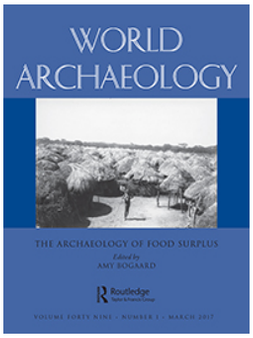

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The social and political aspects of food surplus

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ABSTRACT
This article looks at how surplus is not only an economic reality but a state of mind, created by and reflecting the social and political relations of a group, by considering examples of historic and prehistoric food surplus. The state of one's surplus is not just what one stores, but also how others see it and think about it. Individuals are not alone, but always think of their surplus within a larger network of social and political interactions with others who are also storing food as well as within the rules for access. These networks have been considered safety nets by archaeologists, but often, as with many situations today, the populace does not have access to the safety net. Two case studies illustrate the dynamics and differences of this constructed side of food surplus.

KEYWORDS
Storage; social capital; food supply; reciprocity

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Introduction

Surplus is quirky - it is essential and yet elusive; it is physical in the material that is stored but also social in the gifting of food, and it is psychological in the worry about not having it. Surplus brings to mind storage and planning, food security to survive through the week, the winter, the trip or to launch an army. Surplus also links directly to the need for social networks whereby individuals do not have to store everything themselves, but can count on others or the governing structure to provide food at certain times. Food surplus also encompasses ancestor spirit storage and the potential for help when required, gifting and receiving food through interaction with the chthonic powers of land and weather. All cultural systems have a range of security blankets for support. While some surplus studies have been presented in too functional a manner, i.e. social networks are primarily to maintain food security, other examples clearly display the centrality of sharing and interaction in maintaining mental health and psychic surplus, i.e. the emotional surplus embedded in food sharing. Because of this social component in the concept of surplus, we propose here that archaeologists can gain a richer view of surplus and its role in past society by considering these social, political and perceptual aspects of food in the past that directly build upon the perception of what is surplus, even if there is no clear material aspect to these realms of surplus.

To pursue this perceptual perspective about surplus in the past, in this paper we propose to address several questions about surplus in past societies. To do this productively we ask these questions of two different archaeological polities: the Inka of South America and Classical Greece. We start with the questions: what did surplus mean in these polities and how much surplus was

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enough? How was the surplus harnessed and distributed, for whom and who decided what was 'enough'? At what level in society did the responsibility for generating and curating surplus sit, who took on that responsibility and were they successful in supporting society when required? The two case studies we have chosen are particularly comparable in that the societies in question addressed and resolved these questions of surplus in completely different ways. These contrasts demonstrate the extent to which surplus is a cultural concept and not an absolute. Surplus is what you perceive it to be, rather than any biological reality. Historians and archaeologists often think of surplus as absolute and economic and seek evidence in society, but here we are looking for what the perceptions of surplus were and how they played out in decisions, access and organization.

The question of how much is enough illustrates surplus as a state of mind, one that everyone has to ask themselves, as do governments and leaders. This question has ramifications for many aspects of life: styles of food consumption, diet and meal structure, levels of sharing, technologies harnessed, but also definitions of wealth, social status, political position and the ability to make decisions. Food surplus can be the subject of psychological games, as different groups have different comfort levels with different amounts of money in the bank, food in the pantry or crops in the field. If stores are depleted or empty, one is nervous and worried, but to what extent do these stores have to diminish to initiate worry? Some ethnographic examples illustrate how people make assessments from month to month or year to year, while other people plan for five years or even more. In a capitalist mindset, for example, one can never have enough money in the bank. For some foragers, having food for the day is sufficient. It is clear that surplus is a state of mind, varying by setting. Food surplus is the last thing to go when a polity falls; if there is no more food then there is no more community.

Surplus has been thought of as security in wealth, in power over, in power to or in largesse. Up until quite recently in history, food surplus was the economic coinage of governments, leaders and families. If one had storage vessels, rooms or buildings full of foodstuffs then one was empowered to rule, to make decisions and to gain followers. Leaders undoubtedly spent much of their time working towards and thinking about how they were going to keep their food stores full. Storage entails a cyclical filling and depleting of things and energies. Surplus exists when stocks are thought to be full or fuller than required. Storage is illustrated materially in structures or accounts of what goods entered and left. But surplus is also a state of mind, manifest in the sense of security (or insecurity) that results from the answer to 'how much is enough?' and the psychological level at which a group *believes* they have more than enough.

Surplus is more than storage

We approach the question of surplus being a state of mind by focusing on how groups dealt with storage. Archaeologists must focus on storage, as this is the materialization of surplus, illustrated in many different contexts by features such as vast storage magazines across a landscape or rooms full of ceramic vessels. Here we also want to interrogate such features as the manifestation of what *the idea* of surplus was, which is likely to have been an ideal and probably did not always represent reality. Many groups created more storage space than they necessarily required every year (e.g. Halstead 2014, 162). This suggests that we need to understand stores as the physical representation of *what is thought to be* enough to maintain a group, even though it may often be more than enough, both in terms of 'reality' and in terms of that society's own cultural perceptions. This allows for the concept of extravagance, permitting the consumption or even squandering of the element of surplus that is deemed to be 'more than enough'.

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Does every society have food surplus and how is it identified? Kuijt (2009) writes about the question of 'how much is enough', wondering whether there were ever any food resources left over before the next harvest or if these were all transformed into other things. There is no physical evidence for surplus before the late Neolithic because there is no evidence for storage, but we need to think more clearly about what storage actions and concepts are before we accept this conclusion, as it surely cannot represent reality. Gatherers and hunters did not carry much around, leaving it dispersed across the landscape. Within settlements, much storage could have been in organic containers: net bags, woven baskets or just stacked in the corner. These habits will not show any remains unless we are able to plot DNA or amino acids across surfaces and deposits.

Changes in storage organization or capacity are often assumed to link to changes in social complexity. This is a goal of this volume of *World Archaeology*, to consider the range and variability of what food surplus means in different groups: how they generated it, managed it, stored it, thought about it and used it. People place their storage in many different settings. Food is not like money. It has to be kept in a physical place. Some hide their food in pits or hidden rooms so that no one can see it or know of it. Others place it in front of their houses on display, at times to the point of destroying the surplus (Young 1971), or display it to guests as a marker of wealth and status (e.g. early Greek relief pithoi, decorated with heroic scenes, perhaps on display in banqueting areas: Ebbinghaus 2005). Some eat it all themselves, others exchange it. The scope and type of surplus are generated out of storage, informing us about the worldview of each group and how their food supply, their annual food cycle and how much was enough participated in their political world.

In archaeological settings increased food surplus-storage evidence is often attributed to more intensive political organization, more hierarchical decision-making or increased differential power. Risk aversion has been a common theme with regard to considering food surplus, on the assumption that people's goals are dominated by trying to minimize their food insecurities and increase their supplies. Scholars have completed excellent work on these themes, for example, the volume edited by O'Shea and Halstead (1989), *Bad Year Economics*. Years of not always having enough to eat, as bioarchaeologists have clearly demonstrated, were faced in many past situations. Today, when supplies seem insufficient or there appears to be enough food only for certain sectors of a population, this is often due to inequality and politics, in that governments restrict food to certain locations or to specific classes (Sen 1981). Today there is enough food produced in the world, but its distribution is curtailed by political agendas that rewrite the perception of storage necessities. Therefore, we need to think about food surplus, both today and in the past, through its perception by the populace with which it was associated. This means we need to consider the political and social settings of stores: who created them, who had access to them and what happened when food became differentially available? What were the networks for filling and depleting storage units, and how did people think about these capacities, curation strategies and distribution?

Many have written about the range of risk-management strategies that independent farmers have developed to ensure stable food stores as well as the range of necessities. As surplus is perceived, it can have a range of alternative uses: it can be preserved, sold, feasted upon, given away or converted into other goods that do not decay over time. One very important aspect of such behaviours is 'exchange' of food to obtain the social obligation, loyalty or dependency of the recipient. Luxury and staple finance merge, as people convert food surplus to other valuables (D'Altroy and Earle 1985). Luxury items are the best known and obvious items of exchange, where surplus grain is exchanged for gold or jewellery. People have sold surplus for other items, like

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beasts of burden, pots, textiles, boats or symbolically significant items. This shifting state of mind about food stores converts food into surplus, and in turn into other items that link food to people, memory and value. What you trade your food for has a symbolic significance.

Food surplus is potent. Pottery vessels, burials, caches and storehouses represent surplus for the future as they trigger memories of past use of stores (Hendon 2000, 49). These surplus storage locations carry potent meanings, as places of import, of strength, of power, of security, of the past and of continuity into the next generation. Storage is therefore not only about wealth but also about memory (Weiner 1992, 56–60). As in Micronesia, heirlooms with histories are curated and regularly traded for food, carrying their stories with them, making them more valuable with each exchange. There is a moral order to surplus in this case, as some stored things are more potent than others. Archaeological investigations can uncover these differences in surplus use and perception with careful attention, but it is up to us to decipher what were the inhabitants' views towards their storage and whether or not that surplus was converted into other things or relationships.

Farmers always worry about their stores. Will they be enough to carry them through, can they sell some to gain other items (cash) or must they keep them for their family's stomachs and protect them from attack by fungi, insects and vermin? A range of elaborate techniques and facilities has been employed to protect staples like cereals in storage (Halstead 2014, 156–63). Another classic way to store plant foods is to keep it on the hoof, using the stores to feed animals and thereby keeping the animals for when needed, seeing a herd as food surplus storage. Keeping food often entails preserving it, converting raw food into a different ingredient. Preserving food in the past, as today, includes diverse methods. Preserving food is a key way to retain one's surplus, commoner than converting it into wealth items. Many techniques have been invented in different places and at different times: drying, smoking, freezing, salting, brining, burying (canning) and fermenting, basically halting the disintegration of the product by micro-organisms. How long these techniques have been in use is not clear, but probably as long as people have been *sapiens*. Preservation expands edible yields and augments the surplus of many crops and animals that cannot survive as surplus beyond a week or two.

If we are to clarify perceptions of storage within a society, we need to seek evidence of preserving techniques as well as storage methods and facilities. Beyond this, to understand surplus and its particular cultural meanings, we need to look at the evidence for storage and preservation in its wider social, political, economic, landscape and environmental settings. In the case studies that follow we will explore how two very different societies addressed the issues of surplus and the ways in which their specific culturally grounded ideas about surplus were built into their political systems and institutions.

The geography of Andean surplus

The first example is of surplus as symbolic capital. It easily could be tied to the staple and wealth economy of the Inka state, à la D'Altroy and Earle (1985), but we want to focus on the powerful symbolic aspects of the surplus and how it was perceived and manipulated. While the Inka marched over the central Andes, conquering the major regions between AD 1440–1532, they focused especially on the regions that produced maize. Chroniclers inform us that they had many people to organize and much potential for surplus production. They required a labour tax from each household (mit'a tax), which usually meant a young person left home to complete the labour tax annually, often in the military, but also in construction or production. With this labour surplus

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the Inka built thousands of kilometres of roadways. Some were earlier roads revamped; others were new, including bridges and way stations. This road network, called *Qhapaq Ñan*, some 40,000km in length, included administrative centres, where local overseers could make sure each family paid their labour tax, including managing state farms near the centres and the filling of permanent storage buildings. These administrative centres, called *tambos*, housed administrators, ritual specialists, accountants and occasionally the military as it moved around, as well as overseeing the collection and distribution of goods. Built near at least twenty *tambos* and state farms, well-built storage units were constructed of stone or mud-brick on hillsides (D'Altroy 2003, 271). These were not hidden and protected within the centres' walls, as in most state storage systems, but exposed and very visible, deliberately placed on hillsides for all to see (Figures 1 and 2). These storage structures, called *qolqa* (or colca), were built near Inka state farms and administrative centres. They were constructed to hold all goods produced and sequestered by the state to be used in the running of the state, not only to feed the military and administrators but also to feed local people if there were problems with the harvest and for widows who could no longer produce (Murra 1980). These were the banks of the Inka state and were very visible, filled or not. The local leaders were in charge of keeping the *qolqa* filled with food and supplies, which were recorded on *quipu*, string recording devices, by accountants. Besides local food produce stored in these structures, we know that crop produce was moved around the empire in camelid caravans to other *tambos*, especially the most highly prized food, maize (*Zea mays* L.), which was used to

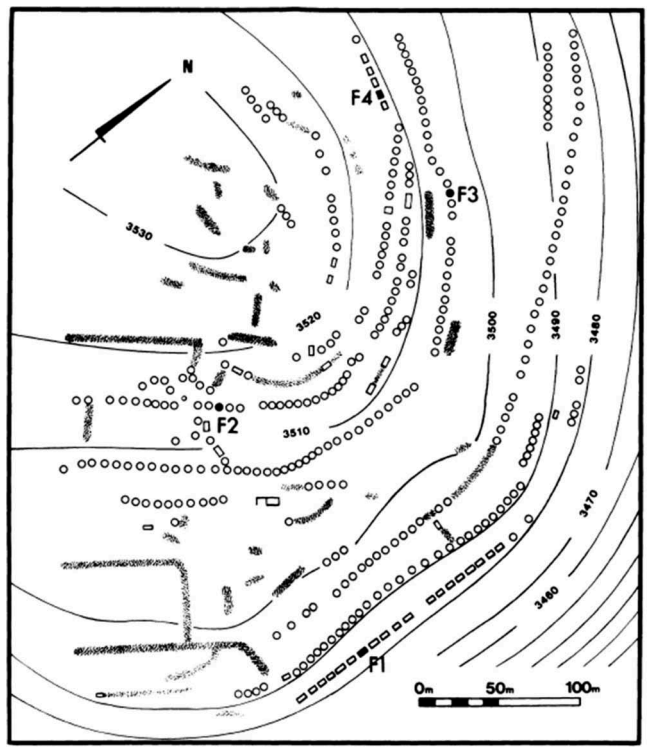

Figure 1. One section of the stone built rows of *qolqa* on the hillsides of the Upper Mantaro Valley, Peru (D'Altroy and Hastorf 1984).

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Figure 2. J 20 *qolqa* on the hillsides of the Upper Mantaro Valley, Peru (courtesy of T. N. D'Altroy).

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make the beer that the Inka drank daily, served at every state affair and provided for the military. Clearly everyone had to work harder under the Inka state.

These vast planned *qolqa* structures were built by local communities near the Inka administration and state farm locations, constructed in rows of individual round and square storage units on the hillsides. These rows of buildings did many things. First they kept things cooler with air circulation and therefore the food, especially the tubers, was preserved for longer. Second, the stores, being placed in view of all residents but removed from the local population, made theft much more difficult, but displayed to all living in the valley or travelling through it the extent of the storage and potential surplus the Inka had, and the potency of that material wealth they had control over. Even if the structures were not always full, they always looked impressive.

At Hatun Xauxa, one of the main administrative centres on the highland trunk road, thousands of *qolqa* (2570) were built and utilized, both round and square in long straight rows, sections placed along the valley as far as the eye can see. They were built to impress and to last, and are still present on the landscape over 500 years later. From excavations completed by D'Altroy and Hastorf (1984, 1992) on several stone structures, D'Altroy's study of them (1981) and historical research by Espinoza Soriano (1971) we know more about the *qolqa* running along the western hillsides of the valley. Whenever one looked up there was the sign of the state, untouchable but potent. The state's power was materially evident to everyone who lived in the valley. Whether they were full or not, the *qolqa*'s presence gave the impression of richness, capability and power. We know from historical documents some thirty years after the Spanish conquest that the Mantaro Valley *qolqa* were still being maintained by the local leaders (Espinoza Soriano 1971). This evidence clearly shows the strength of memory by the residents.

These *qolqa* stored food stuffs including potatoes, chuño, quinoa, other tubers, maize and legumes, but also coca, sandals, leather, textiles, raw wool, wood, tools, cloth and fire wood – all the material things that were required to produce food for the state. We do not know if they were

continuously full, but the perception of all who lived near or heard of the storage structures was of great power to gather so much material in one place. These *tambos* with their storage complexes created a network of surplus that allowed the Inka and their administrators to curate and use the concept of the stores as well as the things themselves to retain their power as well as largesse. There was always 'enough' for the state in the materiality of these storage structures, whether there actually was enough food in them or not. It was the state which determined how much was enough, at least for their coffers.

Therefore, these *qolqa* materialized what was needed to convert one form of surplus, labour, into others, food, goods and power (D'Altroy and Earle 1985; Earle and D'Altroy 1982). For scholars who study pre-monetary systems, this system was converting surplus not into money but into sustainability, security, power, status, political relationships and obligations. These *qolqa* became symbolic stand-ins for Inka power; their presence was a mnemonic of oversight and control. This surplus represented the state. They were more than a bank, but were the materialization of the power the Inka had in the provinces, whether the food was handed out to the populace or not. Chroniclers have noted that in times of want the Inka would give food to the needy, especially to widows and families with no male head (Godelier 1974). Therefore, while what went up into the *qolqa* usually did not come down, it did occasionally return to the producers, at official feasts, rituals, royal visits, but also in years when the harvest was bad, in the guise of reciprocity. Reciprocity was a core tenet of not only Inka management but of highland social worlds, and was the basis for instigating distribution, allowing food to be distributed periodically throughout the population.

Additionally, with the Inka's keen interest in the creation of food surplus, being of a highland Andean mindset as were their conquered peoples, they all believed that the male duty was to produce and that of women to curate and transform (Allen 1988). In this construction, males were the farmers in the fields, harvesting and building the storage units, while the women received the foodstuffs, storing them appropriately, and distributed them as needed in meals or for trade.[1] This therefore portrays an interesting symbolic dynamic. This structuring belief means that the conquered families who worked the state fields were considered the 'men' of society, whereas the leaders, both local administrators and Inka overseers, were the 'women' in charge of the stored surplus. This duality of producing and curating incorporated the conquered people into the reciprocal state-system family. It was formulated as a symbolic relationship that allowed the Inka to maintain a surplus, removed from the families, in that produce was given to the state with no clear return, i.e. the Inka 'women' were stingy, but did release food when needed.

Surplus in ancient Athens

In the Greek world, cereals, mostly various forms of barley and wheat, were the basic food staple. Under the Mediterranean dry-farming regimes characteristic of southern Greece, wheat was less reliable and productive than barley, but more desirable for food. Though they eventually deteriorate in quality and succumb to pests, under the right conditions these cereals can be stored for several years. Both were grown locally in Greece, although from the fifth century BCE onwards substantial quantities of grain were regularly imported into large urban centres. This is particularly well documented for Athens.

Greek city-states, in contrast with the Inka, had relatively little 'top-down' central control, storage or bureaucracy. This was true even for the exceptionally large and cosmopolitan city of Athens under democratic rule in the fifth–fourth centuries BCE. Here, the political equality of

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citizens (adult men from families of citizen status) was juxtaposed with social and economic inequality. There were wealthy elites, but they had to present themselves in political arenas as working for the good of the citizen body as a whole.

Many rather surprising aspects of life were unregulated by the state in any systematic way, and were left to individual households. The majority of the Athenian citizen population was not taxed, though in the fourth century there was a property tax on the wealthiest citizens, and a levy might be made in a 'national' emergency (for example, in wartime crises: Lysias 22.13; Moreno 2007, 245–6; cf. the siege and defeat of Athens in 405/4 BCE, Garnsey 1988, 131; Xenophon, *Hellenica* 2.2.3–20). Other kinds of taxes were imposed on specific activities, but generally not on citizens across the board.

Over the course of the fifth century the principle that the rich should pay for the poor developed into an elaborate political system of formalized liturgies: financial obligations which very wealthy individuals over a certain property threshold were required by the state to shoulder (e.g. paying for a play to be produced for a religious festival or to equip a warship). This both emerged from and continued to exist alongside the wider social practice of wealthy individuals and families making public benefactions and gifts (euergetism), thereby enhancing their social (and political) capital in the civic community, which reached its height across the Greek world later in the Hellenistic and Roman periods. Perhaps surprisingly, providing grain for public (communal) consumption was never a formal liturgy, although wealthy men are documented as sometimes boasting of loaning, selling at a low price or donating grain in times of shortage (often to their own enrichment: Moreno 2007, 220–5, 293–4).

Primary, front-line responsibility for defining 'what is enough' food storage fell, therefore, on households. That cultural principle is likely to be at least part of the reason why supplying grain was never a formal civic liturgy. Moreover, 'enough' was not necessarily a subsistence notion. We also need to ask 'enough of what'? Expectations were almost certainly very different for subsistence households than for wealthy ones. Barley meal (*alphita*) seems to have been the staple for poorer people, eaten mostly as various kinds of boiled grain or porridge, but for bread wheat was preferred (Foxhall and Forbes 1982). Wheat was therefore something of a 'semi-luxury': attainable by non-elites, but probably consumed on an everyday basis only by elites (Foxhall 1998).

From the sixth century BCE wealthy extended families developed bases and local connections in areas around the Hellespont. Grain, especially wheat, was presumably one of the attractions. As Athens became larger, richer and more powerful, consumption aspirations became more ambitious, and wheat consumption probably rose along with increasing levels of grain imports, starting late on the fifth century and becoming more important in the fourth century BCE (Moreno 2007, 162–4).

Consequently, by classical times the question of 'what is enough' developed a civic aspect, even if households were in the front line. There is much debate around the question of when (and even if) the import of grain into Athens in classical times was essential for feeding the city (Garnsey 1988; Moreno 2007; Oliver 2007, 15–41). For the purposes of this case study the answer does not matter. We are dealing here more with Athenian *perceptions* of surplus, of what was 'enough', rather than with whatever might have been the reality of what was enough to feed the population. For the substantial sector of the fifth- to fourth-century BCE urban populace who did not produce their own food, the rewriting of 'what is enough' might have been 'what is an affordable grain price'? This is a very different approach from the one that a farming household might have given.

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In terms of local production, classical Attic farmhouses had considerable storage facilities for grain and other agricultural produce. These are documented archaeologically and in inscriptions. They were not subsistence farms (which are probably largely archaeologically invisible: Foxhall 2007, 34–5), but rural houses belonging to wealthier families who probably also had houses in the city. For example, both the late fifth-century Dema House, north of Athens near the Dema wall (Jones, Sackett and Graham 1962), and the early fourth-century BCE Vari House on the slopes of Mt. Hymettos (Jones et al. 1962; Jones et al. 1973) had evidence of storage areas with large storage jars (*pithoi*) (Figure 3). The Vari House, like a number of classical farmhouses (Morris and Papadopoulos 2005), had a tower (SW corner), which seems to have been used for food storage as well as a range of other functions, including possibly housing slaves. Inscriptions such as the lists of property confiscated from the prominent Athenians accused of impiety in 415 BCE (the so-called Attic Stelai) document storage areas and outbuildings holding multiple tools for grain cultivation and processing (Foxhall 2007, 204–11). Storage of both foodstuffs and useful by-products (chaff, bean haulms) are recorded.

After 479 BCE Athens became very powerful with many allied cities subject to it. As the leader of this powerful imperial alliance, the city's population grew to include many inhabitants not engaged in agriculture, among them a substantial population of foreigners and resident aliens (some ex-slaves) who could not own agricultural land. Many Athenian citizens, some of them very wealthy, acquired additional large agricultural holdings in the subject territories of allied cities (Moreno 2007, 89–97). This must have had a profound effect on changing notions of 'what is enough', and is likely to have raised consumption aspirations. Cosmopolitan Athenians, even those not from the wealthiest sectors of society, probably developed a taste for wheat and consumed more of it (Garnsey 1988, 131–2; Moreno 2007, 164, 234–5; Aristophanes, *Wasps* 700–18). What proportion of imported grain was wheat and what was barley we do not know, and in any case the balance may well have changed over time.

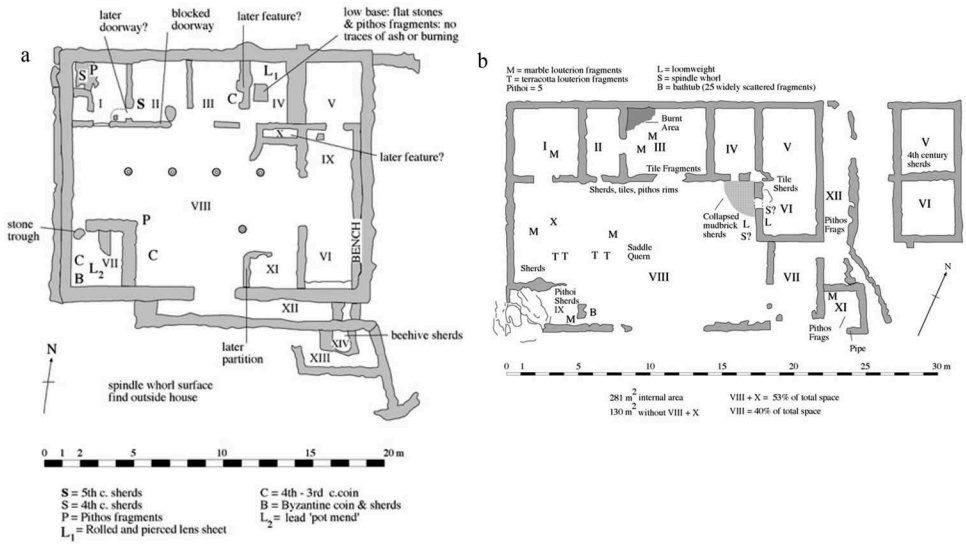

Figure 3. (a) Plans of the Vari House and (b) The Dema house (after Jones et al. 1973; Jones, Sackett and Graham 1962).

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The city kept a close eye on the grain market, because the grain supply and the price of grain became something of a political football. At the end of the fifth century BCE Athens suffered a major defeat and lost the 'empire' but remained a powerful player in the fourth-century conflicts among Greek cities and federations. During the fourth century BCE grain supply was a regular item on the agenda of the Assembly (*ekklesia*), the ultimate governing body consisting of all Athenian citizens, and there were magistrates (*sitophylakes*) overseeing and regulating importers and traders in grain. However, for the most part the civic administration did not take direct responsibility for procuring and storing the bulk of the city's grain imports and played no role in controlling, regulating or monitoring local production. Instead they attempted to channel the activities of a complex network of private traders and overseas potentates, and to use military and political measures to try to encourage them to bring their cargos to Athens (Oliver 2007, 40–1; Moreno 2007, 299–308, cf. 165–7, 334–6). Wealthy elites formed their own relationships with rulers in areas like the Black Sea which supplied large amounts of grain to Athens and manipulated these relationships to their own advantage, and the Athenian navy was used to ensure that the shipping routes for grain were secure (Moreno 2007, 244–56; Gabrielsen 2015).

One significant exception to this pattern is documented on an important inscription of 374/3 BCE (Moreno 2007, 256–7, 330–3; Stroud 1998). This decree, passed by the Assembly, provides for a tax in grain to be collected from the Athenian overseas lands held on the islands of Lemnos, Imbros and Skyros and stored as 'public grain' in a sanctuary, the Aiakion, (Stroud 1998, 92–7) that was probably located in the Athenian Agora (Figure 4). The tax-collection rights were to be auctioned to the highest bidder (undoubtedly a wealthy Athenian). Public magistrates, unusually elected rather than chosen by lot, managed the curation and sale of the stored grain with the provision that it could not be sold before late January (harvest time was May–June). This implies that one of the purposes of this public store was to cushion and stabilize grain prices by releasing it onto the market in the months before the harvest so that, especially in a lean year, prices did not

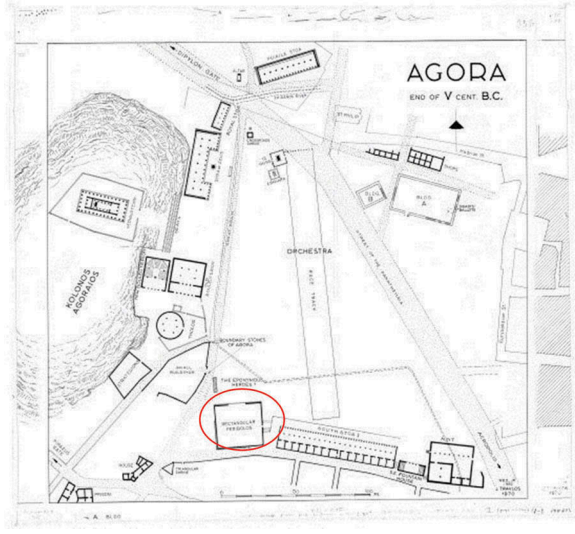

Figure 4. The probable location of the Aiakion, used as a civic grain store, in the Athenian Agora, in the larger circle (courtesy of the American School of Classical Studies in Athens).

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skyrocket, keeping 'enough' within reach of 'ordinary people' and serving essentially as a euergetistic benefaction of the state and the *demos* (the People = the assembly) to itself.

The issue of grain supply exemplifies the kind of tensions inherent in the practice of Athenian democracy. In principle, the duty of the (wealthy) politician was to champion the interests of 'the many', in contrast to 'the few'. The riches of 'the few' should be seen to be spent for the public good. For wealthy elites this was a balancing act, setting the need to be seen to be championing the interests of 'ordinary people', the *demos*, against the desire to exploit their riches to maintain their public influence and status, while continuing to profit from (among other things) their involvement in the import of grain (Moreno 2007, 258). Such men were constantly competing with rival elites, whom they try to paint as serving their own selfish interests instead of the greater public good. From the largely fourth-century BCE sources that we have the maintenance and management of surplus at a communal level thus appear complex and chaotic, resulting as they do from the interactions of many agents at different levels entangled in complex and volatile networks of social, economic and political relationships.

So, there are several different answers to 'what is enough' in classical Athens and the curation and management of surplus was never fully taken over by or entirely under the control of the state. Decisions on 'what is enough' were taken by different agents at different levels, starting with the household, but the institutions of democratic governance also played an important role, as did the wealthy politicians who played the system. The fragmented management of surplus at several different levels simultaneously exemplifies the way rule itself in Greek city-states was conceptualized: as a kind of distributed leadership rather than as a straightforward hierarchy.

Conclusions

Let us return to our original questions: 1) what is enough, 2) who decides and 3) who has responsibility for curating and maintaining surplus? It is clear from our case studies that the Inka and the ancient Greek city-state of Athens address the issues these questions raise in very different ways. Beyond the difference in scale – the empire of the Inka is huge compared to Athens' home territory of Attica, and the relationship of Athens to its subjected allies was unlike that of the Inka to its conquered populations – their different cultural conceptions of surplus and where surplus was lodged in social and political life resulted in completely different actions.

The monumental storage banks of the Inka situated in prominent locations provided a constant visible reminder of the presence and power of the state and of surplus, as a ubiquitous geographically distributed network of territorial control. Local residents would have seen a regular procession of goods entering these facilities, so that the very act of filling them up could serve to manipulate perceptions of surplus. Because the state restricted access to these stored goods, releasing them to the wider populace only when specific needs arose, at festivals or in crises and emergencies, will have reinforced the belief in the power of the state over food and other commodities, whether or not in reality the coffers were ever really full. For the Inka, who determines the answers to all three of the questions above is 'the state' and the local elites that worked for the state. However, the evidence suggests that the outcome of these social and political perceptions of surplus largely combatted food crises effectively.

In the Athenian case, the answers to these questions are multi-layered. Deciding 'what is enough' and the responsibility for generating and curating surplus lay firmly with individual households in the first instance, not with the state. The state and its various political institutions and devices, along with various private machinations of wealthy elites operating in a democratic political system, gave rise to

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a range of behaviours, including euergetism, profiteering and especially a succession of attempts to regulate the grain trade. This is critical, as the grain trade was always in the hands of a variety of private individuals; it was never directly operated by a single group or controlled by the state, although the Athenian navy played a key role in ensuring the safe passage of grain traders' ships. The regulatory measures undertaken by the state were largely focused on keeping the price of grain stable and at a level affordable to the mass of the urban population. This was critical in terms of the perception of what was 'enough' and whether or not there was surplus. For the mass of the Athenian populace, 'enough' meant a reasonable price throughout the year and, ideally, a regular supply of more desirable wheat. Direct state curation of surplus or alleviation of food crises was rare and came into play only in exceptional emergencies, as a back-up measure when the first-level household processes and the second-level regulatory efforts had utterly failed. In consequence, the ways in which all Greek city-states addressed the problems of food supply look rudimentary and ineffectual (as indeed they often were) compared to more centralized imperial societies like the Inka.

These two case studies taken together demonstrate the utility of thinking more broadly about surplus as a culturally constructed state of mind. In both of these cases, it is *perceptions* of 'what surplus means' and 'what is enough' that are ultimately manipulated by elites and states, beyond the actual realities of storage and food supplies. The differences between them can be briefly sketched, albeit in an oversimplified way, as follows. The Inka took a top-down approach to the question 'who decides what is enough', while the Athenian answer was shaped by pressure from the bottom up. Consequently, the responsibility for generating and curating surplus was tackled in completely different ways with radically different outcomes. For the Inka, that responsibility was appropriated by the state apparatus and delivered in a top-down way. In the Athenian case, pressure exerted from the bottom up periodically influenced the behaviour of the state (composed of citizens) and of wealthy elite individuals courting popularity in a democratic political setting and simultaneously networking with and competing with fellow elites. In both of these case studies, however, it is the interplay between cultural concepts of surplus, perceptions in any particular situation and the physical and biological realities which shape how societies ensure 'enough'.

Note

1. The same gendered structure of food storage, with men putting food into storage and women taking it out, operated also in both Micronesia and Mesoamerica (Hendon 2000).

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