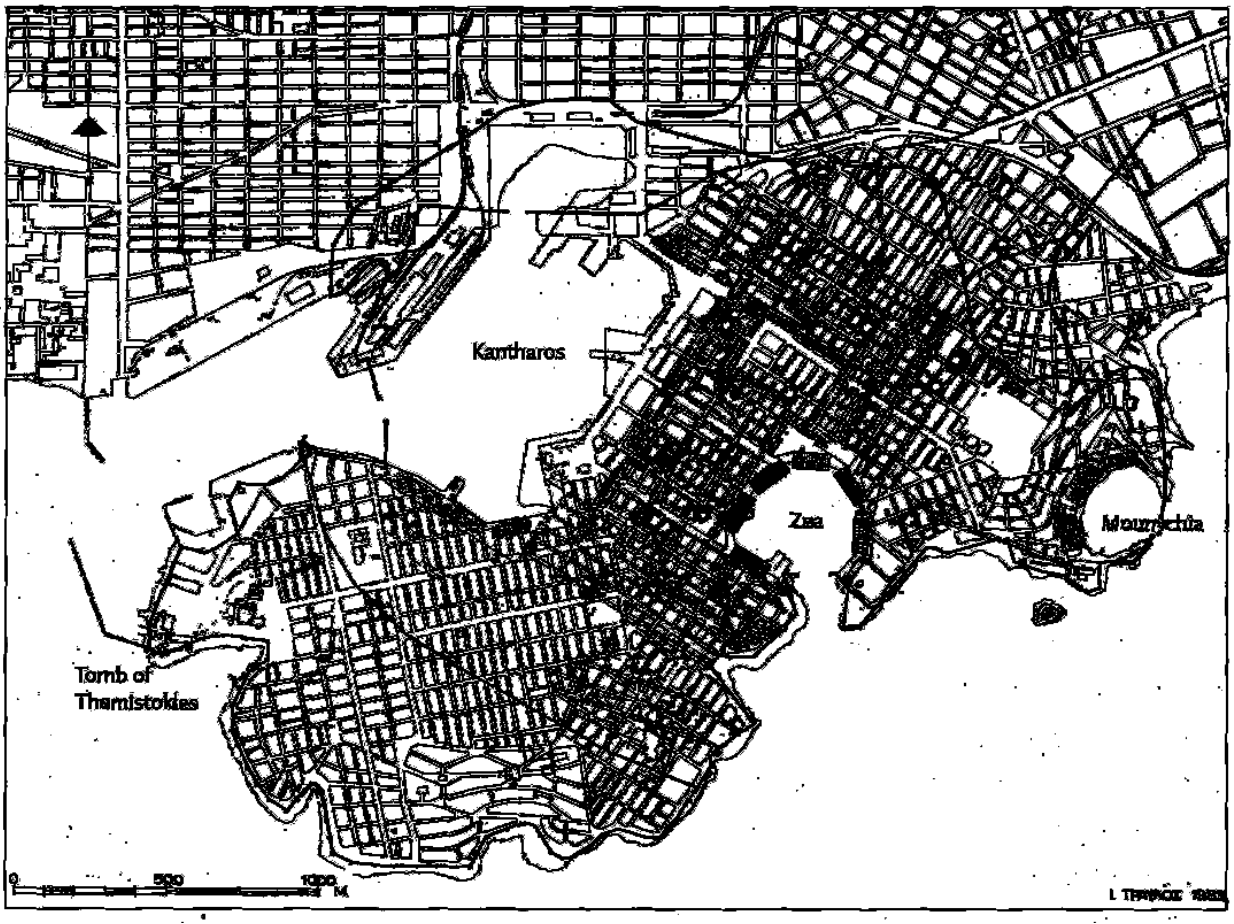

Figure 37– Plan of Peiraios showing the three harbors of Kantharos, Zea, and Mounychia (Camp 2001, 295, fig. 260).

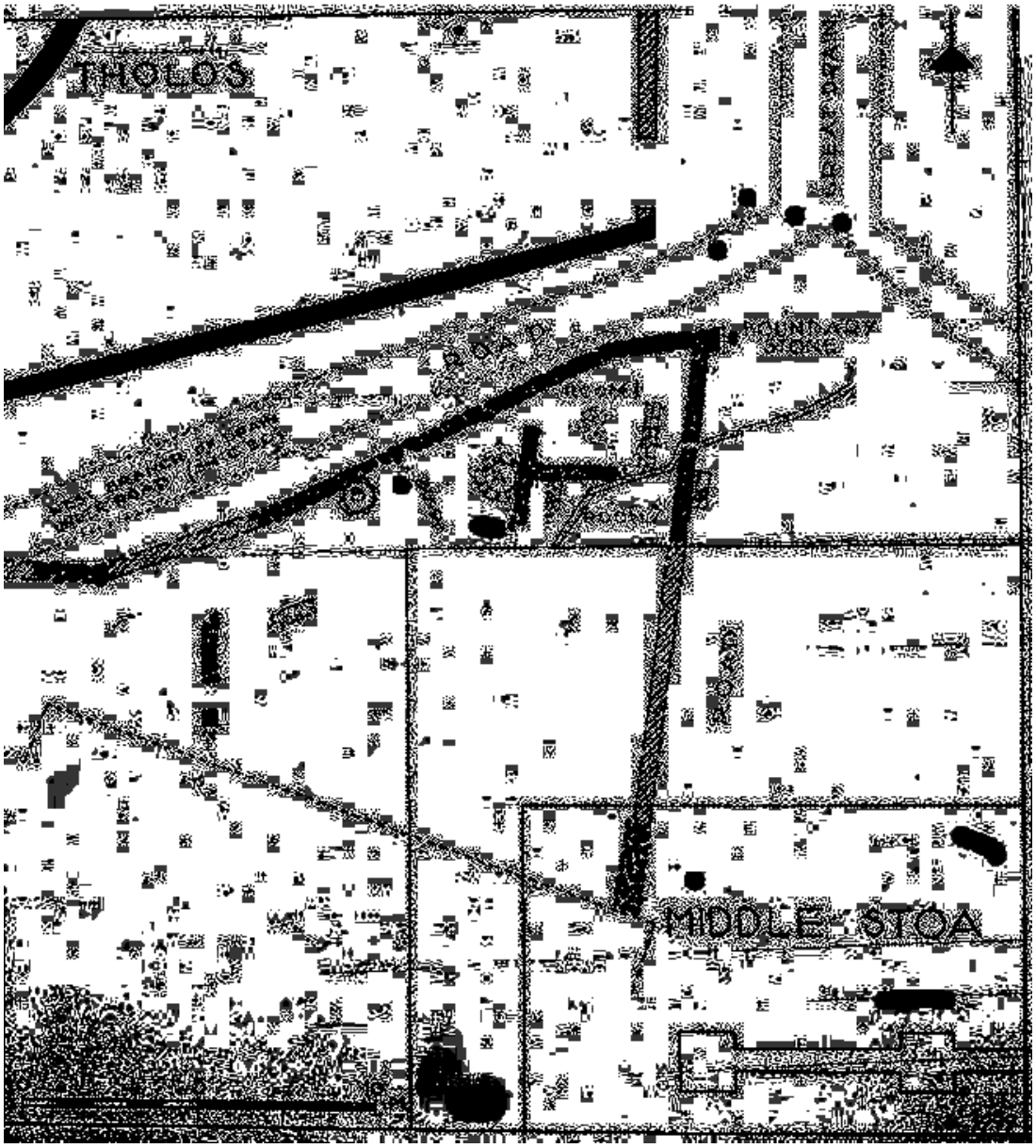

Figure 38– Plan of the House of Simon the cobbler showing the odd angle used to conform to pre-existing streets and boundaries (Tsakirgis 2005, 71, fig. 5.2).

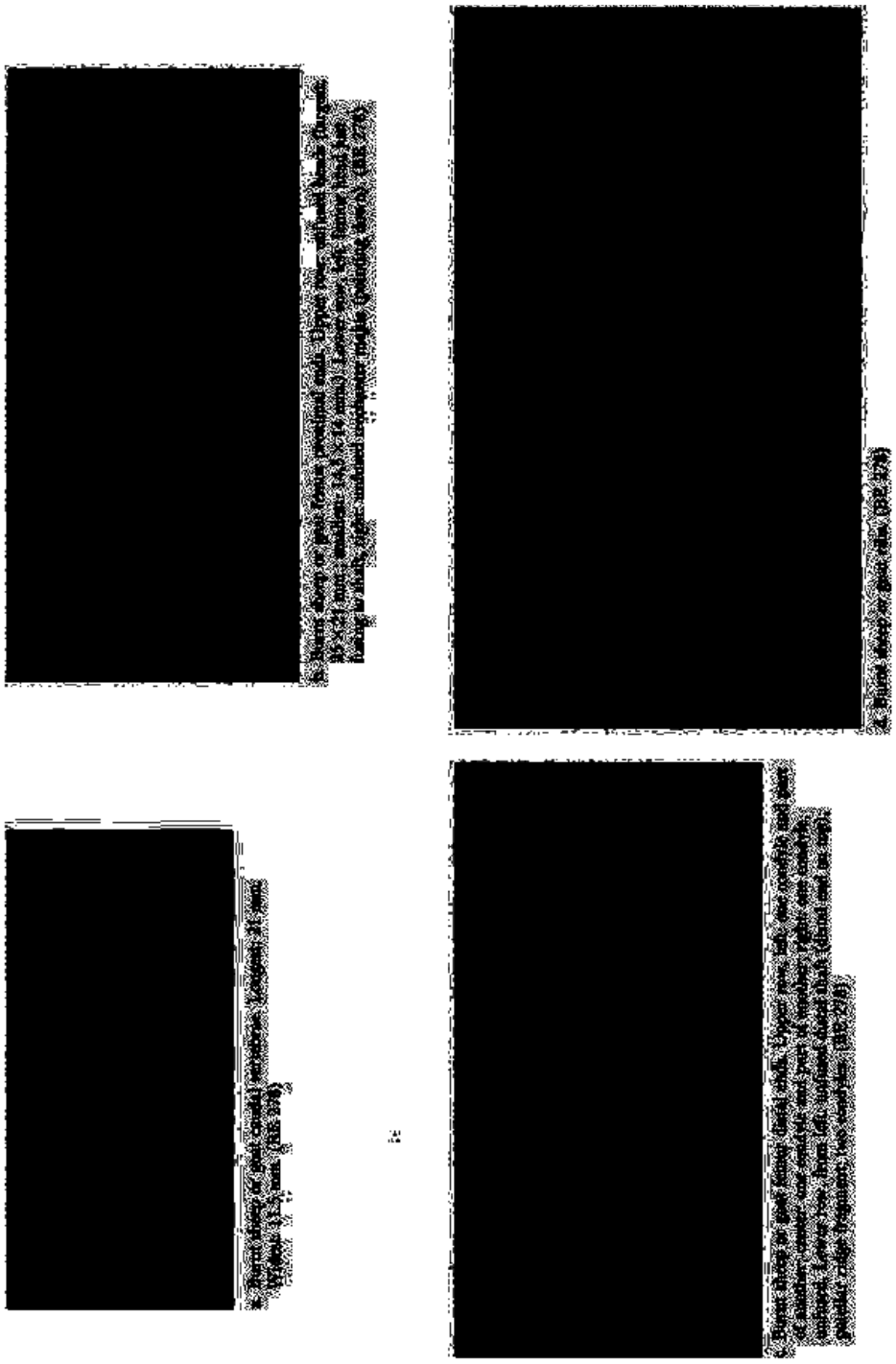

Figure 39– The assemblage of burned faunal remains associated with the Altar of Aphrodite Ourania (Reese 1989, pl. 15).

Figure 40– Querns, grinders, and mortars from the Athenian Agora (Sparkes 1962, pl. 4).

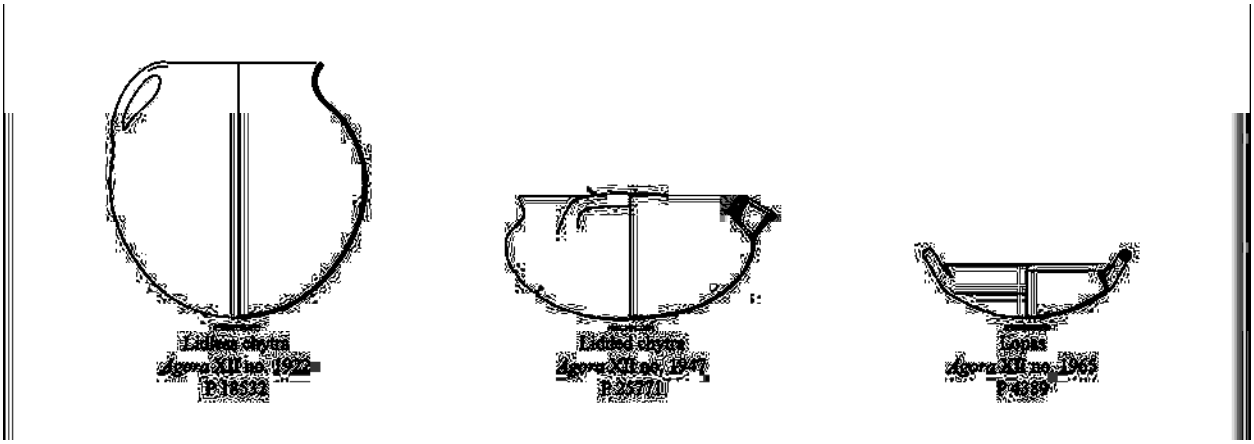

Figure 41– Athenian cookpot assemblage (drawings from Lynch's forthcoming republication of *Agora* XII).

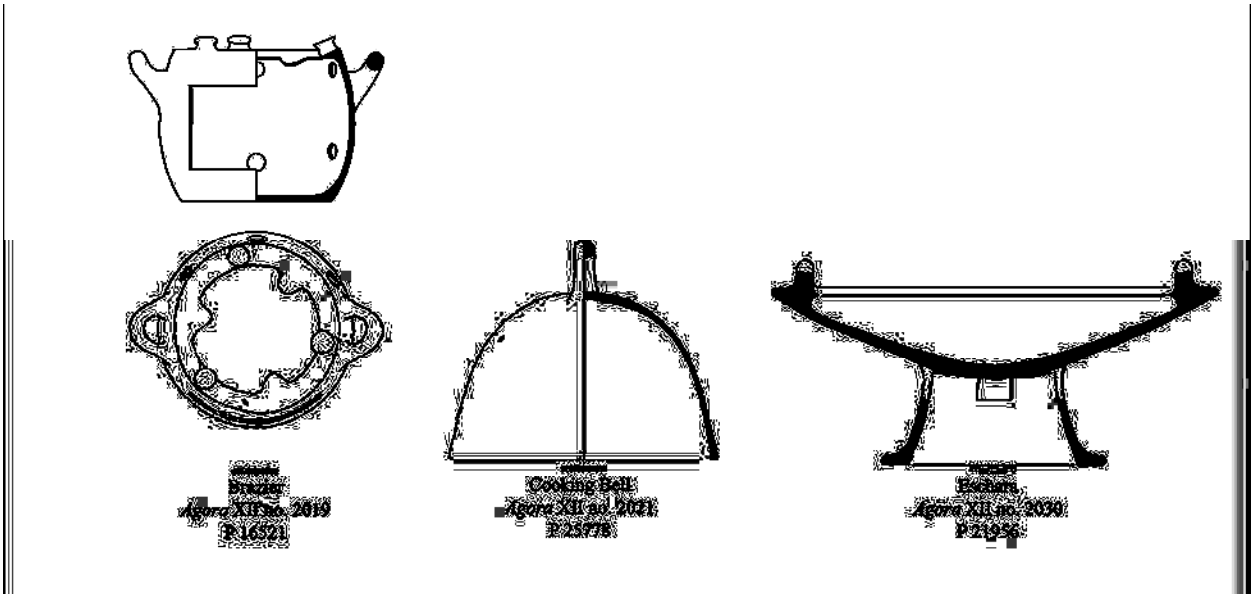

Figure 42– Athenian cooking devices (drawings from Lynch's forthcoming republication of *Agora XII*).

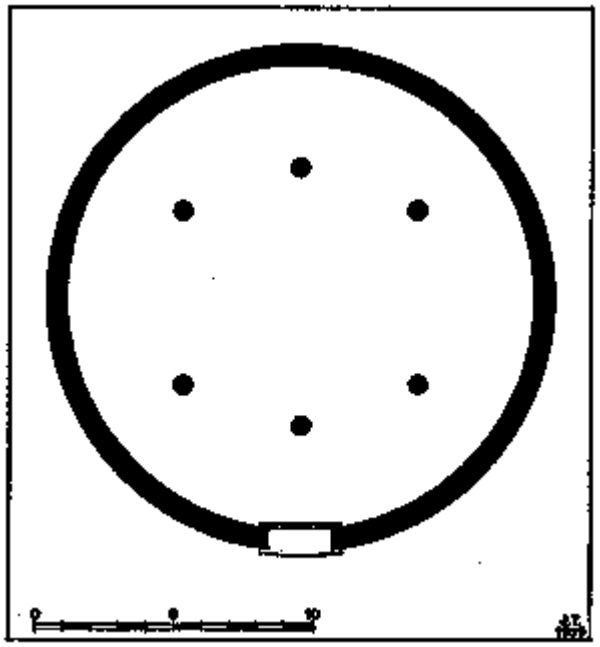

Figure 43– Original plan of the Tholos (Thompson and Wycherley 1972, 42, fig. 12).

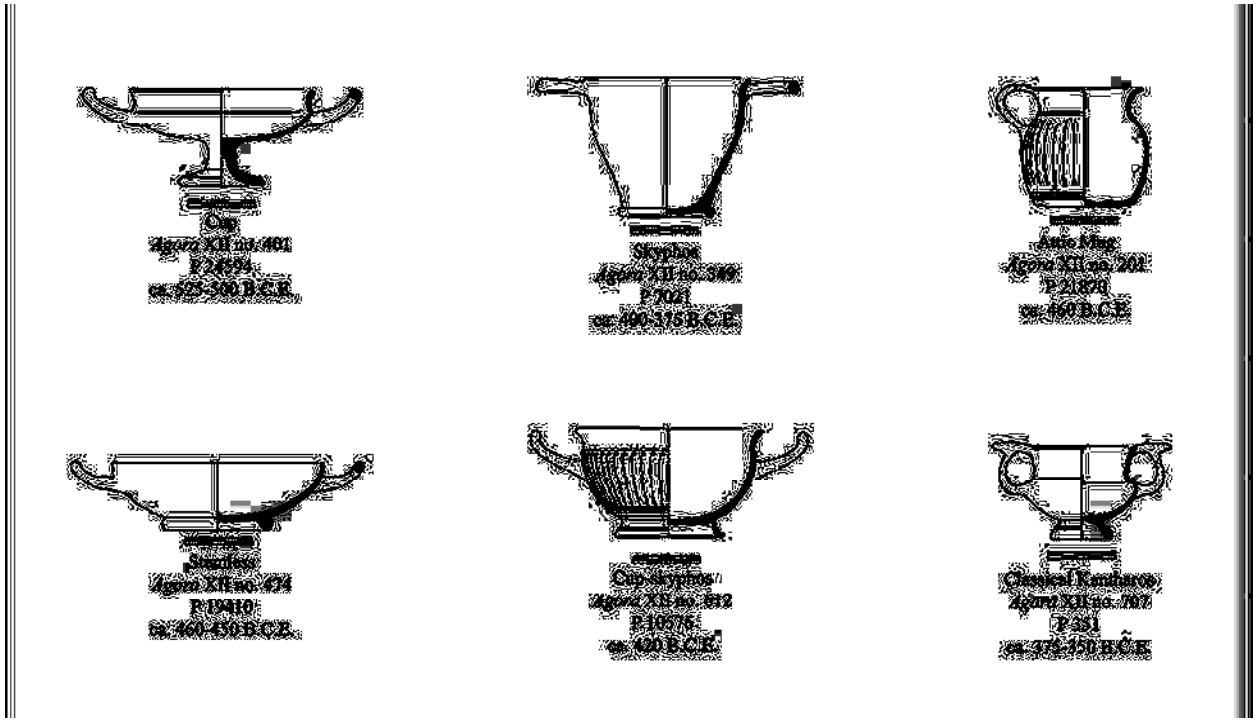

Figure 44– Athenian drinking vessels mentioned in text (drawings from Lynch's forthcoming republication of *Agora* XII).

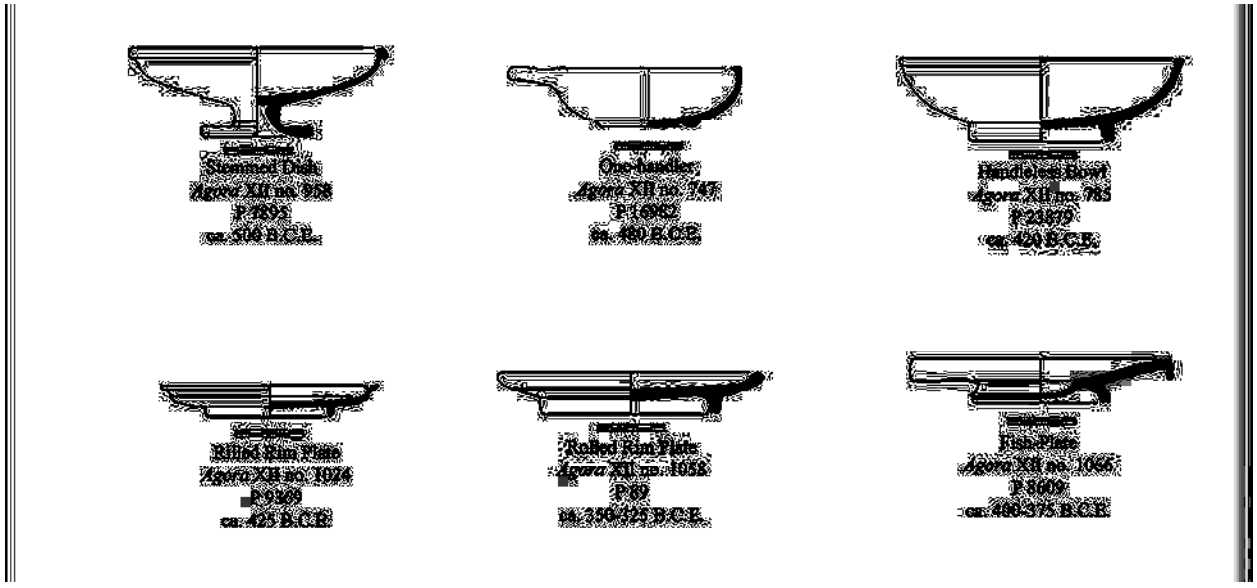

Figure 45-Athenian vessels used for food consumption (drawings from Lynch's forthcoming republication of *Agora* XII).

Tables

Categories	Description
Category 1	Jugs (including oinochoai): 100+ examples
Category 2a	Vessels related to acquiring, storing, and transporting liquids (amphorai, hydriai, kadoi, pelikai): 10 or more examples from each class.
Category 2b	Vessels unusual to the above function (bowls, chytrai, drinking vessels, lekanai, plates, and unguentaria): 10 or more examples from each class.
Category 3	Other vessels found less frequently: 5 or less from each class.

Table 1– Categories of vessels found in POU sample.