The Ethnoarchaeology of Threshing in Cyprus

By John C. Whittaker

I will help you, says the Lord;
I will make of you a threshing sledge,
sharp, new, and having teeth;
you shall thresh the mountains and crush them,
and you shall make the hills like chaff.
You shall winnow them, and the wind shall carry them away;
and the tempest shall scatter them.
(Isaiah 41:15–16, New Revised Standard Version Bible)

When Isaiah’s prophecy was recorded in the Hebrew Bible, grain crops all around the Mediterranean were commonly threshed by driving a flint-studded wooden sledge over sheaves strewn on a prepared floor. Grain could also be threshed with a flail, or by driving animals over it; but of all these methods, the threshing sledge and floor produced the most distinctive archaeological traces. Threshing floors are common to sites from at least classical antiquity on but have rarely been studied, even though they reflect specific agricultural practices, and the organization of labor under different conditions of craft production and village life. Threshing floors are now obsolete almost everywhere, and the traditional practices are becoming extinct. Ethnoarchaeological information about threshing floors and sledges, which will allow us to interpret archaeological remains, needs to be collected in the next few years before those who remember traditional agriculture are gone.

Threshing: A Fundamental Agricultural Technology

Until the 1950s, the threshing sledge was in common use in Cyprus. Today it has been replaced entirely by tractor-powered threshing machines and combines. In 1995, I interviewed a number of elderly villagers in Cyprus about traditional agriculture and village life, and recorded old threshing floors. One enjoyable advantage of ethnoarchaeology is that it not only provides technological details that may be useful for archaeological interpretations, but also allows us to see the human side of a technology, how it fits into peoples’ lives, and what they thought about it. Agricultural features are an important part of the economic landscape, and reflect not only subsistence technology, but also social and economic organization.

E. Gjerstad photographed these dhoukanes (threshing sledges) threshing on a large terraced aloni, probably between 1920 and 1935. Photograph courtesy Cyprus American Archaeological Research Institute.
Although there was some variation within Cyprus, and much more across the whole Mediterranean region and through time, Cypriot threshing serves as a good example. The technology involved two major items of particular archaeological interest: the threshing sledges (dhoukanes), and the floors on which they were used (alonia).

**Cypriot Agriculture**

Until the 1950s, Cypriot agriculture was largely subsistence farming, a system probably not much different from the agriculture of the Middle Ages and classical antiquity. Today however, modern equipment and a booming tourist economy have changed rural Cypriot life, and the traditional villages are either slowly being abandoned or replaced by summer villas. However in the countryside there are still many elders who remember what it was like before World War II. Their gracious hospitality toward inquisitive strangers made this study possible.

Andreas Georghiou of Psematismenos village and his wife were in their 80s when we talked to them in the summer of 1995. Manolis Karolos, a former neighbor who arranged the interview and translated, described Georghiou by saying that he was such an enthusiastic farmer that he never spent time in the kapetanion (café), a most striking comment on his diligence. He is still farming some, and, in anticipation of our visit, had even gone out to his fields and brought back a sheaf of wheat to show us how they were tied.

**Harvesting**

Grain and other field crops were harvested with sickles, a labor intensive practice. According to Mr. Georghiou, since harvesting often was too much work for any one family, additional workers were usually hired. There were some who specialized at this task, and often were equipped with large sickles decorated with tassels and mirrors on the handles. Men typically cut the grain while women tied up the sheaves, but sometimes both sexes did both jobs. It was hard work: unpleasant, given the hot and dusty conditions; uncomfortable, bothered by the prickly sheaves; and even dangerous, since the fields harbor occasional vipers. Georghiou demonstrated how he tied together cut stalks of grain in small sheaves in the field, with a deft twist of straw.

Some elder villagers, especially those with remote fields, still harvest their grain by hand, and carry sheaves to tractor-powered mechanical threshers, which replaced dhoukanes in the 1950s. These old threshing machines are still in wide use and are set up in the fields or any other convenient location. Threshing floors are no longer required, although at Psematismenos, as elsewhere, the first threshers was set up on one of the alonia in 1954, and everyone brought their grain there. In 1954 Georghiou also brought a horse-drawn mower to Psematismenos, which reduced some of the sickle work. This innovation caused quite a stir. The first time he used it, the whole village came out to watch. Today it lies rusting in a field near the church. Later still, Psematismenos got a kombai (combine). Today, combines are replacing the mechanical threshers, especially where fields can be consolidated into larger plots. The appearance of these large machines have had a significant impact on a wider arena of social relations as well, since, in the process of shifting to the new technology, old field patterns are being obliterated.

**Threshing Floors**

The threshing floors at Psematismenos have been destroyed by modern development, but typically alonia were clustered around the edges of a village. This desirable arrangement was explained to us in Galataria by Papas Nikolaos Kalogyrou, the village priest, who is about 70 years old, and by Panagiotis Kerimis, 83 years old, and several of the latter's kin. While a family's fields might be at some distance, the alon was
usually near the village for ease of transporting the chaff and threshed grain to storage, and getting the animals and dhoukanes to and from the threshing floor. As at Galataria, alonia were usually clustered, because cooperation and socialization were important. Donkeys or carts brought the sheaves to the alonia, and sheaves were opened and spread on the floor in a layer some 30 cm thick. Lentils and beans were threshed with a flail or by treading. Grain, primarily wheat and barley, was threshed with a dhoukani (threshing sledge), because it was desirable to chop the chaff up finely. The chaff was stored for animal feed.

Threshing

When the grain was ready for threshing, the dhoukani was hitched to a team by a chain attached to the front cross piece that helped hold the two planks together. A driver stood or sat on a chair on the sledge, and the dhoukani, which weighed about 50 kg, might be weighted down with stones or children if the draft animals were strong. The usual team was a pair of oxen, but donkeys and horses, singly or in pairs, were also used. A single dhoukani usually worked each aloni, but sometimes there was room for two, circling in opposite directions, which left pleasing patterns in the grain. Really large alonia, like those at Neo Chorio, could accommodate several teams.

The driver goaded the oxen around the aloni with a long slender stick, which might have a nail on the end. The nail worked best on animals that were not too strong; Mr. Georgiou remembered being dragged off the aloni and through the village streets by an ox he had stimulated a little too vigorously. Mr. Georgiou said reins were used with a nose-loop rather than a bit, and the animals were muzzled. Other informants said they did not muzzle the animals, but remembered that one occasionally had to stop and run forward with a can “when the animal raised its tail” to defecate. As the dhoukani went around, the grain was turned repeatedly with winnowing forks so that it could be threshed thoroughly.

The Threshing Season

Although the threshing season included serious business and hard work, it was also a festive time. Mr. Karafitis remembered that his school classes were dismissed early in the afternoon so the children could help with the harvest, and they would run to ride on the dhoukane and “accidentally” tumble off into the soft chaff. In the heat of July, riding the dhoukani was not always pleasant. Sometimes the breezes were better in the evening, so people would thresh into the night, singing under the moon to amuse themselves as they guided the oxen. Although it was important to keep one’s grain separate from that of others, and everyone threshed on his own aloni, threshing and winnowing was more pleasant and efficient if people cooperated. Papas Kalymos remembered that “the alonia were close together because everyone helped everyone else; you could not do it all yourself, so you would go help someone one day, and he would help you the next.”

Threshing season was defined not just by the ripening of the grain but also by the weather. First it had to be dry so the grain would thresh out and the chaff cut cleanly. Galataria villagers tried to thresh before July 20, the feast of Saint Elias, at which date the weather often changed for the worse. But sometimes threshing took until the 15th of August, the Feast of the Panagia (the Blessed Virgin).

A good breeze was crucial for the winnowing. The grain was tossed into the air with flat wooden forks (thrikakis) and the breeze would deposit the chaff at the edge of the aloni while the heavier grain fell to the floor. The winds even had names, usually reflecting a village in the direction from which they came. Weather was a complicating factor when people cooperated and had to decide whose turn it would be to receive help. Since there was very little cash money in the villages, workers were paid at least in part with large meals. My informants in Galataria teased Mr. Kerimis about the time it was his turn to winnow, when despite prayers, the weather stayed calm and he had to feed his workers for ten days before they could complete the work. He claimed, in his turn, that they were simply lazy, and had in fact prayed for the wind not to rise, so that they could eat without working.

As the threshing progressed, children would ride donkeys loaded with chaff back and forth from the alonia to the storage lofts attached to the courtyards of the farmers’ houses in the village. The threshed grain was piled on the aloni and poured into containers, but had to be assessed for taxes before it was taken home. According to the Galatariiotes, the British tax was one in ten. This led to a long series of stories from village folklore, not unrelated to the current political situation, about how the earlier oppression by the Turks (Ottomans) had been even worse.
Threshing Sledges

The threshing sledge (dhoukani, or voukani in Cypriot Greek) was a wooden sledge whose underside was studded with flint flakes or occasionally metal blades. In Cyprus they were made of two pine planks fastened together with dowels in the edges, and with cross pieces on the upper surface to form a sledge about 2 m long and 60 cm wide, with the front end turned up.

Dhoukanes

Threshing sledges have been described by anthropologists all around the Mediterranean, in Turkey (Bordaz 1965, 1969; Ataman 1992), Greece (Myres 1981), Bulgaria (Skakun 1999), Spain and Portugal (Hornell 1931; Oliveira et al. 1983), and Palestine (Darwish 1986; Turkowski 1969) as well as Cyprus (Hornell 1980; Crawford 1935; Pearlman 1984). Threshing sledges were well-known in Roman times; our word “tribulation” preserves their Latin name of tribulum, and a good description was given by Varro (first century BCE) in his agricultural manual De Re Rustica (White 1967). Even earlier texts appear to refer to threshing sledges from Sumer and in the Hebrew Bible (Adams 1975). They have not yet been documented in any ancient archaeological contexts, but the late survival of a stone tool technology in threshing sledge blades has attracted some archaeological interest (Bordaz 1965, 1969; Fox 1984; Kardulas and Yerkes 1996; Pearlman 1984; Whittaker 1996).

Athkia kadhes

Dhoukanes in Cyprus were made and repaired by specialized craftsmen, athkia kadhes, or flintknappers (Pearlman 1984; Whittaker 1996). Some were full-time specialists who built the wooden sledges as well as knapping and inserting the flints, while others primarily worked stone. Alphredhos Andreou of Anarita village, who was 66 in 1995, was one of these. I have described his craft and dhoukani flints in more detail elsewhere (Whittaker 1996). As a boy, he was apprenticed to an athkiakas from Laphitos in the north of Cyprus. They followed a seasonal round, collecting flint and knapping it at the sources in southern Cyprus in the spring, and then returning home via

The underside of a dhoukani, made of two planks and studded with sharp flint flakes.

A close-up of a dhoukani shows the flint flakes hammered into slots cut with a special chisel. This one has traces of asphalt used to further secure the flakes. Mr. Andreou regarded that as a sign of inferior workmanship—his flakes stayed in place without it.
a series of villages where they repaired *dhoukanes* in preparation for the threshing season in June and July (Jonas 1992). Eventually Mr. Andreou set himself up in his home village of Anarita, and specialized in knapping and *dhoukani* repair. *Dhoukani* flints are dull in use, and develop a strong polish from friction with the grain (Kardulias and Yetkes 1996; McCartney 1993; Whallon 1978). They also fall out occasionally, and Andreou said *dhoukanes* needed to be repaired every year or two. Each family would own one or two *dhoukanes*, so knapping was a profitable career (Whittaker 1996).

According to Andreou, most knapping was done at the flint sources, but setting the flints in the *dhoukanes* also required some trimming. Flints were also occasionally made in the customers’ villages, or even at the threshing floors, with the *arkhakas* working under a convenient shade tree. Accordingly, a certain amount of small flint debris, as well as lost *dhoukani* flints, might be expected at *alonia*.

**Threshing Floors**

Although threshing floors are common and durable features, and have occasionally been recorded by classical archaeologists (Loftman 1992; White 1970; Murray and Kardulias 1986; Young 1956), no one seems to have published any detailed descriptions of either prehistoric or modern examples. Two sets of *alonia* in the Paphos district of Cyprus show some of the different traits, and common patterns that reflect the importance of threshing floors in village life.

**The Galataria Alonia**

The cluster of seven *alonia* mapped at Galataria represent only some of the *alonia* once present in that village. Before civil war and partition in 1974, there were some two hundred
Alonia in the past. Today Galataria has around seventy people, mostly elderly, and the threshing floors, which went out of use in the 1950s, are slowly being obliterated or transformed. A few survive because the village is shrinking, and the small plots on a steep hillside each have different owners, making it difficult to consolidate them for other purposes. None of my informants knew when the alonia had been built, and no one remembered building alonia, but all agreed that they were built by individual farmers with the help of kin and friends.

The alonia at Galataria are small round plots, 12–18 m in diameter, with stone walls, terraces, and limestone slab floors. Because they are built on the slope, the uphill wall tends to stand 30–50 cm above the floor and forms a terrace holding back the hill above. On the downhill edge, the flagstone floor is level with the wall or forms its top, and the edge of the aloni forms a terrace 80–100 cm high. The open downhill sides of all the alonia face the prevailing winds. Some informants outside Galataria felt that the slab floors indicated a prosperous village. Papas Kalogyrou felt it was simply to keep the grain cleaner, although he boasted that Galataria wheat had been known for its quality.

The Neo Chorio Alonia

The alonia at Neo Chorio differ in form and distribution from those at Galataria. With the help of Ara Nigogossian, a local resident, I was able to locate seven alonia, five small and two large. As none of the Neo Chorio alonia had flagstone floors, they have preserved less well. Five surviving round alonia, 20–25 m in diameter were scattered along ridges outside the village. All appeared to have had lime plaster floors at one time, but portions of floor remained on only three. Each aloni had a low terraced, open front which set it above the surrounding fields. Backs were partly walled and partly cut into the slope. All the walls at Neo Chorio were horizontal courses of limestone blocks.

About a kilometer from the village were two extremely large rectangular alonia. The first, Aloni 2, measured 45 x 37 m. The front (south) edge was terraced about 50 cm above the surrounding field and

people in the village. Most families would have had an aloni, and Papas Kalogyrou thought there had been forty or fifty alonia.
lane, and open to the prevailing wind from the southwest. The back was enclosed by a wall, still standing 1.5 m high. The second of the large aloni (Aloni 3), was unterraced and at the same level as the adjoining fields, but it was walled on three sides, and about 30 x 43 m. Both aloni had lime plastered floors, now eroding to bedrock.

According to local informants, these large alonia had belonged to the richest man in the village. He was the mouktar (mayor) under the British, and managed to accumulate vast properties in the late 1800s. Many men worked for him, farming his land, and I was told that several dhoukanes would work at once on the large alonia. Both alonia now receive casual use; construction rubble was dumped in part of Aloni 2, and large piles of sheep manure and barnyard debris occupy much of Aloni 3.

Conclusions

Although the threshing floors shown represent only part of the variability to be encountered in Cyprus, some essential commonalities are recognizable. They are in fact stated by the Cypriots themselves, and can be recognized elsewhere as well in both archaeological interpretations, and in ancient literary references (Young 1956; White 1970). When I asked Papas Kalogyrou what made a good aloni, he replied that it had to be on your land, because every family needed one. It had to be level, and near the village so that people and animals could get to it easily. It should have a good clean surface that requires little upkeep and keeps the grain clean; flagstone surfaces are best because less grain is lost. My own observations suggest that packed earth, chalky subsoil or bedrock, and lime plaster surfaces are also likely to be common. To this we can add that alonia are usually bounded by walls both to mark the property and to contain animals, grain, and chaff. While the edge toward the prevailing winds tends to be open and is often on a terrace above the surrounding ground, the wall on the downwind edge tends to stand above the floor. Alonia tend to be in clusters because of the desirability of cooperative labor and socialization. Alonia need wind for winnowing, a further reason to be on the outskirts of villages, and also frequently on ridges or other exposed locations. They tend to be simple structures of walls, terraces, and floors, with few small specialized features or other elaborations. At some alonia, the characteristic flint flakes lost from dhoukanes, and flaking waste from their repair can be found. Alonia are difficult to date. Sherd ranging from ancient to contemporary are found almost everywhere and are difficult to associate with the use of an aloni.

More ethnoarchaeological studies of threshing, and more detailed archaeological examination of ancient alonia, are both necessary because threshing floors have been important features of village life all around the Mediterranean for thousands of years. Although few archaeologists have attempted to interpret or even to describe them, the recognition and study of threshing floors could help understand a number of issues.

Threshing floors are evidence of specific kinds of agriculture and specific agricultural techniques: they are everywhere associated with grain agriculture, although legumes and some other crops may also be processed on them. Threshing practices are also evidence of the wider cultural contexts. In Cyprus and elsewhere, alonia are associated with the use of threshing sledges, which in turn imply a late survival of lithic technology, and a complex system of artisans and markets. The presence of large or multiple threshing floors may indicate wealth, high productivity, or cooperative labor.

As combines and other modern technologies replace traditional methods, the old agriculture fades away. Along with dhoukanes and alonia perish the wooden forks for winnowing, ox teams for traction, and other specialized equipment, as well as the craftsmen who made and maintained these tools. The Cypriot branch of an agricultural technology that was once used throughout the Mediterranean is almost extinct. Only a few more years remain to record the memories of those who used it.

Not all are sad to see the passing of traditional agriculture.
While some have happy memories of the threshing to Anthoula Dynesiou, an old weaver in Stroumpi, threshing was a symbol of hardship. When we asked her what the old days were like she said: "It was great torture. It was so very hard. We grew everything. First we had to plant the crops, then harvest them, thresh, and sort the wool. I rode the vourkani all day. Around and around and around went the vourkani, and around and around went my head! I used to pray to God," she gestured dramatically, "Please let me off this vourkani, don’t make me do this all my life! Even when you went to rest at the end of the day, there was no rest, you had to care for the oxen, and sort out the tools, and feed the other animals. Later my prayers were answered, and we got threshing machines. But by then ..., " she paused and stared sadly at us, "... I had lost my youth."

The variable meanings of a technology, its subtle flavor, and the technical details of how it is performed are rarely seen except through ethnography. For better or worse, when Anthoula, Alphredhos, Georgiou and the others of their generation are gone, we will be left with only the material remains and the writings of archaeologists to remember and interpret an agricultural tradition that is centuries old.

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94 Pottery Production in the Troad: Ancient and Modern Akköy
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102 Continuity and Change in Cypriot Pottery Production
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On the cover:
An Anatolian craftsman in Konya shows off the flint teeth in his new threshing sledge.

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