STORAGE
in Ancient
Complex Societies

Administration, Organization, and Control

Edited by Linda R. Manzanilla
and Mitchell S Rothman

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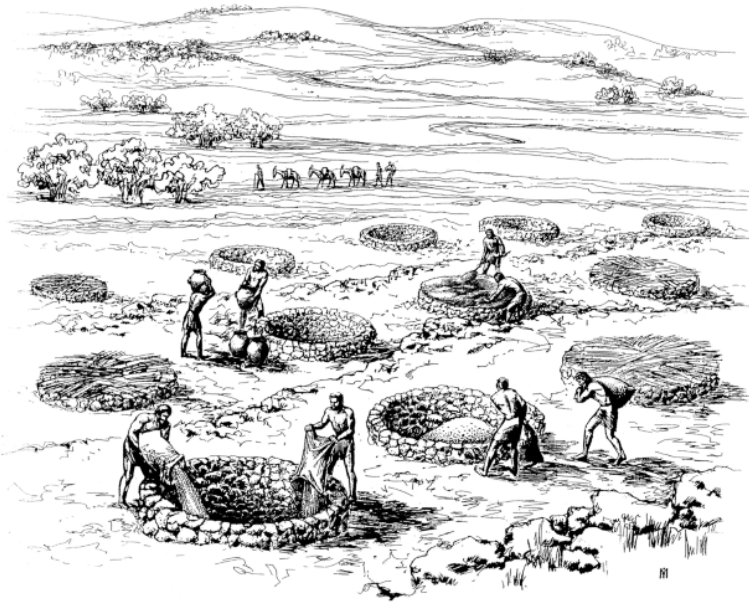Administration, Organization, and Control

Linda R. Manzanilla and Mitchell S Rothman

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Linda R. Manzanilla

The evolution of societal complexity is a major subject of archaeological inquiry. This volume addresses storage as one archaeological indicator of evolving organization and administration systems, in key areas of emergence of complex societies: the ancient Near East, Mesoamerica, and the Andean Region. It derives from a Society for American Archaeology (SAA) Annual Meeting Symposium that I organized in 2010, where we discussed cross-cultural evidence of storerooms, tokens, and administrative devices and their implication for social behavior and institutions.

The literature on storage as an independent variable for organization and administration is not vast (see Chapter 1). One example, devoted to Meso-america and northern Mexico, is *Almacenamiento prehispánico del Norte de México al Altiplano Central* (edited by Séverine Bortot, Dominique Michelet, Véronique Darras, Université de Paris I-CEMCA, 2012). However, no comprehensive, much less cross-cultural, volumes on storage as an analytical category in analyzing societal evolution exist.

In putting together the SAA session, I chose three areas where the control of goods and people may be followed as hallmarks of different types of societies. Through comparison of their evolutionary trajectories, we can see commonalities that Steward believes are apparent even in multilineal pathways (see Introduction). I also emphasized to session participants that we should have in mind what types of goods are stored, in what type of facility, in what social context, and how the goods are distributed at what intervals. The group was focused on many cases on which administrative mechanisms develop to control the flow of the stored goods. These are the main subjects of this volume: how archaeologists study storage and its role and its analytical significance in the evolution of systems of control, administration, and societal organization.

In Chapter 1 Mitchell Rothman provides a theoretical look at the relationship between storage behavior and other aspects of culture in societies from those of hunter-gatherers to the state.

Following that, the first part of the volume is devoted to Near Eastern examples, where storage facilities have been present since the onset of sedentary life, both at familial and communal scales; these facilities will later

be incorporated into monumental ritual and secular structures, which organize redistributional and trading networks of state-level organizations. Unique to the Near East is a set of independent control mechanisms, seals and seal-impressed clay locks on doors and containers. As the use of these control mechanisms change over time, they develop into a bureaucratic tool to account for—that is, audit—these movements. Ultimately, this system is enhanced by a system of written, so-called Uruk IV tablets, which increase administrators' ability to collect and store information.

In Chapter 2, Mitchell Rothman and Enrica Fiandra describe changing storage methods and their relationship to elaborating control systems from 4200 to 3000 BC, which ultimately trace a trajectory to state-level societies. Examples include Tepe Gawra in the piedmont of northeastern Iraq, Arslantepe in southeastern Turkey, and Uruk-Warka, the world's first great city in southern Iraq. All are involved in local systems of control, storage places, and in broad geographical trading networks. In each, a correlation of the use of seals and sealings as audited administrative mechanisms and eventually clay tablets and changes in storehouses and storerooms confirm the analytical power of storage to understand evolutionary changes.

In Chapter 3, Ianir Milevski, Eliot Braun, Daniel Varga, and Yigal Israel analyze a late third millennium BC formal silo system at the site of Amazia, Nahal Lachish, between the Negev and first Judean Hills in Israel. This is early evidence of a surplus production system, presumably of grains that the author describes as a redistributive system, locally, but one also in contact with state-level Egyptian colonies with more formal, centralized control systems. These systems of storage reflect an evolution of centralized storage from earlier types in the same region as outlined in the final chapter.

In Chapter 4 Tate Paulette continues where Rothman and Fiandra left off. He uses archaeological and written evidence to explore the central role played by grain and, in particular, grain storage within this broader struggle to define the contours of a rapidly evolving political economy. Over the course of the third millennium BC, Mesopotamia was swept up in a wave of political experimentation, economic restructuring, and ideological invention. Across the region, newly fashioned states struggled to establish control over the resources, the labor, and the allegiance of urban and rural populations.

Our second part is devoted to the Andean Region, a region where environmental phenomena cause severe risks for sedentary communities, and where storage is a key factor to face them.

In Chapter 5, Thomas Pozorski and Shelia Pozorski describe a system of regularly laid-out storage structures, stamp and cylinder seals, and other emblems of bureaucratic control and status. Unlike the Near East, there are no corresponding sealings, but stamps are rather ideological symbols,

perhaps used to stamp cloth. This chapter puts these features in context by first describing the complex polity that occupied the Casma Valley of Peru during the Initial Period (1800–1400 BC). Subsequent sections provide details about storage structures and especially their modular architectural form, which became emblematic of bureaucratic power and control within the polity.

In Chapter 6, John R. Topic shows the relations among data-recording devices, a system of storage units, and the structure of the Chimú and Inka states of Peru. He begins by describing the Inka *quipu*, a record-keeping device. He then describes an earlier device used by the Chimú (ca. AD 850–1470) that was based on a specific form of architecture combined with the use of tokens for recording information. The Chimú device is closely associated with large numbers of storage complexes. He explores how the arrangements of storage complexes among the Inka and the Chimú may have also contributed to the recording of information as part of their imperial system.

In Chapter 7, R. Alan Covey, Kylie E. Quave, and Catherine E. Covey discuss state-directed storage in the Inka Empire (AD 1400–1530), particularly storage systems in provincial regions, as well as the area around Cuzco, the imperial capital, with an overview of the architectural and archaeological evidence of Inka storehouses, and the implications of the evidence for interpreting the parts of the economy dominated by local Inka nobles and by imperial political economies. They conclude that the local, noble-directed economy dominated the most productive parts of the region; political economy was focused on exotic raw materials and labor coming from provincial regions.

In Chapter 8, Frank Salomon, Gino de las Casas, and Víctor Falcón-Huayta address an ethnographic use of the *quipu*. Particularly, the village of Rapaz (Peru) managed its communal sector (fields, canals, terraces, pastures, and herds) through a ritual-administrative complex located in a walled precinct. The precinct's two buildings are a *qulka* or Andean storehouse, and a still-used sacred meetinghouse, the home of a collection of *quipus*, where traditional authorities governed the sector of the common people they ruled. Ethnographic songs and other information clarify the relationships among storage, governance, ritual, and communal economy. This chapter emphasizes harvest collection and disbursal through the storehouse, an administrative system with a marked feminine symbolic association.

Our third part is devoted to Mesoamerican examples. In some cases storage of foodstuffs is a key issue for political control. In others, the control of labor seems to be more important.

In Chapter 9, Linda R. Manzanilla reviews the scarce data on centralized storage at Teotihuacan, one of the first vast urban developments of Classic

Central Mexico (first six centuries AD), and concludes that the political economy was not focused on central control of staple goods, but rather on controlling certain sumptuary raw materials, such as jadeite and mica, and competing with neighborhood centers managed by the intermediate elite. In such centers, a series of tokens for specialized labor may be evident in the archaeological record. She argues that the size of roundels (small, medium-size, and large), the raw materials in which they are made (pottery, mica, slate, shell), and the existence of parts of roundels (especially complete, halves, and quarters) may represent a system related to persons involved in the life of the multiethnic neighborhood centers, and their partners in the corridors toward sumptuary good provisioning regions. Storage may not therefore be centralized, but spread among individual households and neighborhoods controlled by nobles.

In Chapter 10, Silvia T. Garza-Tarazona, Claudia Alvarado-Léon, Norberto González-Crespo, and Beatriz Palavicini-Beltrán discuss the Epiclassic site of Xochicalco, in Morelos, Mexico. Given the hierarchical structure at Xochicalco, the ruling class survived by obtaining tribute from their subject villages. In particular, the city's acropolis represented the need for specific areas for storage, protection, and control of all types of goods and products from the territories under military subjugation in specialized workshops for preparation of food and goods. The evidence in the upper part of the city allows them to suggest that the food stored in the *graneros* (storehouses) was used for the subsistence of priests, rulers, and full-time specialists working within the Acropolis workshops. The *tinajas* (*pithoi*) found in the rooms related to the *graneros* in both the Acropolis and the structures G4 and G11 in the Main Plaza were used for the preparation of large quantities of food.

In Chapter 11, Michael P. Smyth describes the critical importance of storage to ancient Maya political economies. Even though the Maya occupied a tropical environment, the growing season was not year-round, and many environmental factors limited surplus production. Under these conditions, the maintenance of large sedentary, agriculturally dependent populations required substantial investment in storage. Clearly, the political administration of tribute collection and its storage was fundamental to elite power structures and the organization of storage can reveal much about the Maya political economy. This chapter explores differences in storage strategies, how and where goods are stored, and how stored goods are administered, as a way to reconstruct the political structure among the lowland Maya.

In Chapter 12, Cristina Vidal-Lorenzo, Mª. Luisa Vázquez-de-Ágredos-Pascual, and Gaspar Muñoz-Cosme also deal with storage systems used in the Maya area, but on the basis of archaeological, iconographic, literary, or ethnographic sources. Structures to store food and other domestic items

of the common population were always of a perishable nature, in the same manner as their dwellings, except in cases such as that of Joya de Cerén (buried under volcanic ash). With respect to the water storage facilities these, to the contrary, tend to be well documented. The property of the ruling group was stored within the palaces; scenes showing the exchange of gifts or tributes, such as those captured on the beautiful Maya polychrome ceramics, suggest that all of these objects (vases, jaguar skins, feathers, blankets, cacao, and so on) had to be suitably and immediately stored away in rooms close to those where they were received, as exemplified by the palace complex at the Maya Acropolis of LaBlanca.

In Chapter 13, José Luis de Rojas stresses that storage and administration formed part of the Aztec Empire societal structure. In Tenochtitlan, the capital of the Triple Alliance, there were different stores of diverse size in which different items were kept, including grains, for example, buildings named *petlacalco*, a dependency specialized in economic affairs, where tribute goods were stored. The administrator was the *huey calpixqui*, together with *mayordomos*, treasurers, counters, tax collectors, and the rest of officials in charge of the treasury. Another indirect evidence of the existence of Aztec stores is the presence in the documentary sources of people in charge of the collecting and administration of tribute. For the Mexica case, we have two different types of evidence: administrators residing in the royal palace at Tenochtitlan and those who were in towns and provinces subject to the Aztec Empire.

In Chapter 14, the editors bring together the commonalities and differences in the various cases to find the general principles that underlie storage and evolution.

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STORAGE AS AN ANALYTICAL MARKER FOR STUDYING CULTURAL EVOLUTION
Mitchell S Rothman

Introduction

The history of archaeology has really been a search for origins. Once modern humans appeared, what were the processes by which the cultural systems they created and the societies that were derived from those cultures evolved to the forms we see today ethnographically? For the Old World, the chronological detonators—Neolithic, Chalcolithic, Bronze, and Iron Ages—show the antiquity of the question, as these along with their final Age of Gold come from the ancient Greeks (Daniel 1967). The core questions early investigators and modern researchers still ask are the following: (1) what is the distinctive nature of cultural systems and societies that defines their differences, (2) how are/were societies organized and how does the understanding of their organization help us understand how they functioned, and (3) what caused fundamental changes in their nature and functioning and therefore the evolution of new cultural systems and societal forms?

Since World War II, these questions have been encapsulated in attempts at explaining the rise of state-level society (e.g., Wright and Johnson 1975; Wright 1977; Johnson 1973; Chapman 2003; Feinman and Marcus 1998; Bentley, Maschner, and Chippindale 2008). The other major questions were about the domestication of plants and animals and its effects on developing Neolithic societies. Researchers usually discussed less complex societal forms only as precursors of the state. While the state is still a topic of keen interest, as reflected in many of the chapters in this volume, post-Neolithic, pre-state (middle range; Chapman 2003) societies are emerging as a topic in their own right (Bolger and Maguire 2010; Carter and Philip 2010).

If the goal is to understand the full span of human cultural development, archaeologists must be able to answer the questions above. Some (Pauketat 2001; Hodder 1986) are satisfied to understand the history of particular cultures and societies through a discovery of their practices. Traditionally, anthropological archaeologists have sought to find common cultural patterns and the processes they represent across space and time. As an analogy, Lyell (1836) studied the formation of features of the

Earth's topography. What he found were particular cases, but also a set of fairly uniform patterns of change, such as upthrust and subsidence, that underlay the evolution of geological forms in many particular places. These patterns he proposed were recurring processes that geologists could use to understand what they discovered in new cases. Like Lyell, for many anthropological archaeologists a key methodology is seeking common patterns of functioning, growth, and change that reveal common processes applicable to many already discovered and new cases. This is different than looking for "general laws" (Binford 1972; Watson, LeBlanc, and Redman 1984) as early New Archaeologists proposed. Explanation, the why questions, requires an elucidation of these underlying processes through which the three questions asked at the beginning of this chapter can be answered.

Part of the methodological problem of comparison is finding clear evidentiary markers within and across different societies that existed throughout the long evolutionary trajectory of human cultures and societies that permit archaeologists to compare like with like. A necessary step is therefore to show how these markers relate systematically to other cultural and societal elements in order to establish a basis for cross-cultural comparison.

The editors of this volume suggest that storage, a necessity common to all sedentary and many nomadic societies globally from the before the Neolithic onward, is *one*, if certainly not the only such, marker that may aid us in this quest. In order to demonstrate its utility, this chapter will (1) summarize some of the ethnographic and archaeological cases on storage and societal organization, practices, and change to exemplify some dimensions of the problem, and (2) seek some general principles for researching the variables and interconnections that relate storage practice to societal organization and dynamics.

Storage in the Nexus of Human Evolution

Storage in this context means archaeologically recoverable remains of storage: plastered pits, collections of storage jars, storerooms, and storage buildings. Other storage mechanisms like sacks or gourds are ethnographically and historically attested, and will be assessed where possible.

Looking at societies' core economic endeavor—food production—the archaeological and ethnographic literature clearly attests connections between storage systems and different adaptive strategies (or practices) and processes of change. As Wesson (1999: 155) writes, "Storage played a significant role in, or is a reflection of, the development of new social and political practices." At the core of issues of storage is *control* of raw materials

and produced goods and how they will be distributed and consumed—in other words, what and for whom they will be used.

Among hunters and gatherers, the most ancient forms of dealing with environment for food, the issue of storage is already evident. As Fink (2007) reports, northern Alaskan hunter-gatherers originally stored their surplus in the form of dried fish, birds, oil, and sea mammals beneath their houses. This resulted from conflict in the form of tundra warfare. During this early period women had equal access to these goods in terms of trade or consumption, and this also gave them a role in decision making. Men's status derived from their efforts in warfare. The production unit was the household. After Anglo-American and Russian colonialists put an end to the warfare, the entire social structure changed. Demand was high for animal pelts and preserved fish, whose hunting and processing were the realm of men. When the Alaskan natives engaged in the market with colonial powers, they moved storage outside the house and aboveground. Men maintained the locks and control over the food and furs stored for trade. The relationships between men and women changed, as women now did most of their work to service the economic activities of men.

Among the natives of the northwest coast of the Americas, a somewhat different picture emerges. They were also hunter-gatherers, especially of sea and river foods, organized into extended households for production and consumption (Ames 1994). Unlike the Alaskan natives studied by Fink, changing food-getting strategies yielded a degree of social ranking, concomitant with the beginning of significant storage activity. The households already had a division of labor based on age, gender, specialist–nonspecialist, free–slaves, and higher- or lower-ranked individuals. Still, they practiced a basic domestic mode of production (Sahlins 1972). Trade and kinship ties integrated the household into the village and larger social units. Each of the units had simultaneous tasks assigned to them, the one of highest value being the catching and processing of salmon. The concentration of seasonal salmon runs in certain places increased the sedentism of populations into multiple household units. These settlements were separated from household clusters in other places. Each settlement cluster was typified by a different concentration of salmon. Variability in the degree of rank correlated with the supply of salmon controlled by these household heads. The heads of these households became more powerful in the larger unit if their source of salmon was richer. The larger supply of salmon accommodated more population and more trade. Storerooms in villages associated with leaders appeared early on, and their size along with smokehouses indicate the intensity of production. The larger of these are also associated with elaborate and rarely occurring graves. Similar developments in northern Alaska show a dual organization (Hoffman 1999). On one hand, households

maintained their own food storage houses, yet the community as a whole shared larger feasting storage units under the control of some individuals with higher rank.

Storage was a key issue once domestication of plants and animals appeared in the Neolithic. Unlike the nomadic or seminomadic lifestyle of most hunter-gatherers, early agricultural communities had to deal with storage of crops and animals, which would have been too voluminous to carry or to move. Kuijt (2009) points to the association of initial agriculture and a rise in storage. This storage system was more than a practicality, however. Kuijt (2009) argues that all the early agricultural societies of the Levant yielded evidence of feasting behavior, not as a competitive ritual but as a means of integrating newly founded, settled communities.

These cases imply that concepts like the culture core of Steward (1955), while adding much to our understanding of societal evolution (see below), need to be reexamined. In these cases some of the hunter-gatherer cultures would be more complex or more "chiefly" by the definitions of Service (1962) and others (Wright 1994) than some early agricultural communities. The Northwest American example challenges that assumption (see also Testart et al. 1982).

The theorized next step in cultural evolution would be societies with institutional ranking and social stratification. They represent larger societies most often (though not exclusively) with intensive agriculture. "From a materialistic perspective, only after elites install themselves in positions critical to the economic life of their communities can they turn their attention to other means of social control" (Wesson 1999: 146). The transition from a temporary leadership like the "Big Man" (Sahlins 1963) to ranked individuals or groups is most often based on the development of surpluses (Blitz 1993). This pattern is evident among the Northwest Coast Indians, but not to the extent that the community depended on those who controlled and traded fish. Storage in the southeast United States was a communal activity, and most houses lacked private storage (Wesson 1999). As in the Cahokia settlement system, those sites near the center had little evidence of domestic storage, but farther away from Cahokia itself, large domestic subterranean storage units were common. DeBoer (1988) proposes that the leaders at Cahokia expropriated any surplus to bring to the center and store it there for their own purposes, but those farther away were able to resist. This is what Wesson, referring to Bourdieu, calls symbolic capital: "Viewed from the perspective of prestige goods and symbolic capital, the relationship between food storage and chiefly power can be understood as a competitive process where surpluses were mobilized to advance elite interests" (1999: 157). Leadership groups used part of this symbolic capital to create other kinds of social capital, such as feasting, gift giving, acquiring

prestige goods, and placing those goods in the graves of leaders as symbols of wealth (Renfrew 1986). These ritual contexts created a series of binding obligations and rights between leader and follower.

In more complex societies, feasting is known ethnographically (Junker 1999; Fleisher 2010) and archaeologically (Blitz 1993; Holly 1998; Helwing 2003; Grimstead and Bayham 2010; Rothman and Badler 2011) as a means for competing over status and rank. Much of the ancient feasting involved animals more than crops. Ritual, such as feasting or gifts to the gods, is often at the core of it, if only as a way to generate the surpluses to be used in feasts often for a political purpose (Stein 1998; Grimstead and Bayham 2010).

Parenthetically, in order to make sense of these evolutionary pathways, terms are important: *exchange* versus *trade*, and the commonly used term *elites*. Wesson, Hoffman, and others call these new leaders even of hunter-gatherer societies *elites*. Others regularly refer to the upper level of hierarchies in the most complex societies as elites as well (Frangipane 2001). Manzanilla (this volume) calls the controlling groups of neighborhoods at Teotihuacan "intermediate elites." The reader should be aware that what is *elite* makes sense only within a given context, and is often not the same institution across different societies at differing scales of complexity.

All of which raises the question of what is the nature of the most complex societies we discuss in this volume—namely, states? Even those who emphasize practice theory or the more mental, as opposed to materialistic side of human societies (Porter 2012) recognize this as a useful term. Yet scholars often see the state as the leadership group itself, as is the case with those who would use decision-making (administrative) hierarchies as the core of state society and the scale to measure of societal change (Wright 1977, 1994). But understanding storage as a measure of various kinds of societal relationships across diverse groups, including but not limited to the leadership group, assumes that state societies are by definition heterogeneous (Crumley 1995; Brumfiel 1995; Stein 1998), not a static tableaux of leaders and the led. This means that there are various loci of control; states are, as Porter (2012) argues, the whole society. As in the Cahokia example cited above, different loci of control as evidenced in storage practices reflect not simply the control of one leadership group, but a series of interrelationships among varying groups, each with some degree of control over their production and the disposition of products of their work.

As such, understanding the larger societal meaning of storage involves not only who is doing the storing, but also what is being stored (see Manzanilla, this volume). Classically, foodstuffs are one major focus for storage behavior (Paulette, this volume). Adams (1981), for example, sees the origin of state control or decision-making institutions in Mesopotamia as the

result of control of surplus foods. Having access to significant stores of food, especially in one of the regular unproductive years, gave leaders control of groups dependent on the surplus food (Rothman 1994). Therefore, the heart of the first real city, Uruk-Warka, is dominated by a palace, temples, and storehouses in the Eanna district (Nissen 2001).

As groups evolved with some ability to collect and decide on how that surplus was used, "attempts by dominant groups to gain (or maintain) power or control over others, are often countered by alternative ideologies that promote both active and symbolic resistance to this domination" (Wesson 1999: 152–53). Even the leadership institutions of states have different motivations (Blanton et al. 1996). Sometimes their goal is to advantage the whole of their society through their use of the mechanisms of control (corporate strategy). Other times leaders seek to establish relationships with other leadership groups outside their locality through trade and other interactions, such as exchanging wives (network strategy). The leaders in that case are seeking to promote the interests of their own group rather than some sense of the common good. This does not mean that the rest of the population of the state has no countermeasures or alternative spheres of control, especially in the use of markets for exchange (Feinman 2014). In this sense even domestic production is not necessarily only for provisioning but often includes production for surpluses.

Whereas control of foodstuffs is a common theme in the examples discussed above and in a number of the case studies in this volume, control of craft goods can be equally important. For example, in the Inka colonized state of Xauxa, as many as two thousand large storehouses contained both craft goods and foodstuffs to support local administrators (D'Altroy and Hastorf 1984; see also Chapter 6, this volume). These stored goods paid for the corveé workers, specialists, and soldiers, and established the royal economy of trade. Teotihuacan, another example, based much of its evolution on the exportation of obsidian blades (Webster, Evans, and Sanders 1993) and the movement of sumptuary goods. This interregional trading system was one foundation of the adaptation that the city and its hinterland represents, but it spawned a broad-based organization of crafts persons, farmers, administrators, and religious leaders in single and multifamily platforms across the city settlement. In addition, exchange and control of sumptuary, luxury, or prestige goods can be a significant part of the economy's growth among complex societies (Manzanilla, this volume; Algaze 2008; Eckholm 1977).

Yet storage can be not only of foodstuffs (including animals), craft goods, and raw materials. Although primarily economic or economic with uses in political or ideological practices, storage can include noneconomic goods. In the Sumerian, Akkadian, and Old Babylonian periods (mid-third to

mid-second millennia BC), the resources of the great institutions of palace and temple were primarily supported by ownership of vast holdings of arable land, as much or more than taxation or tribute (Sallaberger 2013; Sterba 1976; Yoffee 1995). An inherent conflict of control emerged between the institutions of state and temple. One way the palace leaders controlled the temple administrators was by forcing temples to store the religious symbols of the king in separate storage rooms for use in royal rituals in the temple (Sallaberger 2013) and sometimes storing temple ritual artifacts in the palace.

Storage plays a role in all of these cases. The kinds of storage often speak to the nature of food production (Smyth 1989). Smyth asks whether the storage media are inside or outside the house (building); what the volume capable of being stored is; and whether materials are for short-term or longer-term storage, for holding surplus to supply people in their times of need, or to keep resources for public works. Storage, as the reader will see in the following chapters, is also about craft goods and raw materials. "Since storage is a critical but poorly understood component of complex societies, a great deal of additional research attention is necessary . . . Further studies into domestic [communal, and central] storage behavior could be undertaken in societies that have contrasting cultural, environmental, and subsistence bases" (Smyth 1989: 123). This is the exact intent of the current volume.

Relating Storage Practice to Evolving Social Organization and Administration

The discussion above illustrates the many complex social, economic, political, and ideological relationships relating to storage. This current section aims at synthesizing them in a way that they provide a road map for understanding the relationship of storage to cultural and societal evolution. They therefore help address the questions asked at the beginning of this chapter: (1) what is the distinctive nature of cultural systems that defines their differences, (2) how are/were societies organized, and how does the understanding of their organization help us understand how they functioned, and (3) what caused fundamental changes in their nature and functioning and therefore the evolution of new cultural systems and societal forms?

Throughout this chapter so far I have been using the terms *culture* and *society* not as synonymous but interrelated. The term *culture* over time has had two different meanings. One described the whole matrix of cultural behaviors, ideas, practices, institutions, and customs *within a bounded space*. One could speak about *the* French culture, for example, in contrast to *the* German culture. *Culture* became almost a synonym with *nationality*.

On the other hand, culture could be seen as being a less bounded and homogeneous cultural tradition, retaining some of the total corpus of cultural patterns, behaviors, and ideas in some contexts, while others elsewhere. It is not a package in which every element had to be shared. The less bounded idea of culture, to me, leaves open the opportunity to view cultural traditions and their distribution in the complex, messy way they actually exist and existed. Sometimes they did exist within borders, but in the ancient world they more probably existed within less rigid frontiers (Anthony 2007: 102–3).

I think a useful way to begin to make sense of this for archaeologists, lacking so much information available to ethnographers, is to differentiate units of organization from culture, the latter as the more mental aspects for analytical purposes. Whereas they obviously are intimately intertwined, studying these aspects separately promotes clarity in the kinds of processes that are happening. Geographically delimited, politically and economically integrated groups would be called "societies." Smith (2003) would call these landscapes created by political action. I agree with Wilkinson (2014) that *networks*, which emphasizes various kinds of interrelationships, is another apt term. As a series of overlapping networks, societies can have differing geographical ranges: the economic/trade, the social/marriage and cooperation, the ideological, the political. The last of these, when associated with a particular landscape, would be called a polity (Smith 2003). Societies would tend to have a dominant cultural tradition, but could be pluralistic with people of a number of different traditions or people who practice a hybrid of cultural traditions. One should then be speaking about cultural traditions that at times dominate a society and at times are carried by individuals across society or polity borders or frontiers. Cultural traditions operate originally in distinct societies, so one culture can encompass a series of different societies. However, as people from a society move into other societies in which theirs is not the dominant cultural tradition, or vice versa, we can speak of an ethnicity. That is to say, ethnicity is not the description of culture of a society, but one distinct cultural/mental package within a society that is distinguished from others, especially from the dominant tradition. For example, the cultural origin of the founders of the United States, Western European Protestants, has been the dominant American tradition. Hence we celebrate their annual holiday, Thanksgiving, as a national holiday, whereas other ethnicities' holidays (Italian, Irish, African American, Polish, and so on) are celebrated only by their members. Cultural traditions can evolve as can societal organizational structures. They are part of one single phenomenon, but at the same time the relationship between the two can vary across space and time and therefore has to be investigated, not assumed.

The core of societal organization in terms of storage behavior is control. This control as societies evolve can become centralized, but is always to some degree heterogeneous. States are defined as much by the heterogeneity of their populations as by their central control (decision-making) institutions. That is to say, leadership groups can gain control of some functions, but they never control everything; there are always other groups who have control over some aspect of their lives as individuals or associations. They might be the landowner councils of Mesopotamian city-states, as opposed to the temple or palace (Yoffee 1995). They are often households or smaller communities, sometimes ethnic ones (Manzanilla, this volume). One of the measures of evolution, as the chapters in this volume illustrate, is the developing centralization of storage functions and the differing social relationships (networks of cooperation) that this reflects. One can see these as practices, although the essential claim of this book is that they are practices that exhibit common patterns across space and time.

Parenthetically, *power* is often the term used as opposed to *control* (e.g., Stein 1998; Earle 1991; Potter and Perry 2000; Hill, Jones, and Morales 2013), where "power is 'the ability to pursue and attain goals through mastery of one's environment' and can be exercised collectively or individually by people over each other or their surroundings" (Stein 1998: 6). However, the term *power*, in my opinion, like *elites*, tends to imply control by superior forces and is really about control of specific societal functions (workers [military, policing, food or craft production, agents in bureaucracies], means of production, trade, taxation or tribute, *storage*, and so on). *Control* as a term is less specific than power, and certainly less often used in literature about state institutions. It is hard to speak of the power of a family farmer, although they make many decisions that exert their control over aspects of their lives.

Assumed in this approach is the idea of agency (Wright 2007; Gardiner 2008; Blanton et al. 1996). The actions of any society (its practices) are the sum of the decisions made by every member and those within larger societal institutions. This is somewhat like bio-evolutionary theory where selection works on the genotypes of each individual member of the species based on their actions and characteristic phenotypes. The evolution of the species is measured at the population level. It is the sum of the responses that creates the defining characteristics of the species, and embodies its evolutionary changes. Many of these reactions, such as those between surplus and ranking, are tied to person-to-person relationships and the use of stored surpluses (Halstead 1982).

For societies, the equivalent of a biological population is a culture and a society, the mental and ideological elements, on one hand, and the social, economic, and political ones, on the other hand. The organization of a

society is a key element to relate storage to larger societal networks and cultural elements (Rothman 2004). Strategies are created by each player and institutionalized group of players to attempt to meet goals set out for them. These strategies represent the adaptions of humans and generally human societies to the environmental and societal circumstances in which they find themselves. They can be represented as collective action (Blanton 2010) in which adaptation to ecological transformations forms the basis of change, particularly state formation.

Changing conditions and strategies result from a variety of circumstances. One is climate change, which was a chief cause of the rise of the human species in the first place. Within climatic conditions a related factor is risk. Perceptions of risk and uncertainty (Halstead and O'Shea 1989; Colson 1979; Cancian 1972; Chapter 7, this volume) are strong forces for selecting particular strategies and organizations to respond to them. In the cases outlined above, Adams's (1981) theory of the origins of the Meso-potamian state rely on the inconsistent productivity of agriculture in the alluvium. In the very first case of hunter-gatherers discussed above, the prevalence of warfare, a humanly induced risk, created one kind of relationship between men and women. When the risk of warfare disappeared, so did that relationship along gender lines, replaced by a new one. Both cases illustrated the correlation of changing social and political organization *and* storage practice.

Other factors include access to goods and technologies, dialectic stresses within society (McGuire and Saitta 1996), changing ideological views, especially those that open opportunities for groups and individuals to promote themselves into new statuses and roles (Flannery 1972; Rothman 2004), and intercultural relationships like those during the later fourth millennium BC in Mesopotamia (Rothman 2001). At that time, the creation of the Uruk expansion trading network catalyzed changes already under way in the resource extraction areas north and east of the alluvium (for example, Frangipane 2010).

All of these strategies are derived from conditions but also limited and to some degree directed by cultural ideas. As Giddens argued, "Social structures are said to be both the medium of action or make action possible, and are reproduced by social action. [. . .] social structure exists in the minds of individuals as practical knowledge of what rules (taken-for-granted procedures or conventions) and what resources (material and social facilities to get things done) are necessary and appropriate for social behavior in diverse situations" (Seidman 1994: 148). According to this school, there was a middle place between practice and structure, *habitus*. "The habitus are defined as durable but transposable dispositions, including, for example, a sense of honour, [. . .] and other structuring principles. The habitus are

strategy generating principles enabling agents to cope with unforeseen situations" (Hodder 1986: 74).

For many anthropological archaeologists those social structures were more in the sphere of society than culture. For many years, societal evolution was viewed in terms of stages of development. The nature of societies was described with the now well-worn nomenclature of band, tribe, chiefdom, and state (Service 1962) or as the relation of economic modes of distribution to organizational types (Fried 1967). Both schemes were extremely useful for comparison and as a subject of analysis (Earle 1991; Bentley et al. 2008). However, scholars have recently objected to their static nature and the underlying assumption of a kind of unilinear evolutionary pathway (Rothman 2004). Too many studies became a search to determine whether society such-and-such was, for example, a state, rather than using these as general categories only for comparison. Few modern students of archaeology remember that these criticisms are not new. "Multilinear evolution is . . . based on the assumption that significant regularities in cultural change occur [. . .] It is inevitably concerned also with historical reconstruction, but it does not expect that historical data can be classified into universal stages [. . .] Multilinear evolution, therefore, has no a priori scheme or laws" (Steward 1955: 18–19). The emphasis on a less typological and more longitudinal viewpoint to some degree changes the focus.

> It is implicit in the evolutionary view that development levels are marked by the appearance of qualitatively distinct patterns or types of organization. Just as simple unicellular forms of life are succeeded by multicellular and internally specialized forms which have distinct types of total organization, so social forms consisting of families and lineages are succeeded by multifamiliar communities, bands or tribes, and these, in turn, by state patterns, each involving not only greater internal heterogeneity and specialization, but wholly new kinds of over-all integration. (Steward 1955: 13)

Flannery (1972) hinted at this in his seminal work on cultural ecology and systematics. He focused on centralization, which he defined as "the degree of linkage between various sub-systems and the highest-order controls in society" (409), that is, forms of integration in state-level societies.

Another analytical aspect is implied by highlighting integration as a key process of societal formation and change. Implicit in this is the idea that another way to look at evolution is to compare how trajectories change as much as societies at particular stages of development (Rothman 2004). The editors explore this so far underused perspective particularly for Near Eastern cases in Chapter 14 of this volume.

If one is to use storage as a marker of societal and cultural evolution, one does need some idea of what the nature of the societies in question is (question 1 above) to compare like with like. That means that one has to understand the kinds of interrelationships that must be integrated into a particular society (question 2 above). The older nomenclature of Service has proven too static and bounded to do this; so how do archaeologists go about understanding organization?

A number of different kinds of distinctions exist as alternatives to the Service model. Wallace (1971) distinguishes kinship from community from administrative forms of social organization. Fiske (1991) offers a classification of such organizational relationships. In his system, relationships of a society would vary from a communal sharing mode to equality sharing to authority ranking.

The administrative or authority ranking is most associated with the state. One way we have come to see the distinction is in terms of an emphasis on coordination versus regulation. Coordination, on the one hand, involves "the mutual inter adjustment" of "the rates of activity of the members of an acting group" (Miller 1960: 177). Regulation, on the other hand, involves the authority to create a plan defining the nature and goals of at least some activities, initiating action aimed at fulfilling those goals, and maintaining "the continuity of activities" by means of giving orders (Miller 1960: 179). One is more about institutionalized influence, the other about political control. In the early stages of leadership, for example, in southwestern America would-be leaders used familial ties to mobilize labor, thereby establishing *de facto* control (Mills 2000).

Centralized leadership characterizes the most complex ancient societies. While the leadership is centralized, the social structure is the most heterogeneous. Administrative, regulatory institutions are not necessarily all identical. Based on their location, scale, various kinds of intersocietal/cultural interactions, and particular histories, the strategies of various individuals and groups form different kinds of organizational structure and integration, and generate different selective pressures. For example, D'Altroy and Earle (1985) theorize that in societies developing rank, different dynamics will be set up depending on whether the newly institutionalized leadership relies on staple (largely food) or wealth (raw materials and craft goods) finance (see Rothman and Fiandra, Chapter 2, this volume). As mentioned above, Blanton et al. (1996) define the different manifestations of the state as being determined by the motivations of leaders.

These strategies ultimately result in a number of interrelated changes in the deep structure of society and culture. In the Mesopotamian case mentioned above (Adams 1981), the centralization of control mechanisms (at least to some degree), was concomitant with the following:

(1) reorganization of both agricultural and craft production (Algaze 2008);
(2) promotion of individuals and groups into higher-ranking positions;
(3) restructuring the functions and relationships within centers and between centers and their satellite communities;
(4) creating marked social stratification.

These were all connected to new concepts of the divine and to a powerful temple sector that was intimately involved with sanctifying the leaders and controlling part of the agricultural sector. The culture and society of southern Mesopotamia underwent a radical change in social structure. Our assertion in this and other cases is that the use of storage is a key correlate of the kinds of changes archaeologists are observing.

One caveat is necessary for archaeologists going forward. There is a tendency in this analytical effort to "look back" (Vitelli 1999). Societies are not organizing and behaving as they do to become more complex in the future. No society adapts consciously to become a state. They are responding to address current stressors or to achieve an advantage in their current circumstances. "Looking up" emphasizes how populations adapt to the conditions they perceive. This latter perspective thereby reduces the amount of reductionist logic.

Trying to pull some of these threads together, I argue that it is possible to see some patterns that correlate storage to the evolution of societal organization. Based on the evolutionary model of social structure, a rough categorization of the kinds of social relationships and integration is possible to draw. Putting together Frangipane's (2007) and Fiske's (1991) ideas about a way to categorize networks of societal relationships and integration, types not necessarily stages, I would suggest the following categories as a basis for comparison.

Horizontal Egalitarian Systems

This model of kinship society is one of equality among all individuals and groups. Frangipane (2007: 153) calls these horizontal egalitarian systems, in which "in addition to the absence of differences between resource distribution and access, all members of the community were essentially of the same status and decision-making tasks were horizontally distributed both within each group (by sex and age . . .) and between 'related' communities in a given territory (by means of flexible enlarged institutions [like] sodalities and periodic communal events, such as assemblies, religious ceremonies, feasts, etc.)." This can be related to the concept of communal sharing (Fiske 1991) on a society-wide basis, which Frangipane sees as being evidenced

in shared storage, diffuse settlement patterns, poorly distinguished boundaries between houses, egalitarian distribution of goods, and equality in funeral ideology. Religion would be more shamanistic than priestly, not requiring formal temples, and identity would be very open-ended. Production would follow a kinship mode in which people were self-reliant (Wolf 1982). If ownership of the means of production existed at all, they shared it equally, and value was vested in community, not in the intrinsic value of goods (Wolf 1982: 73–74). The example of Alaskans by Finke (2007) discussed above would fit here.

Vertical Egalitarian Systems

Even though the society as a whole is based on concepts of equality and economic self-reliance, vertical egalitarian systems "were accompanied by a system of social and kinship relations which gave and legitimized a kind of privileged status to certain members of the community depending on their genealogical position, true or presumed, entitling them to represent the community and take up its governance. [. . .] In these societies, unlike the former type, the role of more or less extended household groups played a very important part, and membership of the family was more important than membership in the group as a whole" (Frangipane 2007: 153). In the American southwest, Mills (2000) gives an example of how this would work. She shows how nascent leaders used their kinship networks to establish some inequality. They recruited their kin to produce foodstuffs, build communal buildings, and organize exchange networks. Overall, the signs of this kind of structure are standardized, easily recognized individual buildings, domestic storage, special treatment of family founders, and reference to a central religious authority. Specialized communal storage is also possible. As opposed to communal sharing, the dominant mode of interaction is equality sharing (Fiske 1991) in which the families and groups existed in balance. The leadership group never got much authority and the larger body politic could readily check their power. Coordination is still the mode of organizing control. This social type tends to be a somewhat unstable form. The northwest American coast societies described by Ames (1994) discussed above fits here.

Ranked, Coordinated Society

As described by Wright (1994), ranked society breaches that line from what we can call the egalitarian society. It tends toward what Fiske (1991) calls authority ranking, in which the leadership group has some limited authority. It is more an administrative than consensual organization (Chapman

2003). One would expect differential access to goods, disparities in housing, richer and individual graves, and both individual *and* central storage. Again, the degree of authority and the range of what leaders regulate are less strong, less extensive, and less permanent than in a more complex society. They still governed predominantly through coordination. However, social heterogeneity becomes apparent in this form. Cahokia (DeBoer 1988) discussed above fits here.

Stratified, Regulated Societies

The specific coordinating or regulating role of the leadership very much depends on the strategy of the leaders and the nature of communal needs. Blanton et al. (1996) and Feinman (2000) capture this aspect in their concept of dual evolution. A "corporate strategy," even in a situation with authority ranking, tends to favor the good of the community over that of the leadership group. In an "exclusionary strategy," the opposite is true. Often the exclusionary strategy involves a network strategy, in which leaders build a system for enhancing their wealth and status based on controlling high-valued goods from outside the local community and controlling the flow of goods within their polities. One way to create a network strategy is to gain regulatory authority over craft production. Certainly, as opposed to horizontal egalitarian systems, the mobilization of workers/labor from a multisite ranked system involves creating a bounded polity, as opposed to an open-ended kinship network. Storage tends to be large and centralized, on the one hand, and individual or group, on the other hand. Heterogeneity is at its maximum in this kind of society. Surplus production is important. The southern Mesopotamian case discussed by Adams (1981) fits here.

Storage then is really about the value of things produced for use or exchange. Differences in what is stored, where, and by whom (were there, for example, surpluses?) is a different kind of scale for looking at trajectories of change. The various means of accounting for and therefore perceiving stored goods and their movement is the other key. The types of storage correlate with the variation kinds of organization, and ultimately are reflected in cultural beliefs and practices. They reflect differing degree and distribution of social control. Modifying Smyth's scheme (Smyth 1989: table 3.1), some of the correlates of the storage and social structure I propose are as follows in Table 1.1.

Storage then represents the organizational basis of production, as well as the political aspects and degree of heterogeneity of a given social system, its basic structure. How then can we use these concepts in the interpretation of actual cases? The individual cases illustrate this, and in Chapter 14 the editors discuss it.

Table 1.1 Correlation of Organizational Type and Storage

Horizontal egalitarian structure
 Public storage units associated with household units
 Redundancy in the kind of storage
 Mostly foodstuffs

Vertical egalitarian structure
 More individual storage units associated with houses
 Some variation in size and content
 Possible communal food storage

Ranked structure
 Individual and smaller public storage features
 Limited content per unit
 Can be associated with public or specialized buildings
 Food and craft materials

Stratified regulated structure
 Larger than communal storage facilities
 Large central storage units associated with public institutions
 Diverse forms of public and private storage
 Individual units associated with domestic units
 Food, craft, ritual storage

There are caveats worth noting. We must as social scientists understand that even as useful as storage behavior is, it makes evolutionary sense only in the broader context. Archaeologically, we must be careful in our interpretation. Horne (1994) in her ethnoarchaeological analysis of a village in the Tauran area of Iran, shows that each family had a storage space, but she found that not every family's storage space is within their own house. The assignment of rooms within the village can be variable and temporary.

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