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Sitagroi in 2013

A Fresh Evaluation of Wild Resource Exploitation during the Neolithic and Early Bronze Age

MARIANNA NIKOLAIDOU¹, ERNESTINE S. ELSTER², AND JANE RENFREW³

INTRODUCTION: TASTES FOR THE WILD IN A PREHISTORIC FARMING VILLAGE

This contribution to the 40th Anniversary edition of *Backdirt* has given us an opportunity to revisit the 40+-year-old excavation of Sitagroi, a prehistoric village in Northeast Greece. We consulted the data-rich volumes of the site report (*Sitagroi 1*, 1986; *Sitagroi 2*, 2003⁴) to evaluate the evidence for, and significance of, hunting, fishing, collecting, and foraging, albeit in the context of a fully agrarian village. Our thesis is that the villagers—men, women, and children—purposefully sought out wild resources for practical reasons while also expressing their perceptions of the natural world, decision-making, cooperating, sharing, negotiating, learning traditions, creating material culture, and attributing symbolic meanings and value to these wild resources (see Ingold 1988; Kaufmann 1992). These practices are of additional interest in the context of an agricultural economy in which there seems to have been no primary biological-economic need to pursue hunting and gathering. Although our focus is on the prehistoric agriculturalists from Sitagroi, we also refer to other comparable

sites in the Northern Aegean that were consistently occupied with gathering and hunting.⁵

Sitagroi, situated in the Drama Plain of East Macedonia, is a key site in the map of prehistoric northern Greece (Fig. 1). The tell, located close to the Angitis River about 25 kilometers from the modern Aegean coast, was formed over the course of some 3,000 years from the Middle Neolithic through Early Bronze Age, divided chronologically into Phases I–Vb (Table 1). Excavations between 1968 and 1970, jointly undertaken by the UCLA Institute of Archaeology and the University of Sheffield, were carried out in the scientific spirit of New Archaeology, which Sitagroi spearheaded in Aegean prehistory. The key research goal, to “further the understanding of relationships between material culture and environment in the plain of Drama and more widely in the

5 Among the plethora of prehistoric sites investigated in Northern Greece since the 1970s (Andreou et al. 2001), important ongoing projects (and web sites) include:

Dikili Tash, in the Drama Plain near Sitagroi: Treuil 1992, 2004; Koukoulis-Chryssanthaki and Treuil 2008: http://www.dikili-tash.fr/index_en.htm

Dispilio Kastorias, Northwest Macedonia: <http://dispilio.web.auth.gr/>

Avgi Kastorias, Northwest Macedonia: http://www.neolithicavgigr/?p=1304&langswitch_lang=en

Paliampela, West Macedonia: http://temper.web.auth.gr/index_en.html

Makrygiolos, North Aegean Coast: Pappa and Veropoulidou 2011: http://odysseus.culture.gr/h/3/eh352.jsp?obj_id=2502

Archontiko Pellas, West Macedonia: <http://www.hist.auth.gr/en/Departments/Archaeology-and-History-of-Ancient-and-Byzantine-Art-and-Civilization/Excavations/Archontiko>

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4 For the full titles of the publication see Abbreviations at the end of the paper. This paper is based on data from the various chapters in Sitagroi volumes 1 and 2 and readers are directed to these volumes. Space limitations dictated listing in full only those chapters from the Tables of Contents that are referenced frequently in the paper.



Figure 1. Map of Northern Greece; Neolithic and Early Bronze Age sites, including many mentioned in the text (adapted from Theodoropoulou 2011, 94, Fig. 1).

Balkans” (*Sitagroi* I, 15), was materialized in methods of fieldwork, recording, and analysis that were innovative for their time.

This was an agricultural world with activities that inform our thinking about the men, women, and children who planted, herded, cooked, built houses, established households, nurtured babies, manufactured tools and goods, traded, and socialized. Interspersed in this way of life, we see distinct preferences for gathering, collecting, foraging, fishing, and hunting. Shell ornaments and implements (Nikolaidou 2003); impressions of textiles and of reed mats on pot bases (Adovasio and Illingworth 2003, 252; Elster 2003a, 246); paleobotanical evidence for collecting wild fruits, nuts, and seeds (J. Renfrew 2003); remains of wild animals, birds, fish, and shellfish in the faunal record (Bökönyi 1986; N. Shackleton 2003); and tools fashioned of wild animal bone and antler (Elster 2003b) are all part of the archaeological record. They constitute material evidence for age-old ways of life and economies existing long before the Neolithic, growing new roots into the process(es) of Neolithization (Perlès 2001), and continuing through the Early Bronze Age and beyond.

THE SPECTRUM OF RESOURCES

Some of the most innovative finds from the site, which revolutionized prehistoric research in the region, belong to the realm of the “wild” (J. Renfrew 1973 and 2003).

Wild grape. Use of the wild grape, which is listed in Table 2 along with other collected plants, is attested from the Late Neolithic at Sitagroi, and the Early Bronze Age offers evidence for early, possibly local domestication of the species as well (J. Renfrew 2003, 13). The presence of wild grape in the region has also been confirmed in Late Neolithic levels of Dimitra and Dikili Tash, and the latter site has recently produced remarkable *in situ* evidence for

Phase	Duration (radiocarbon years B.C.E.)	Duration (calendar years B.C.E.)
Vb	2100–1800	2700–2200
Va	2400–2100	3100–2700
IV	2700–2400	3500–3100
III	3800–2700	4600–3500
II	4300–3800	5200–4600
I	4600–4300	5500–5200

Table 1. Sitagroi chronology (after C. Renfrew 2003, xxvii, Table 1).

Sites	Aceramic Neolithic					Early Neolithic					Middle Neolithic					Late Neolithic					Final Neolithic					Early Bronze				
	Grape	Almond	Cherry	Fig	Acorn	Grape	Almond	Cherry	Fig	Acorn	Grape	Almond	Cherry	Fig	Acorn	Grape	Almond	Cherry	Fig	Acorn	Grape	Almond	Cherry	Fig	Acorn	Grape	Almond	Cherry	Fig	Acorn
Achilleion					X					X																				
Apsalos										X		X	X	X																
Arapi														X				X												
Archontiko																									X		X	X	X	
Argissa	X			X				X	X															X			X			
Arkadiko																							X	X						
Balomenon					X			X					X																	
DikiliTash																				X		X	X	X	X					
Dimini															X	X			X	X										
Dimitra															X		X													
Franchthi						X				X	X				X	X				X	X									
GiannitsaB					X		X																							
Kalythies																			X											
Kastanas																								X		X	X	X		
Knossos		X		X		X	X		X	X		X																		
Lerna																			X					X			X	X		
Limenaria										X		X															X			
Makri														X	X	X	X													
Makrygialos														X		X	X	X												
Mandalo																			X		X	X	X	X	X		X	X	X	
Myrtos																								X						
Nea Nikomedeia							X		X																					
Olynthos																				X										
Otzaki							X					X																		
Pevkakia														X	X		X		X	X		X	X	X			X			
Prodromos							X		X																					
Rachmani																							X							
Sarakinos																			X											
Servia										X	X	X		X		X		X						X						
Sesklo			X	X	X			X		X		X			X			X												
Sitagroi										X				X	X	X	X		X	X	X		X	X		X	X	X	X	
Stanropouli														X		X	X													
Thassounion																			X											
Thermi														X																
Tiryos																									X			X		

Table 2. Principle wild plants found in Prehistoric Greece (after J. Renfrew 2003, 24–27).

Neolithic processing of grapes, for wine-pressing or other juice extraction (Valamoti 2007; Valamoti et al. 2007).

Wild vines are widely distributed in the Mediterranean area, from the shores of the Caspian Sea to the Atlantic coast of France, and throughout Greece,

and grape pips occur with remarkable frequency in Neolithic and Early Bronze Age sites. In archaeological contexts, the pips are the most frequent finds, although in some cases the skins and fruit stalks (pedicels) also survive, as do very occasionally whole carbonized fruits. The problem is how to distinguish

between the remains of wild and cultivated grapes. In general, the pips of the wild fruits are more or less globular in shape, whereas the pips of cultivated grapes are longer and more pear-shaped. The fruit stalks of cultivated grapes tend to break off from the bunch when the ripe fruits are picked: in wild grapes the stalks are more robust and stay adhering to the rest of the bunch. There are, however, wide variations especially in the cultivated forms, and there is quite an overlap in size and shape of the pips. To complicate matters, spontaneous crossing between wild and cultivated forms occurs quite frequently.

The finds from Sitagroi show a development from the globular pips of wild grapes in Phases III and IV, to the more elongated pips of cultivated grapes and associated pedicels in Phase V (J. Renfrew 2003, 12–14). This raises the question of whether there was a local domestication in northern Greece. The find of grape pips and skins from Dikili Tash dating to around 2500 B.C.E. suggests that wine-making was already underway in northern Greece by this time, as do similar finds from the Early Minoan site of Myrtos in Crete. Grapes were important as a food source: the fresh berries contain 15–20 percent sugar, and fruits can be easily dried and stored as raisins. The juice can be made into wine, verjuice, or vinegar, and an edible oil can be extracted from the pips. Wine was especially important as it could be stored in sealed containers and traded as an exotic product, most notably in the Greek Bronze Age and later.

Other commonly found plant foods include figs, almonds, Cornelian cherries, and acorns, which were clearly collected to supplement the diet and/or to be otherwise processed (J. Renfrew 1997).

Figs. The fig tree, *Ficus carica* L., is also found widely around Greece, and wild figs typically grow at low altitudes in the Mediterranean *maquis* and *garigue* vegetation. They like to grow in rocky crevices, gorges and beside streams. There are two forms: the female is known as the true fig, and the male as the capri fig. Evidence of wild figs is abundant in early Neolithic sites in the Mediterranean basin. The trees seem to have come into cultivation by the Early Bronze Age in close association with the cultivation of the vine and the olive, but it is very difficult to distinguish between the pips of wild and cultivated figs in palaeo-ethnobotanical finds. Figs may be eaten fresh, or dried to be consumed out of season. Their value as a foodstuff lies in their high sugar content;

dried figs contain over 50 percent sugar, and thus form a valuable source of sweetening for societies with neither sugar cane nor sugar beet. In Classical Greece, they were also used as fodder for pigs.

Almonds. The almond, *Amygdalus communis* L., is the most widely cultivated nut in the Mediterranean basin. The nuts are either sweet or very bitter. The bitterness is due to the presence of glycoside amygdalin, which becomes deadly prussic acid after the seed is crushed or chewed. Almonds were collected from the wild long before domestication: carbonized shells were found in Mesolithic and Neolithic levels at the Franchthi Cave in southern Greece. A large find from Hallan Çemi Tepesi in southeastern Turkey, dating to about 8000 B.C.E., consists of charred wild fruits; these must have been treated to remove their latent toxicity either by leaching out the water-soluble prussic acid or by the extraction of almond oil. They appear to belong to the group of earliest fruit trees to come into cultivation. The kernels can be eaten fresh, or used in ground form in baking. They have a high fat content, about 50 percent, and a bland oil can be extracted from kernels.

Cornelian Cherries. *Cornus mas* L. is represented by its carbonized fruit stones. The fruits can be eaten fresh or dried, and today unripe fruits are pickled in brine and eaten like olives with a similar bitter taste. In France, they are sometimes preserved in honey. They can also be used to make an alcoholic drink.

Acorns. The fruits of *Quercus* sp., acorns are present on many prehistoric sites in Greece and are also found widely throughout prehistoric Europe. They appear to have been collected for use as human food: if they had been intended to feed pigs, it would be much less labor intensive to take the pigs into the forest to forage for themselves. The ancient writer Theophrastus describes the acorns of the different species of oak according to their sweetness, with those of the Valonia oak, *Quercus aegilops* Boiss., being the sweetest. He reports that in Macedonia, the acorns of *Quercus robur* L. are the sweetest, and that in Arcadia the acorns of the Holm oak, *Quercus ilex*, are sweeter than those of the Kermes oak, *Quercus coccifera* L. The challenge of using acorns for food is to extract the bitter tannins: this can be done by boiling or roasting them. Most archaeological finds consist of carbonized cotyledons, suggesting that they may have been roasted. Since the acorn cups or cupules do not survive, it is difficult



Plate 1. Left to right: Andrew Sherratt, Colin and Jane Renfrew, examining the large pits of the EBA bin complex; some were storing acorns; taken in 1986, on Sitagroi mound.

to assign them to species. Acorns were ground into flour to make bread in times of famine in medieval Europe, and it is possible that this was also the case with the large Bin Complex deposits found in the upper Early Bronze Age levels of Sitagroi (Plate 1). They can also be used as a vegetable dye and for tanning leather.

Many more species of wild fruits (see Table 2) were collected in season in the Neolithic and Early Bronze Age, but occur on very few sites: these species include cherries, wild pears, blackberries, elderberries, rosehips, hazelnuts, and capers; no doubt all added variety to the diet.

Shellfish. Among the collected/harvested materials, shells stand out for their strong presence among archaeological artifacts, shaped and worked into ornaments, tools and implements. In these materials, we observe interesting behavioral choices of form and functionality, across space and time.

The inhabitants at Sitagroi have not left behind evidence for strong dietary interest in the abundant seafood available at the Aegean coast; on the contrary, they deliberately sought certain species for their ornamental value as beads, pendants, bangles/

anulets (Fig. 2), and plaques. The marine shells of choice were, interestingly, those that were more difficult to obtain: *Spondylus gaederopus*, which has to be pried live from rocks deep underwater, and large *Glycymeris*, which lives buried deep in sandy beds (Miller 2003, 369; Nikolaidou 2003, 331; Shackleton 2003, 361). Although both species boast a tasty flesh, this aspect was apparently ignored, not only at Sitagroi, but in most other Neolithic sites (see Pappa and Veropoulidou 2011); although empty, unworked valves occur at times and could represent food remains, tangible evidence for culinary consumption of *Spondylus* so far comes principally from the Bronze Age and further south in the Aegean (Veropoulidou 2011).

Fishing for these marine mollusks is documented since the Middle Neolithic at Sitagroi. The predilection for the ornamental use of *Spondylus* and *Glycymeris*, despite differences in their respective treatment (Ifantidis 2011), is indeed a defining feature of Neolithic ornament technologies both within the Drama Plain, and all over northern Greece. Artifacts fashioned from the valves were intended for local use but also circulated widely within and

beyond the Aegean regions (Dimitrijević and Tripković 2006; Séfériades 1995). Not only was acquisition of marine bivalves an involved procedure; the profound transformation of the thick *Spondylus* shell into bangles/anulets and beads also required technical expertise, patience, and hard work. The labor invested in procurement and crafting, coupled with the attractive, exotic qualities of the shell, undoubtedly account for its remarkable popularity as an ornament in the Aegean and European Neolithic (Ifantidis and Nikolaidou 2011). Workshops have been documented or inferred at Sitagroi, Dimitra, Dikili Tash, Paradeisos, Makrygialos, Dispilio, and Dimini, all important centers of manufacture and regional/interregional circulation (Theodoropoulou 2011). This fascinating evidence for long distance trade of desirable items in the Neolithic has been continuously revisited (most recently Bajnóczi et al. 2013), ever since the pioneering sourcing studies of N. Shackleton and C. Renfrew (1970), which indicated the Aegean origin of *Spondylus* recovered from Sitagroi and elsewhere.

While in the Middle and Late Neolithic *Spondylus* and *Glycymeris* were used interchangeably at Sitagroi for the technically demanding bangles/anulets, in Chalcolithic Phase III the stronger, chromatically appealing *Spondylus* was the shell of choice for this ornament; the smaller *Glycymeris* were used for simple perforated pendants and beads (Miller 2003; Nikolaidou 2003). The latter were also conveniently made of *Dentalia*, a popular shell with a long, hollow shape lending itself ideally to effortless stringing. Among the repertoire of shell pendants, most were simply perforated natural forms or even pieces with handy, naturally occurring holes. A few more intricate shapes are found, including *Murex* rings and large perforated discs cut from thick *Spondylus*, the latter rather more useful as garment fasteners—perhaps a larger version of the well-known “buttons.” Indeed, a variety of *Spondylus* artifacts were possibly used as costume accessories in the Aegean and further north—heavy or elaborately shaped beads, “buttons” (Fig. 3), and belt buckles—which were attractive adornments but also powerful signifiers of value and likely prestige (Siklósi and Csengeri 2011; Theodoropoulou 2011).

Of the “functional” shells, useful for food and implements, *Unio pictorum* is the dominant edible species, and indeed the only shellfish whose consumption is attested at Sitagroi. This freshwater

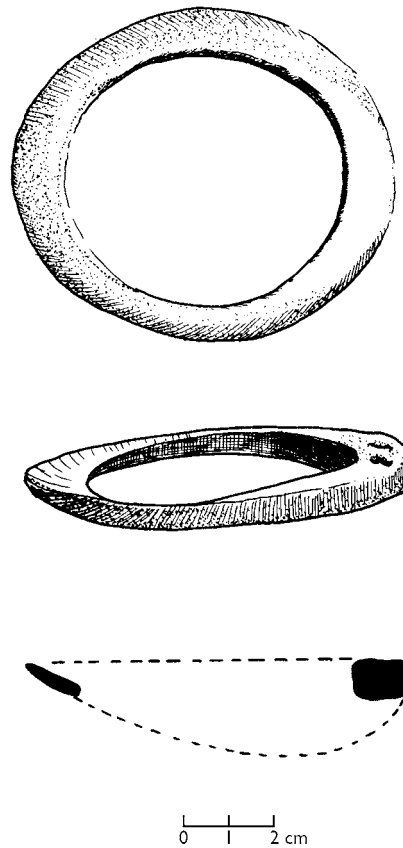


Figure 2. *Spondylus* bracelet/anulet drawing (after Nikolaidou 2003, 339, Fig. 9-5).

mollusk, abundant in the Angitis River close to the settlement, was ignored for ornamental purposes but was occasionally worked around the edges; in one case, it became a convenient container for red ochre, a pigment used to decorate figurines and presumably also useful for body or textile painting (Nikolaidou 2003). *Mytilus*, the Mediterranean mussel with a natural triangular form, offered an ideal shape and a sharp edge for a tool, likely to have been used, among other things, as little palettes or knives for the incision of ceramic decoration (N. Shackleton 2003). Interestingly, most of these worked triangular mussel shells date from Phase II, the ceramic repertoire of which features incised pots, distinctive small tripods or stands, miniatures (Elster and Nikolaidou 2003, 435, Figure 11.38), and figurines (Gimbutas 1986, 243) (Fig. 4).

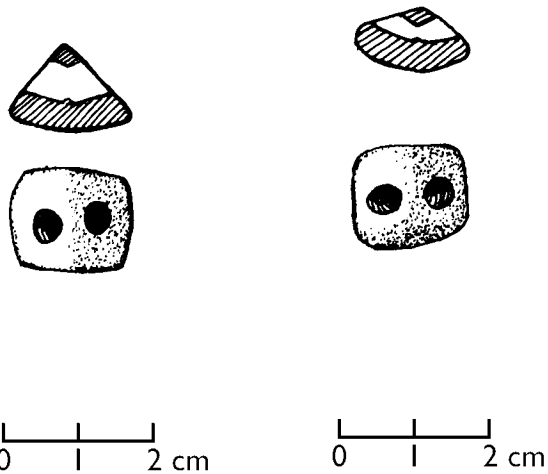


Figure 3. Buttons of *Spondylus* (after Nikolaidou 2003, 345, Figs. 9.18 and 9.19).

Along the temporal dimension, it is worth noting the increased quantities of *Unio* among the residue of Phase IV, the very same period that sees dramatic increase in the quantities of acorns, and among the faunal remains, taxa from wild game. The culinary tastes of the times may perhaps be sensed in the remains of a “soup” containing acorns, cockle shells, and *Polygonum* seeds, all found together in a pot from a house of Phase IV (Sherratt 1986, 441). Two other pots were recovered with large samples of grains still identifiable within, close to a cluster of acorns in a soil depression (*Sitagroi* I, 210).

Wild animal bone and antler tools. Tools and artifacts of wild animal bone and antler were part of the faunal record identified throughout the life of the settlement (Bökönyi 1986; Elster 2003b).⁶ Scholars have identified 5 domestic and 27 wild species; Bökönyi indicated that “the animal bone sample found on a prehistoric settlement does not represent the whole fauna in a region but only that part represented by human activities . . .” (Bökönyi 1986, 63). Thus human selectivity during those periods can be inferred especially by artifacts of antler and other wild taxa. The Sitagroi settlers’ preferences are documented in Table 3. The greatest percentage of wild-animal bone recovery is in Phase IV, the onset of the Early Bronze Age (Elster 2003b, 33; Table 2.1).

Despite the changing ratios of wild to domestic fauna in the zooarchaeological record of Sitagroi, there is consistent choice of antler for tools throughout the sequence (Elster 2003b, 67). Antler, valued for its sturdy and workable qualities, would most easily be collected in the forest after it was shed. Red deer range in dense forests and the rack of the mature male is shed in February, March, and early April, but only in particular forest areas (Choyke 1998: 172). Only antler specimens with pedicle attached are clearly from hunted deer since naturally shed antlers have no pedicle (Fig. 5). In Bökönyi’s report (1986, 68–9) of the refuse bone, red deer bone and antler represented 38 percent of the total wild bone recovered. This suggests that Sitagroi

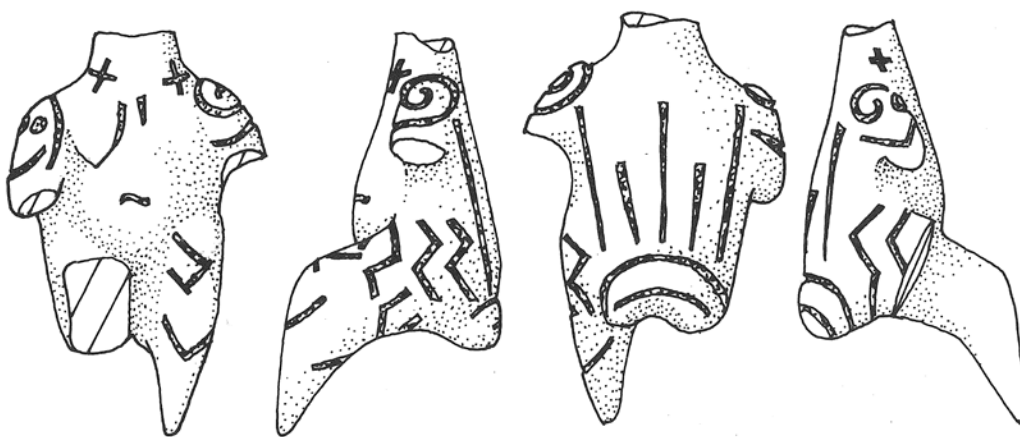


Figure 4. Incised figurine (after Gimbutas 1986, 243, Fig. 9.36).

⁶ There is currently strong interest in prehistoric bone and antler technologies. An important forum is the research group for the study of objects and waste of bone, antler, ivory, horn: <https://listserv.niif.hu/mailman/listinfo/bonetools>.

hunters were familiar with deer habits and habitats, and knew their way in the forests, successfully bringing back antler. Furthermore, skilled hunters acting within the social organization of the hunt, following whatever customs governed this activity, be they social, magical or religious, may account for the strong showing of red deer skeletal parts in the refuse bone of the settlement (Steele and Baker 1993: 26).

Bone artifacts total 452, and antler 161; the latter, seemingly much prized, is extremely resilient and absorbs shock without splitting. When the inner spongy core of a section of the rack is removed, the remaining sleeve can provide a handle for holding another tool (Choyke 1998: 171–72). Also, the number of artifacts that can be manufactured from an antler rack (Fig. 6) is potentially greater than from any other element: the multiple tines and basal, fork, or beam segments are all potentially useful. The antler beam and subsidiary tines are a bony outgrowth of the male deer’s brow, grown and shed annually. As a stag matures his yearly antlers grow ever larger, along with the diameter of the beam and the number of tines; the latter are named in relation to their position closest to the burr: first “brow” tine, followed by “bez” and “trez” tines. A cross-section of antler shows that the interior is composed of woven bone tissue, coarsely bundled together and surrounded by a compact surface or external layer that offers much more material for carving than do other types of bone (Choyke 1998: 171). Because antler is stronger and more resilient than any other part of the deer, toolmakers selected, shaped, modified, and used various sections of beam and tine. Antler at Sitagroi comes from three species: the large red deer (*Cervus elaphus*) and two smaller, more graceful

species, roe deer (*Capreolus capreolus*), and less frequently fallow deer (*Dama dama*). If we can interpolate from the experiences of modern hunters, the roe deer was especially prized for its tasty meat.

Well over half of the bone tool count (252 artifacts or 56%) is manufactured out of elements from unidentifiable taxa (Table 3). We did not incorporate this large number of tools in all of the tabulations, since identification of even a fraction of these could change the relative percentage of domestic versus wild raw material selected. Nevertheless, from the

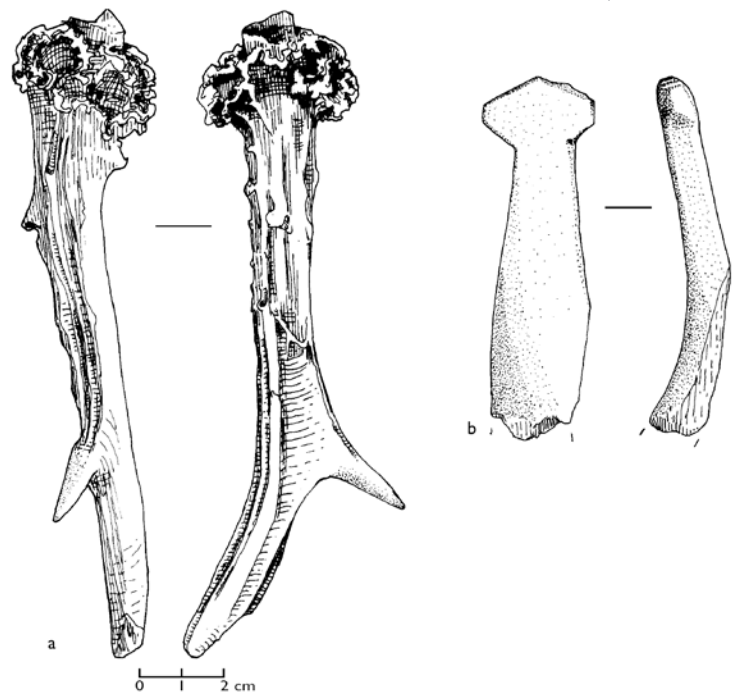


Figure 5. Left: antler beam with pedicle and wear at tip of tine. Right: roughed-out spoon from antler beam (after Elster 2003, 46, Figs. 2.12a–b).

Duration	% Domesticated	% Wild
Phase I (Early Bronze Age)	91.4	8.6
Phase II (Early Bronze Age)	96.53	3.47
Phase III (Early Bronze Age)	91.88	8.12
Phase IV (Early Bronze Age)	82.33	17.67
Phase Va,b (Early Bronze Age)	93.48	6.55

Table 3. Relative percentage over time for wild and domesticated bone taxa (after Elster 2003b, 33, Table 2.1).

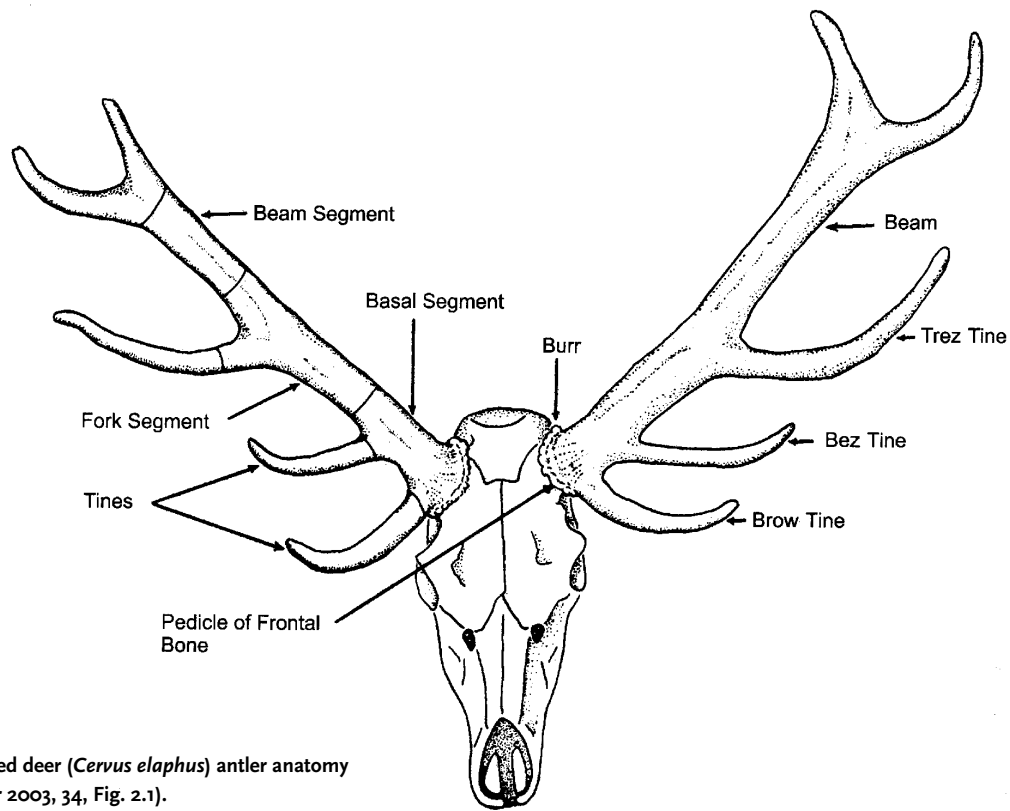


Figure 6. Red deer (*Cervus elaphus*) antler anatomy (after Elster 2003, 34, Fig. 2.1).

identifiable sample of 200 artifacts for a 3,000 year period, almost two-thirds (130) are from domesticates, and the balance (70) from wild taxa. Even though these tabulations do not present a full picture, the data suggest that bone from wild taxa was especially important to the settlers as raw material for tool-making, probably because elements from wild animals were stronger (Russell 1990: 544, 548). The hunt also offered opportunities for participants to show their skill and for leaders to emerge (Rappaport 1968), and the artifacts made of bone elements from wild and/or trophy animals might well have taken on special significance.

The repertoire of antler tools points to a variety of crafting and processing tasks with materials as diverse as hide, fiber, wool, wood, soft stone, and more. Of particular interest are the shaft-holed types, described as mattocks or other digging or hammering implements (Fig. 7a–b). Among the antler tools, these are perhaps the most demanding to manufacture and to form into part of a composite artifact. There are not many such utensils at Sitagroi, but they do cluster around the Neolithic and Chalcolithic, a phenomenon that calls for further exploration. Neolithic specialties also include a few other elaborately carved pieces of antler and bone from

Phases I and II. Some of these probably represent the shaft or handles of pans or other similar utensils (Fig. 7c), in which case they can be compared to the fanciful shapes and decorations characteristic of contemporary ceramic vessels. Indeed, all these extraordinary pieces harmonize with the pervasive preference for formal, and (probably) also semantic elaboration that distinguishes the material culture of the Neolithic.

THE CULINARY APPARATUS: FOOD, TOOLS, AND CONTAINERS

The changing culinary tastes documented in the palaeobotanical record (J. Renfrew 2003; Valamoti 2007) are reflected in novelties of the cuisine apparatus in the Early Bronze Age (Elster 1997): new, standardized types of querns, elaborate cooking installations, specialized implements such as the “oven stoppers” (Elster and Nikolaidou 2003, pls. 11.7–11.8), and a whole new repertoire of ceramics (Sherratt 1986) dominated by coarse wares appropriate for storage, transport, cooking, and serving: large jars, deep pots suitable for holding sizable quantities of food, deep handled bowls, ladles, jugs, plus individual-sized cups. These forms range from dry- and liquid-goods containers of large capacity, to medium- and small-sized vessels suited to the serv-

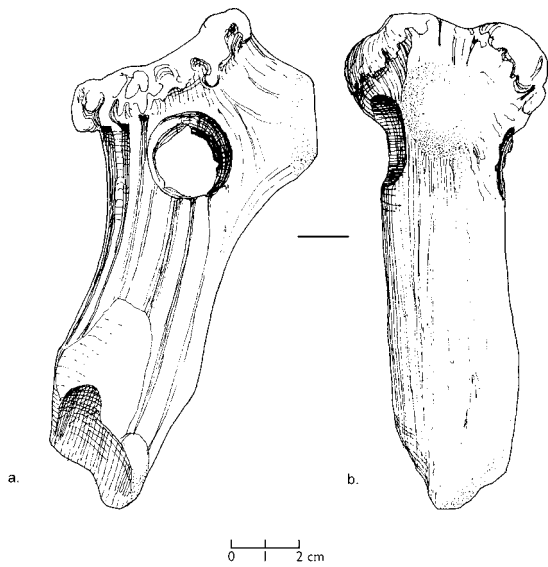


Figure 7a. Multiple-use antler beam with rosette preserved, shaft hole and hammer surface at cut brow tine; opposite end cut irregularly or worn; inner core removed (after Elster 2003, 49, Fig. 2.16).

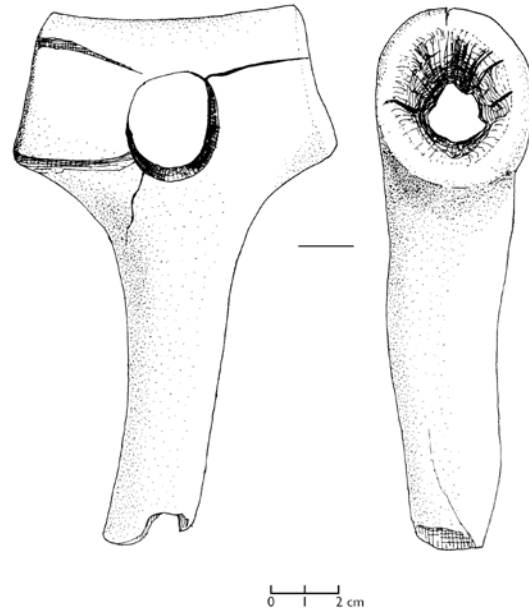


Figure 7b. Antler with shaft hole, fork segment (after Elster 2003, 49, Fig. 2.17).

ing and consumption of liquids and drinks: stews, wine, fruit juices, blood, medicinal brews, and of course milk from domesticated cow. On the other hand, we see a marked decrease of finely decorated ceramics from the onset of the Early Bronze Age onwards.

Looking back at the Neolithic and Chalcolithic pottery (*Sitagroi* I, chapters 11–12) with the predominance of small- to medium-sized pots, the high percentage of fine wares, and open shapes best suited for presentation, display, or group tasting, along with cooking and food-preparing vessels, we can perhaps appreciate the fact that the few mat/basket impressions at *Sitagroi* come from exactly these horizons of occupation (Elster 2003a). Basketry and cordage, devices already in use for millennia since the “string revolution” of the Paleolithic (Barber 2004), possibly fulfilled many of Neolithic folks’ needs for transportation, storage, cooking, and handling of large quantities of food. Lugs and small holes prepared for strings or cords appear on pots during the entire *Sitagroi* sequence. Impressions of reed mats, found on the base of pots, were identified as bilaterally split *Yucca* sp. A unique cloth impression from the Middle Neolithic, presumably woven of wild flax (Elster 2003a, 246: fig. 6.31a and pl. 6.19), provides us with a further picture of wild resource use.

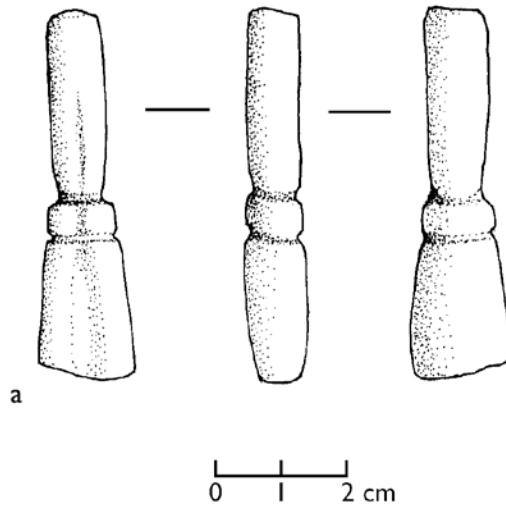


Figure 7c. Antler, shaped upper handle of spatula (after Elster 2003, 49, Fig. 2.18a).

That pottery, basketry, and mats are complimentary is documented by the impressive finds at the recently excavated Late Neolithic House 1 at Dikili Tash.⁷ Among the plethora of materials recovered in situ on the preserved floor and shelving were clusters of wild pears stored in what appears to have been a basket and in a large jar. Other pots included high concentrations of grape seeds, acorns, and grains.

MATERIALS IN CONTEXT

Two assemblages rich in both wild and “domesticated” material represent, respectively, Neolithic and Early Bronze Age lifeways at Sitagroi (Nikolaidou and Elster 2003, Tables 12.2 and 12.7).

The excavation soils of Neolithic Phase II Square ZA, layer 52, were all screened through flotation, and the work exposed postholes of a house floor. Flotation provided a sample of more than 900 seeds representing cereals (most importantly), pulses, and a few wild fruit (cherry, pistachio, almonds, grapes); faunal recovery included skeletal parts of caprovids (6), cattle (3), and pig (4). An impressive number of small artifacts such as shell and stone ornaments, worked shell (*Mytilus*, *Unio*), chipped stone, figurines and models, and small counters were retrieved, as was also high-quality pottery; axes and stone grinders, and worked bone. Many categories of evidence seem interlinked. The processing stone tools and (sickle?) blades partner with the rich botanical record. Faunal remains and items of worked bone belong to the same species; bone items of various forms might have been used in the working of hides and processing of other parts from those same killed animals. Stone and bone implements with sharp points (including a *Mytilus* triangle), relatively well represented, may have produced the perforated ornaments and incised figurines, social ceramics, and plaque-handle. Scrapers, borers, querns and rubbers may also have been, in addition to food processors, tools for the manufacture of ornaments.

The early Bronze Age Bin Complex of Phase Vb features a rich exposure of large clay-plastered bins associated with patchy remains of flooring, postholes, hearth, a processing platform, and pits.

Although domestic in nature, this area was not clearly associated with a single structure; rather, the various bins possibly belonged to several now-perished houses. Thus, our focus shifts from the individual household to the neighborhood and village community. The structural features of bins and hearths suggest practices of food storage, preparation, production, and consumption encompassing more than one household; communal meals and feasting are attractive possibilities. This idea seems supported by the large numbers of organic remains, including 175 elements of domestic and wild fauna and more than 20 botanical samples, many of which consist of hundreds or thousands of seeds, acorns, and fruit pips. Also characteristic are the groupings of artifacts associated with the above activities: bowls, drinking cups, jars, or urns with big lids, chipped stone blades, axes, and various ground stone processors. Recorded artifacts number 245 and illuminate multiple aspects of life: farming, food processing, tool-making, crafts, notably weaving and metallurgy, trade (axes made of likely non-local raw materials in PO 7, 8; QO 8, 9; QN 7,8), adornment and fashion, presentation and/or display (a mace head), and hospitality (reflected in the cups and a decorated jar). If more than one family participated in the facilities of the Bin Complex (as is implied by the structural features), it would be interesting to consider the elements of visibility, collaboration, and competition involved in the performance of activities.

DISCUSSION

The excavated remains of wild resources (Table 4) point to a multitude of natural environments explored, both in the vicinity of the village and further afield. The site was located to exploit many different eco-zones within and surrounding the Drama Plain (Fig. 8), ranging from mountain forest to rolling hill country, fertile plains, river banks, marshland, and coastline, within a radius from a few to 25–30 kilometers distant (Davidson 1986). The Sitagroi villagers took full advantage of their situation with short walking outings, daytrips, or longer travels that may have lasted days, involving more effort, risk, and adventure.

7 http://www.dikili-tash.fr/index_en.htm, with further references. We are indebted to Dr. Dimitra Malamidou and the Dikili Tash research team, for sharing with us as yet unpublished information on this important find.

	MID./L. NEOLITHIC	FN/CHALCOLITHIC	EARLY BRONZE AGE
WILD VEGETATION			
acorn		X	X
wild almond	X	X	X
cornelian cherry	X	X	X
fig	X		X
wild grape	X	X	X
hazelnut			X
pistacio	X	X	
WILD FAUNA			
aurochs	X	X	X
badger	X	X	X
beaver		X	X
brown bear	X	X	X
bustard	X		
wild cat		X	X
chamois		X	X
<i>Cyprinidae</i>	X		X
fallow deer	X	X	X
red deer	X	X	X
roe deer	X	X	X
fox	X	X	X
goose		X	
hare	X	X	X
hedgehog			X
mallard	X		
marten		X	X
mole rat		X	X
pike		X	
quail		X	
wild swine	X	X	X
turtle	X	X	X
vulture		X	
wolf	X	X	X
SHELLS			
cockle	X	X	X
<i>Columbella</i>		X	
cowry		X	X
<i>Dentalia</i>	X	X	X
<i>Donax</i>	X		
<i>Glycymeris</i>	X	X	X
<i>Murex</i>	X		X
<i>Mytilus</i>	X	X	X
<i>Neritea</i>		X	
oyster	X		
<i>Spondylus</i>	X	X	X
<i>Unio</i>	X	X	X

Table 4. Wild plants and animals excavated at Sitagroi. Compiled after Bökönyi 1986; J. Renfrew 2003; Miller 2003; Shackleton 2003.

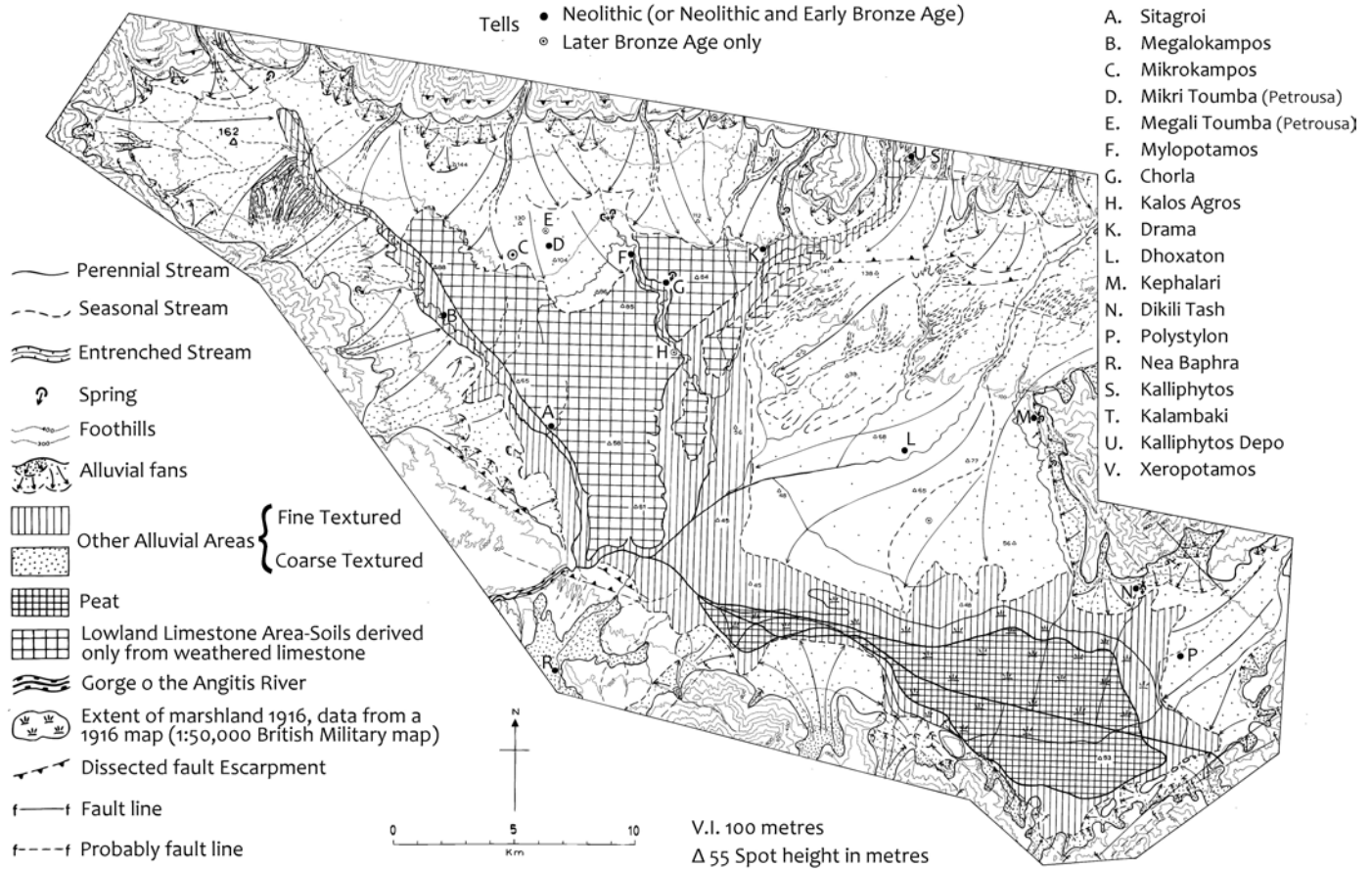


Figure 8. Ecological map of the Drama Plain with prehistoric sites in the region: Sitagroi (A) and Dikili Tash (N) (after Davidson 1986, 27, Fig. 3.2).

The mountain forests offered timber, fuel, and tasty game such as red deer, roe deer, and chamois; furs and skins from badger, brown bear, and wolf, plus acorns, hazelnuts, and wild cherries. The wetlands, rivers, and marshes were the habitat of the wild swine, fallow deer, beaver, freshwater mollusk, fish, migratory birds, and fowl. Also available were reeds for basketry and the flax, valuable not only as fiber but also for the medicinal and culinary value of its oily seeds (Valamoti 2007, 281). Although flax has not been identified at Sitagroi itself, it was found at Middle Neolithic Arkadikos Dramas close by (J. Renfrew 2003, T.I.19). The plain, meadows, and rolling hills provided fruit trees (fig, pistachio, almond, and wild grape vines), and the habitat of hare, fox, and turtle. The Aegean coast was the locale

to fish, dive, and/or comb for attractive shells. The material remains—shell, bone, antler, and seed—are but the preserved portion of this ecological cornucopia. But we can also imagine a whole treasury of other prized but now perished resources, including skin, furs, feathers, herbs, honey, wax (Decavallas 2007, 148) plus the favored meats, fruit, nuts, and juices provided by wild species.

In quantitative terms, the nutritional importance of hunted and gathered foods appears peripheral to the villagers' main diet of domesticated staples. But what were the reasons for consistently, albeit differentially, seeking comestibles from the wild? Did hunting and gathering provide a regular, albeit seasonally restricted, dietary supplement? Or did wild foods serve only as an "emergency" supplement to failed crops or dwindling livestock? People

were certainly aware of the nutritional value packed in foods such as acorns or mollusks (see J. Shackleton 1988), for example, which they systematically sought for millennia all over Northern Greece. Beyond sustenance considerations, were social and symbolic factors involved—or even predominant? Perhaps the inhabitants prized the “exotic” flavor of a rare delicacy; or the social status of the hunter was increased by bringing back prized game fit for a feast; or prestige was attached to a substance because of its limited availability and/or difficulty of processing. Perhaps there was an established value of local specialties that were traditionally consumed for generations and thus formed part of people’s identity, linked to their place. Special power may have attached to medicinal and/or unfamiliar ingredients, in the hands of a knowledgeable cook, healer, or crafter. Such nuances were hinted at in the research at Sitagroi; they are increasingly brought into focus through more recent and ongoing work on paleoenvironment, diet, and cuisine (Halstead and Barrett 2004; Mee and Renard 2007).

Within and beyond the Drama Plain, the settlers must have conducted a thriving trade in wild resources as well as other perishable goods. Perhaps each settlement specialized in certain goods, whether consumable (see Yannouli 1997), material, and/or spiritual, all exchangeable for other desirable commodities from around the Aegean and the Balkans (Perlès 1992). The most evident archaeologically at Sitagroi are lithics, graphite, shell, and metals, but ideas, skills (such as the special firing of graphite-painted pottery; see *Sitagroi* 1, ch. 12; *Sitagroi* 2, ch. 7), along with agents in each village, would all play a role. Some offerings now lost to us would have included textiles, “wild” raw materials and foods—anything exotic, desirable, difficult to obtain and/or process, and perhaps circulating under special conditions, for example as bridal dowry (Nikolaidou 2007; Valamoti 2007). The networks of communication spread in many directions, with villagers at various sites participating by both giving and receiving during transactions for procurement, affiliation, and knowledge. Technical “specialists” of ceramics, grape cultivation, and metallurgy would interact with other crafters, traders, explorers, and prospectors, engaging in negotiation, display, teaching, and learning (see Sherratt 1993). Goods of mythological and ritual significance (such as

figurines or specially formed and decorated ceramics) reflect other actors—healers, shamans, social leaders—who initiated interaction, ceremony, and communication.

In this paper, we reexamined the rich body of material and contextual evidence unearthed at Sitagroi to highlight some of the villager’s purposeful strategies of interacting with wild nature, and how these strategies were woven into the larger fabric of life in space and time. Research has progressed dramatically in this region since Sitagroi, our focal site, was first investigated (Andreou et al. 2001);⁸ recent finds, new research tools, and innovative ways of thinking have added considerable time depth and breath of interpretative scope, and indeed call for a reconsideration of what is understood as the “Neolithic mode of life.” No longer seen as confined to the traditional archaeological model of sedentary farming and herding, Neolithic agriculturalists keep providing us with insights into a wide network of engagement with both domesticated and wild environments.

Such a reexamination spans two distinct areas of archaeological endeavor: hunter-gatherer studies and the archaeology of early farming economies. Both fields of research have been brilliantly pursued at the UCLA Cotsen Institute since its early days. As we recognize the 40th anniversary of the establishment of this research institute, we track the two converging paths of Sitagroi’s ancient farmers that were excavated so many decades ago: following the steps of these prehistoric villagers, and honoring the outstanding work of an international group of colleagues. ✱

8 An international conference on the centenary of archaeological work in Macedonia, 1912–2012, offered an impressive panorama of a century’s worth of research in the region, highlighting the important finds and advances since the 1990s: *1912–2012: A Century of Research in Prehistoric Macedonia, International Conference, Thessaloniki, 22–24 November 2012* (in press); <http://macedonia.prehistoric-conference.com>.

ABBREVIATIONS

Sitagroi 1: Renfrew, C., M. Gimbutas, and E. S. Elster, eds. 1986. *Excavations at Sitagroi*, vol. 1. *Monumenta Archaeologica* 13. Institute of Archaeology, UCLA.

Sitagroi 2: Elster, E. S., and C. Renfrew, eds. 2003. *Sitagroi, Excavations in Northeast Greece, 1968–1970*: vol. 2, *The Final Report*. *Monumenta Archaeologica* 20. Cotsen Institute of Archaeology, UCLA

Spondylus in Prehistory: Infantidis, F. and M. Nikolaidou, eds. 2011. *Spondylus in Prehistory: New Data and Approaches. Contributions to the Archaeology of Shell Technologies*. BAR International Series 2216.

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