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THE DECORATED SPINDLE-WHORLS
FROM PREHISTORIC AKROTIRI, THERA¹Sophia Vakirtzi²

The aim of this paper is to discuss the presence of decorated spindle-whorls in the archaeological record of Bronze Age Akrotiri, Thera. Although they primarily comprise evidence for the technical evaluation of a craft (making thread with a spindle), these artifacts will be viewed here through a cultural prism. Focus is on the decorative elements of the objects and on the search for comparable assemblages from other Bronze Age insular sites. This comparison, attempted on a geographical basis at 'site level', reveals both a geographical and a chronological pattern regarding the presence (or the absence) of similarly decorated spindle-whorls. This examination shows that in the advent of the Late Bronze Age, plain, non-decorated forms of these objects are preferred. An interpretation of this tendency is attempted, taking into consideration the gradual development of a textile 'industry' beyond the household level, which is observed in the Aegean world during the 2nd millennium BC.

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Introduction³

A spindle-whorl is a round, centrally pierced object that is attached on a spindle to act as a flywheel while the tool rotates to add twist to plant or animal fibres and thus form thread⁴. They are the most frequent category of archaeological evidence concerning prehistoric spinning in the Aegean region. They can demonstrate a variety of materials, shapes, and surface treatment, as long as certain morphological characteristics which are associated with their successful function are achieved.

Since a spindle-whorl is supposed to rotate along with the spindle in order to twist the fibres into yarn, these characteristics are: a) its shape, which must be such that it allows its continuous rotation around a central axis, and b) a central hole pierced through its mass, so that it can be attached to the spindle (Barber 1991, 43). As far as raw materials for their manufacture are concerned, it has been archaeologically attested that they can be formed from wood, recycled pieces of pottery, clay, stone, bone, or metal (Barber 1991, 43). Their morphological variety expands to their shape, which can be spherical, hemispherical, conical, biconical, or discoid in section. Last, but not least, variety characterizes the degree of embellishment of these objects. The simplest ones are created without any treatment of their surface, while the most impressive ones bear decorative motifs created in various techniques.

The fact that spindle-whorls are decorated has a two-fold importance: first, it can reveal a special perception of the practice of spinning, one that goes beyond its practical necessity, since the tools used for this activity are charged with aesthetic value. Second, it renders these objects culturally diagnostic, since their decorative motifs can be associated with specific cultural assemblages.

The term 'decoration' refers to a process (the technique) and to a result (the motif). Theoretically the techniques can be any of the following: incision, impression, or application of coloured paste on the surface of the spindle-whorls. The motifs can be either linear, curving or curvilinear designs, or even figurative motifs. It is obvious that the above definition of 'decoration' does not include the immersion of spindle-whorls into paint (slip). Although this process results in the embellishment of the appearance of the spindle-whorl, it should rather be considered as treatment of the surface than decoration, since it does not result in the creation of specific decorative motifs.

In this paper the decorated spindle-whorls from the Bronze Age town of Akrotiri, Thera, are presented, and an effort to trace similarly decorated spindle-whorls

³ The study of the Akrotiri spindle-whorls is part of my PhD research "Yarn production in the Aegean islands during the Bronze Age", at the University of Crete. This research is still in progress: therefore the paper has a preliminary character. Major issues relevant to this subject, such as the comparison of the whorls' decorative motifs to contemporary ceramic decorative motifs, or the comparison with material beyond the Aegean islands, and in particular with that of Troy, are not discussed here, but will be treated in later stage of this study.

⁴ On the function of spindles see Barber 1991, 41-42.

from other insular Aegean Bronze Age sites (dated roughly in the 3rd and 2nd millennia BC) is attempted. Published assemblages as well as unpublished ones which have been examined by the author in the frame of her thesis, constitute the comparative material⁵.

The questions that this paper intends to address, by making this comparison, are: 1) In which other cultures of the Aegean Islands were similarly decorated spindle-whorls used? 2) What could be the significance of the presence of decorated spindle-whorls as opposed to the presence of undecorated ones? Issues of motif interpretation will not be raised here, because of space limitations and because this work is still in progress.

General comments on the Akrotiri assemblage

Almost one hundred spindle-whorls have been inventoried since the beginning of the excavations at Akrotiri⁶ and about one fourth of those are decorated. They are made either of clay or stone and they belong to various types, the most frequent of which is the biconical (Vakirtzi a: in press). In the case of Akrotiri, the decoration is created on the surface of only one of the two ends of the object (i.e. one of the two 'cones'. The technique of decoration is almost exclusively incision and the incised motifs are often filled with a white paste.

The decorated examples are eighteen in number and come from several sectors of the Late Bronze Age town, or from earlier levels below it. They were found in various deposits, either in primary or in secondary deposition, during the excavation of the houses of the town, and more recently during the excavation of the so-called 'Pillar Pits' for the foundation of the site's new shelter. Chronological estimations of the deposits of the Pillar Pits, which are used in this paper, are based on the preliminary reports of the excavators⁷.

The decorative motifs

'Leaf' band (Fig. 1)

One biconical spindle-whorl from Akrotiri is decorated with a schematic 'leaf' band motif (Akr130). The pattern is created with incisions in two rows around the hole. The incisions are filled with a white paste. This object comes from a chronologically unspecified deposit. A variation of this motif is found on an item from

⁵ In the framework of my thesis I have so far been able to examine both published and unpublished material from Ayia Irini, Akrotiri, Phylakopi, Skarkos, Kastri on Syros, Heraion on Samos and Skala Soterios of Thassos. However this work is still in progress and the list might expand until its completion.

⁶ The round, centrally pierced objects which have been recorded at the site so far are a little less than 140. However, not all of them can be safely interpreted as spindle-whorls.

⁷ The 'Pillar Pits' excavation team often worked under extreme pressure, during the 1999-2002 digs, and thanks are due to them all for a meticulous recording. For this paper I consulted reports written by N. Akrivaki, K. Birtacha, E. Georgaki, F. Georma, B. Lanaras, A. Moschou, I. Nikolakopoulou, N. Sigalas, F. Sofianou, and M. Tsoulakou.

Poliochni on Lemnos (Bernabo Brea 1976, Tav. CCXXVII:e). In this case, the 'leaf' band runs only in one row, on the shoulder of the whorl.

Arcs: multiple or single (Fig. 2)

The arc motif appears on Akrotiri material in three cases, each time in a different variation. In the first case, four sets of multiple arcs are arranged around the hole of a biconical whorl, in a symmetrical way. The motif is created with incisions filled with white paste (Akr131). In the second case, the arcs are single, repeated four times around the hole, which is furthermore accentuated by two concentric circular incisions (Akr11334). In the third case four single arcs filled with oblique parallel linear incisions, are symmetrically arranged around the hole which has one circular incision around it (Akr3880). The first object was found during the 1968 excavation season and details on its context or chronology are vague. The second and third are attributed to a Middle Cycladic intentional fill and to a Middle Cycladic/Late Cycladic floor respectively.

Outside of Thera, variations of this whorl decoration is found in the material of Poliochni, of prehistoric Heraion (Samos), from the Aplomata cemetery (Naxos), and from Phylakopi (Melos). The Poliochni material includes variations of 5 sets of multiple arcs and 4 sets of multiple arcs combined with thin notches inscribed within the inner arc, in a syntax similar to that of the Akrotiri examples (Bernabo Brea 1976, tav. CCXXVII:k, tav. CCXXIX:a). The material of prehistoric Heraion on Samos includes at least 14 items decorated with variations of the arc motif. In most cases there are 4 sets of multiple arcs and an incised circle around the whorl's hole. White paste fills the incisions. In some cases the sets of arcs are fewer than 4, and there are incised notches, dots, or ovals between the arcs⁸. One spindle-whorl from a funerary assemblage in the cemetery of Aplomata manifests three multiple arcs on the shoulder (Kontoleon 1974, 154, fig. 143, top row far left). Finally, the Phylakopi example is decorated with 2 sets of multiple arcs, combined with an incised circle concentric to the hole (Renfrew 1985, Pl. 61f). Its date is unknown since this is a surface find.

Angles: multiple⁹ or single (single: hatched or with one vertical line in the middle) (Fig. 3)

The angles motif appears in three, possibly four, cases in the Akrotiri material, in as many variations. In the first case, 4 sets of multiple angles are incised in a more or less symmetrical syntax around the hole. The incisions have traces of white paste fill (Akr8386). The whorl is biconical and it was found in a Middle Cycladic/Late Cycladic floor. In the second case the motif is similar to the previ-

⁸ Inventory numbers of the unpublished Heraion material with the arc motif are: 3040, 3102, 3137, 3128, 3131, 3140, 3167, 3169, 3202, 3227, 3226, a whorl with the specifications 'Deltion 29', A.1975 and A.1976.

⁹ The motif of multiple angles also appears in archaeological literature as 'chevrons' or as 'concentric Vs'.

ous, the only difference being that the angles are single and hatched. The incisions are thin, shallow, and hardly perceptible (Akr9483). This object was found in a Late Cycladic deposit. In the third case, a single angle with one vertical line in its middle is repeated 5 times around the circumference of a biconical item (Akr3522). It was found in a Middle Cycladic deposit. Finally, traces of what seem to be multiple angles survive on a worn, biconical object from a Middle Cycladic/Late Cycladic deposit (Akr11333).

This motif is very common on whorls from the Early Bronze Age Heraion (Samos), where the most frequent variation is 4 sets of multiple angles, symmetrically incised around the hole. The single angle with one straight line in the middle appears in one case, while in another case the sets of multiple angles are oblique¹⁰. In a unique case, the motif of multiple angles is incised among schematic human figures (Isler 1973, 170-175). Further north, this motif is found at Thermi (Lesvos) (Lamb 1936, fig. 47: 3, 21, 25), in several variations (multiple and single angles, single angle with central straight line) and at Skala Sotiros (Thassos) in a case of 5 sets of multiple angles incised around the hole (Vakirtzi b: in press). The single angle with a straight line in the middle is also reported on whorls from Poliochni (Bernabo Brea 1976, tav. CCXXVIII:g). In the Cyclades, a spindle-whorl with such a motif is reported from the Chalandriani cemetery (Rambach 2000, Tafel 63, 6). It is also present in the Aplomata assemblage, in two variations: six hatched angles, combined with another decorative element (stabbed circles) in one case, and five angles filled with small notches in another case¹¹. Furthermore, it appears on material from Ayia Irini (Keos) in similar variations, in four cases. Two of them are related to Middle Bronze Age contexts (Overbeck 1989, 80 and 103) (the rest are unpublished).

Groups of parallel, radiating lines (Fig. 4)

Groups of parallel lines radiating from the hole to the carination of the whorl is the most frequent motif of the Akrotiri material. There are usually 4 such groups created one opposite from the other around the central hole. The incisions are usually filled with white paste. The whorls decorated in this style are: Akr431, Akr11022 from a disturbed deposit, Akr11238 from a Late Cycladic deposit, Akr11321 and Akr11327 from a Late Cycladic context but in secondary deposition, and Akr11330 found in a Middle Cycladic intentional fill. They are all biconical except Akr431 and Akr11327 which are hemispherical. The incisions are not all executed in the same way. There are broader ones and thinner ones, longer ones and shorter ones, but clearly there is a common decorative trend behind all these variations.

This motif is popular at other sites, too. At Poliochni (Bernabo Brea 1976, tav.

¹⁰ Inventory numbers of the Samos whorls with the angle motif are: 3039, 3103, 3127, 3129, 3134, 3135, 3136, 3137, 3168, 3139, 3175, 3309, a whorl with the specification A.2004, and two with provenance from 'Haus O'.

¹¹ The second case is depicted in Kontoleon 1974, fig. 143, second row, far left.

CCXXIX:b,e) where groups of twin lines are repeated 9 times in one case and 3 times in another case, at prehistoric Heraion on Samos¹², at Early Bronze Age Aplomata on Naxos (four groups of radiating lines) (Kontoleon 1974, fig.143, top row, far right) and at Ayia Irini (2 cases, both unpublished).

Zigzag, continuous or broken (Fig. 5)

This motif is found on a biconical, half preserved spindle-whorl (Akr9615). The continuous zigzag decorates the shoulder of one side of the object and it is created with a thin incision filled with white paste. This design is similar to a 'star', whose centre is the hole of the whorl. The spindle-whorl was found in a Late Cycladic deposit, in secondary use.

The 'star' motif is frequent among the Ayia Irini whorls: 8 examples, i.e. 1 from a Late Bronze Age deposit (Cummer/Schofield 1984, 49), five from Middle Bronze Age deposits (Overbeck 1989, 133, 149, 199), and two are unpublished. This motif is also found on spindle-whorls from Thermi (Lamb 1936, fig. 47: 2, 10, 24).

A double broken zigzag is the main decorative element on a spheroid whorl (Akr8794) (Vakirtzi 2012, 216). It is incised around the circumference of the object at the point of its widest diameter. It has a set of twin lines incised above it and a single line below it. All the incisions are filled with white paste. It was found in a Late Cycladic deposit. A similar motif is found on an item from Thermi (Lamb 1936, fig. 47: 11). In this case, however, there are no incised lines above or below it.

Ovals (Fig. 6)

Eight small ovals created with impression at regular intervals on the shoulder around the hole, is the most prominent decorative element of a biconical whorl (Akr11325). The hole is furthermore delineated by a circular incision. Short parallel, incised notches are incised on the carination, around the circumference. This object was found in a Middle Cycladic destruction deposit.

Small ovals around the hole are also found on four Ayia Irini spindle-whorls, but in this case the technique is not impression. The ovals are pierced in the clay, combined with small pierced 'dots'. Two of these spindle-whorls come from Middle Bronze Age deposits (Overbeck 1989, 178; Cummer/Schofield 1984, 64) (the rest are unpublished). A whorl from Heraion (Samos) has a similar decoration in terms of arrangement and designs¹³. Also in this case the ovals are pierced on the surface around the hole and not impressed.

Herringbone (?) motif (Fig.7)

A biconical whorl is decorated with a design which looks like herringbone in an oblique position (Akr11336). It is created with thin incisions which look like angles stemming one out of the other, in four separate groups. The object comes from a

¹² Inventory numbers of these unpublished items are: 3075, 3171, and 3176.

¹³ Inventory number: 3037.

Middle Cycladic deposit. A similar motif is found among the unpublished Early Bronze Age Heraion spindle-whorls¹⁴, but it is not exactly the same in execution. The angles here are not arranged in separate groups, rather they are repeated one next to the other around the circumference of the whorl. The herringbone motif is also present among the Aplomata funerary whorls, in two slightly different versions, the difference between them being the degree of density of the incisions¹⁵.

Discussion

Apart from the chronological span and geographical distribution of the decorated spindle-whorls that are presented in Table 1, it must be stated that all the decorated spindle-whorls from Akrotiri presented above belong to a particular decorative style, executed by incision or impression in rectilinear motifs, which are often filled with a white substance. This style of decoration is widely used on Early Cycladic pottery (Barber/McGillivray 1980). But in the case of Early Cycladic spindle-whorls, incised decoration appears to be rather the exception.

It was demonstrated that during the Early Bronze Age whorls decorated in this style were mainly dominant in communities of the east and north-eastern Aegean islands, such as Poliochni, Heraion on Samos, and Thermi on Lesbos. It is a style of decoration characteristic also of the whorls from Troy, appearing in abundance especially in settlements II to V (Balfanz 1995), but for reasons of space economy and because of the preliminary nature of this paper, the Trojan cases cannot be discussed here.

In the Cyclades, during the Early Bronze Age, only a few examples of spindle-whorls decorated in this 'eastern style' are reported: one example from Kastri on Syros (Tsountas 1898, 105), six examples from one tomb at the cemetery of Aplomata on Naxos¹⁶, and another example from Ayia Irini on Keos (Wilson 1999, 162-163), from a period II deposit. Spindle-whorls decorated in a rather different, simpler, style are reported from Markiani on Amorgos, from Markiani III and IV contexts¹⁷. In this case small, crescent notches, are created on the surface of the object, probably by a fingernail (Gavalas 2006, 203-206). Apart from these cases, Cycladic spindle-whorls from other Early Bronze Age contexts are plain and undecorated, such as the ones from Grotta on Naxos and Skarkos on Ios¹⁸. Secure Early Bronze Age deposits from multiphase Cycladic settlements, such as Akrotiri¹⁹ and Phylakopi (Cherry/Davis 2007, 401-412), did not yield decorated spindle-whorls either.

¹⁴ Inventory number: 3136.

¹⁵ Kontoleon 1974, fig. 143, second row, second and fourth from left to right.

¹⁶ Kontoleon 1974, 154, Plate 143a, where five of them are depicted.

¹⁷ The decorated whorls from Markiani are reported to come from Markiani III and IV contents, that is EC II and EC III respectively.

¹⁸ The unpublished spindle-whorls from Grotta and Skarkos were examined by the author for her PhD study.

¹⁹ Vakirtzi (a). For the Early Bronze Age assemblages of Akrotiri see Doulas 2008, 165-175.

Motif	Site	Chronological Horizon
'Leaf' band	Akrotiri	unspecified
	Poliochni	EBA
Arcs, multiple/single	Akrotiri	MC, MC/LC
	Poliochni	EBA
	Heraion	EBA
	Aplomata	EBA
	Phylakopi	Unspecified
Angles, multiple/single	Akrotiri	MC, MC/LC, LC
	Ayia Irini	MC
	Heraion	EBA
	Skala Sotiros	EBA
	Thermi	EBA
	Poliochni	EBA
	Chalandriani	EBA
	Aplomata	EBA
	Akrotiri	MC, LC
Groups of parallel radial lines	Poliochni	EBA
	Heraion	EBA
	Aplomata	EBA
	Ayia Irini	Unpublished
	Akrotiri	LC
Zigzag, continuous/broken	Ayia Irini	MC, LC
	Thermi	EBA
	Akrotiri	MC
Ovals	Ayia Irini	MC
	Heraion	EBA
	Akrotiri	MC
Herringbone (?)	Heraion	EBA
	Aplomata	EBA
	Akrotiri	MC

Table 1. Decoration motifs on spindle-whorls: sites and chronology (source: author).

Moving to the Middle Bronze Age, it is evident both from the analysis and from Table 1 that decorated spindle-whorls have an abundant presence both at Ayia Irini and at Akrotiri during this period. They are found both in primary and in secondary deposits (Table 2), a fact that indicates the circulation of such items in the Middle Bronze Age towns. Their presence continues in Late Bronze Age contexts, and in the case of Akrotiri they are found mainly in secondary deposits (Table 2). Only two of the decorated spindle-whorls were found in the destruction debris of the LCIA buildings, while most spindle-whorls which can be safe-

Inventory number	Deposit date	Deposit nature
Akr130	Unspecified	X
Akr131	Unspecified	X
Akr431	Unspecified	X
Akr3522	Middle Cycladic	Seismic destruction debris
Akr3880	Middle Cycladic/Late Cycladic	Building material (floor substratum)
Akr8386	Middle Cycladic/Late Cycladic	Building material (floor layer)
Akr8794	Late Cycladic	Unspecified
Akr9483	Late Cycladic	Destruction debris from Room interior
Akr9615	Late Cycladic	Intentional fill under floor
Akr11022	Disturbed	X
Akr11238	Late Cycladic	Volcanic eruption debris *
Akr11321	Late Cycladic	Building material (floor)
Akr11325	Middle Cycladic	Seismic destruction debris
Akr11327	Late Cycladic	Intentional fill/levelling debris
Akr11330	Middle Cycladic	Intentional fill
Akr11333	Unspecified	X
Akr11334	Middle Cycladic	Intentional fill (bedrock)
Akr11336	Middle Cycladic	Unspecified

Table 2. The deposit dates are based on the pottery which characterizes them (source: author).

ly attributed to LBA domestic units, such as the ones published from the West House, are undecorated (Tzachili 2007, 259-261). Three more spindle-whorls were retrieved during the recent pillar excavations from within a LBA building. One of them bears incised decoration (Akr 9483), but the rest are plain, undecorated (Vakirtzi a). Thus it appears that the trend in the Late Bronze Age is a preference for simpler, undecorated whorls. This impression is confirmed by data from other islands: the published whorls from the Late Bronze Age levels of Phylakopi are also undecorated, but for one exception²⁰, while at House A of Ayia Irini on Keos, only 5 whorls are decorated out of a total of 89 items from LBA deposits (Cummer/Schofield 1984).

Conclusions

If the decoration of a tool is an act which aims to symbolize the skill of the indi-

²⁰ Cherry/Davis 2007, 408-409; Renfrew/Cherry 1985, 335-336. The exception is number 260 (Cherry/Davis 2007, 402, fig. 10.10.1).

vidual who uses it²¹, the lack of decoration may point to the detachment of the user from the end product: spinners who might have been occupied in a wider production scale would use whatever spindles were available. A decorated spindle-whorl most probably belonged to an individual producer and did not constitute a part of the mass production toolkit. In this sense, the simplification of the form of the spindle-whorl may reflect the emergence of large scale textile production, orientated to meet more than the household needs. In another frame of interpretation, lack of decoration could simply imply that the craft in question was not highly praised in the society.

The latter seems to be the case for the Early Cycladic spinners. Mostly coarse and plain, the whorls from Early Cycladic settlements are in deep contrast to their east Aegean counterparts, where spinning was practiced with variably decorated tools. The ‘beautiful’, incised spindle-whorls seem to reach the Cyclades towards the end of the Early Bronze Age, with a peak in the Middle Bronze Age. But as it was demonstrated, this ‘fashion’ did not last long. I argue that this phenomenon reflects the emergence of large-scale production.

The ‘industrialization’ of textile production during the Late Bronze Age is well testified in Crete and in Mainland Greece where palatial centers emerged (Killen 2007, 50-58), but it is not yet clear in what degree the islands applied the model of textile production which is observed in palatial centres. In the Cyclades, despite the lack of palaces, there is some evidence of commercialization of the textile production in two of the major Late Cycladic urban centres, namely Akrotiri and Ayia Irini: large quantities of textile tools – mostly loom weights at Akrotiri (Tzachili 2007, 262-271), both loom weights and spindle-whorls at Hagia Irini²² – as well as the Akrotiri Linear A tablets which inform us both on the large quantities of products as well as on the necessity of keeping record of this production (Boulotis 2008, 67-94).

Within such an industry, yarn production would have probably been ‘mechanized’ and fast, and the tools used coarse, humble, and indiscriminate. The fact that spinning equipment from Late Bronze Age working areas are mostly undecorated supports this hypothesis. On the other hand, the decorated spindle-whorls of Akrotiri most likely survive from the Middle Bronze Age or even earlier, at a time when spinning thread would probably have been a ‘personal’ matter, and the spinner a rather eminent figure in the community.

²¹ For the phenomenon of ornamentation, R. White says: “We frequently lack an integration of technology and social dynamics through which we might gain access to the culturally embedded technological sequences from which socially meaningful decorative styles emerge [...]. We have seen in the ethnographic record that material forms of representation are frequently about political authority and social distinctions. Personal ornaments, constructed of the rare, the sacred, the exotic, or the labor/skill-intensive, are universally employed, indeed essential, to distinguish people and peoples from each other” (White 1992, 548, 560).

²² Schofield identifies an ‘industrial’ character of textile production at the site. Schofield 1990, 208-209.

CATALOGUE OF THE AKROTIRI DECORATED SPINDLE-WHORLS

In this paper I refer to general typological categories. Sub-types and variations depending on morphological details are under study.

130 (Fig. 1).

Material: clay.

Preservation status: intact.

Typology: biconical.

Technique of decoration: incision, white paste in the incisions.

Motif: 'leaf' band in a circular arrangement around the central hole, on the shoulder of the spindle-whorl, in two rows.

Provenance: Arvaniti 3, unspecified context.

131 (Fig. 2).

Material: clay.

Preservation status: almost intact. Small pieces around the hole missing.

Typology: biconical.

Technique of decoration: incision, white paste fill in the incisions.

Motif: four multiple arcs in a cyclical arrangement around the spindle-whorl's hole, at a more or less equal distance one from the other.

Provenance: Arvaniti 3, unspecified context.

431 (Fig. 4).

Material: clay.

Preservation status: intact.

Typology: hemispherical.

Technique of decoration: incision.

Motif: four groups of parallel, radial lines, radiating from the hole to the carination of the spindle-whorl, in a cyclical arrangement at more or less equal distance one from the other.

Provenance: Arvaniti 1, unspecified context.

3522 (Fig. 3).

Material: soft, white stone.

Preservation status: intact.

Typology: biconical.

Technique of decoration: incision.

Motif: Two thin lines form one angle. A third line is incised in the middle of the angle, splitting it in two halves. The motif is incised 5 times in a cyclical arrangement on the shoulder of the whorl.

Provenance: Pillar Pit 39, Middle Cycladic earthquake debris.

3880 (Fig. 2).

Material: black stone.

Preservation status: intact.

Typology: biconical.

Technique of decoration: incision, traces of white paste in the incisions.

Motifs: a circle is incised around the spindle-whorl's hole. Four hatched arcs in a cyclical arrangement on the shoulder of the spindle-whorl, at an equal distance one from the other.

Provenance: Pillar Pit 67, Middle/Late Cycladic floor sub-stratum.

8386 (Fig. 3).

Material: clay.

Preservation status: chipped.

Typology: biconical.

Technique of decoration: incision, white paste fill in the incisions.

Motif: groups of four multiple angles incised four times on the shoulder of the spindle-whorl, in a cyclical arrangement around the hole. Three of the motifs are created at equal distances one from the other, but the fourth one is adjacent to the motif right next to it.

Provenance: Pillar Pit 47, Middle/Late Cycladic floor sub-stratum.

8794 (Fig. 5).

Material: clay.

Preservation status: intact.

Typology: spheroid.

Technique of decoration: incision, white paste in the incisions.

Motif: double line concentric to the hole, on the shoulder of the spindle-whorl around its circumference. Below it, there is a double broken zigzag and below the zigzag another single line around the circumference of the whorl.

Provenance: Pillar Pit 70A, Late Cycladic context.

9483 (Fig. 3).

Material: clay.

Preservation status: intact.

Typology: biconical.

Technique of decoration: incision. Thin, swallow incisions.

Motif: four hatched triangles in a cyclical arrangement on the shoulder of the spindle-whorl, at a more or less equal distance one from the other.

Provenance: Pillar Pit 33, Late Cycladic destruction debris.

9615 (Fig. 5).

Material: clay.

Preservation status: half.

Typology: biconical.

Technique of decoration: incision, white paste fill in the incisions.

Motif: continuous zigzag line on the shoulder, around the circumference of the whorl.

Provenance: Pillar Pit 70PVE, Late Cycladic intentional fill.

11022 (Fig. 4).

Material: clay.

Preservation status: intact.

Typology: biconical.

Technique of decoration: incision, white paste in the incisions.

Motif: four groups of parallel, radial lines, radiating from the hole to the circumference of the spindle-whorl, at an equal distance one

from the other.

Provenance: Pillar Pit 7, unspecified context (disturbed).

11238 (Fig. 4).

Material: clay.

Preservation status: intact.

Typology: biconical.

Technique of decoration: incision, white paste in the incisions.

Motif: four groups of parallel, radial lines, radiating from the hole to the circumference of the spindle-whorl, at an equal distance one from the other.

Provenance: Pillar Pit 65, Late Cycladic earthquake debris.

11321 (Fig. 4).

Material: clay.

Preservation status: less than half.

Typology: biconical.

Technique of decoration: incision, traces of white paste in the incisions.

Motif: groups of parallel, radial lines, radiating from the hole to the circumference of the spindle-whorl. Two such motifs are discerned on the preserved surface of the spindle-whorl.

Provenance: Pillar Pit 80, Late Cycladic context, floor construction material.

11325 (Fig. 6).

Material: clay.

Preservation status: intact.

Typology: biconical.

Technique of decoration: incision, impression.

Motif: one incised circle around the cavity of the hole. Eight small, impressed ovals in a cyclical arrangement around the hole at equal distances on the shoulder of the whorl. Small, parallel, incised short lines (notches) on the carination, around the circumference of the whorl.

Provenance: Pillar Pit 39, Middle Cycladic earthquake debris .

11327 (Fig. 4).
Material: clay.
Preservation status: a little more than half.
Typology: hemispherical.
Technique of decoration: incision.
Motif: group of parallel, radial lines, radiating from the hole to the circumference of the spindle-whorl.
Provenance: Pillar Pit 23A, Late Cycladic intentional fill.

11330 (Fig. 4).
Material: clay.
Preservation status: almost intact. Small chips missing from the circumference.
Typology: biconical.
Technique of decoration: incision.
Motif: three groups of parallel, radial lines on the shoulder of the spindle-whorl, radiating from the hole to its circumference, at an equal distance one from the other.
Provenance: Pillar Pit 14A, Middle Cycladic intentional fill.

11333 (Fig. 3)
Material: clay.
Preservation status: chipped on one end around the hole.
Typology: biconical.
Technique of decoration: incision.

Motif: lines radiating from the hole to the shoulder of the whorl, all over its circumference.
Provenance: Pillar Pit 63A, unspecified context.

11334 (Fig. 2).
Material: clay.
Preservation status: intact.
Typology: conical.
Technique of decoration: incision, white paste fill in the incisions.
Motif: two concentric circles around the hole. Four arcs on the shoulder of the whorl in a cyclical arrangement at equal distances one from the other.
Provenance: Pillar Pit 68, Middle Cycladic intentional fill.

11336 (Fig. 7).
Material: clay.
Preservation status: intact.
Typology: biconical.
Technique of decoration: incision, white paste fill in the incisions.
Motif: four groups of herringbone-like incisions radiating from the hole to the circumference, on the spindle-whorl's shoulder.
Provenance: Pillar Pit 66P, Middle Cycladic context.



Fig. 1. Spindle-whorl decorated with a schematic leaf band. Akr130.

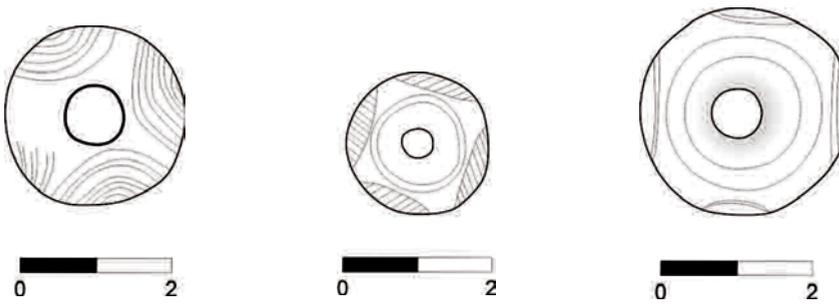


Fig. 2. Spindle-whorls decorated with 2 multiple or single arcs.
Akr131 - Akr3880 - Akr11334.

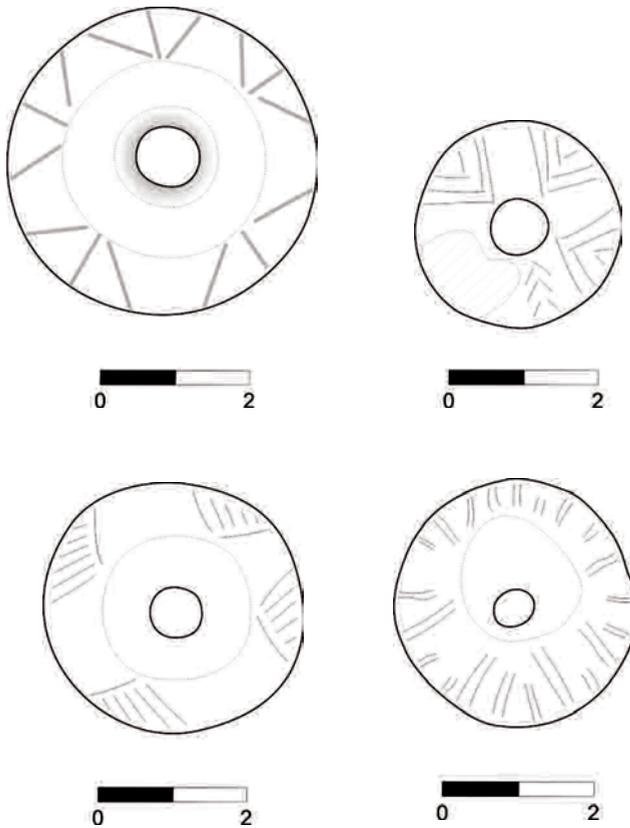


Fig. 3. Spindle-whorls decorated with multiple or single angles.
Akr3522 - Akr8386 - Akr9483 - Akr11333.

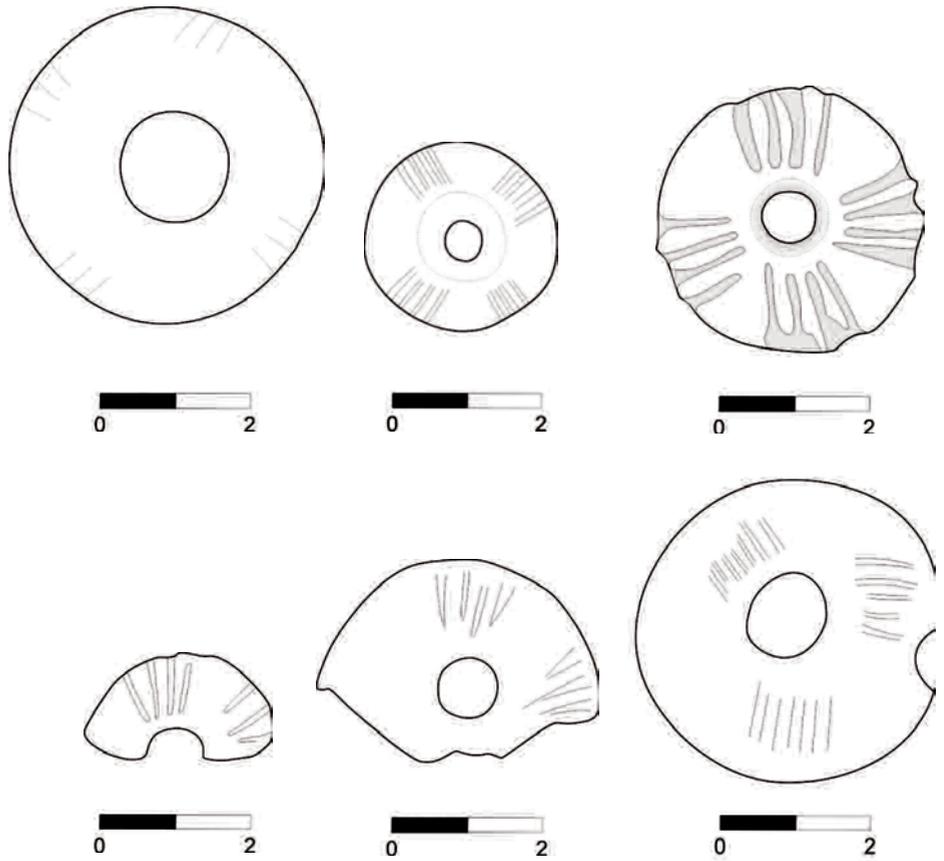


Fig. 4. Spindle-whorls decorated with groups of parallel, radiating lines.
 Akr11238 - Akr11327 - Akr11321
 Akr431- Akr11330 - Akr11022.

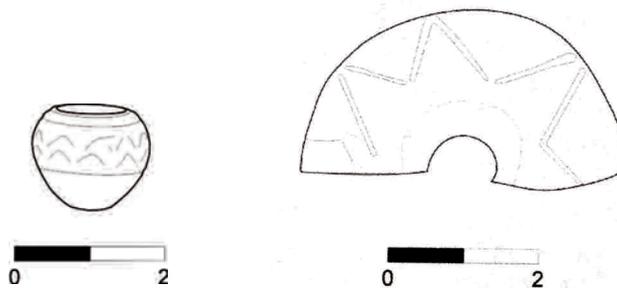


Fig. 5. Spindle-whorls decorated with zigzag, continuous or broken motifs.
 Akr8794 - Akr9615.

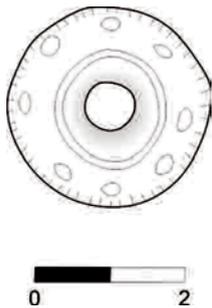


Fig. 6. Spindle-whorl decorated with ovals. Akr11325.

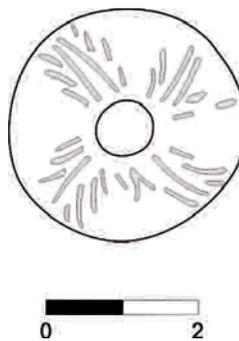


Fig. 7. Spindle-whorl decorated with a herringbone (?) motif. Akr11336.

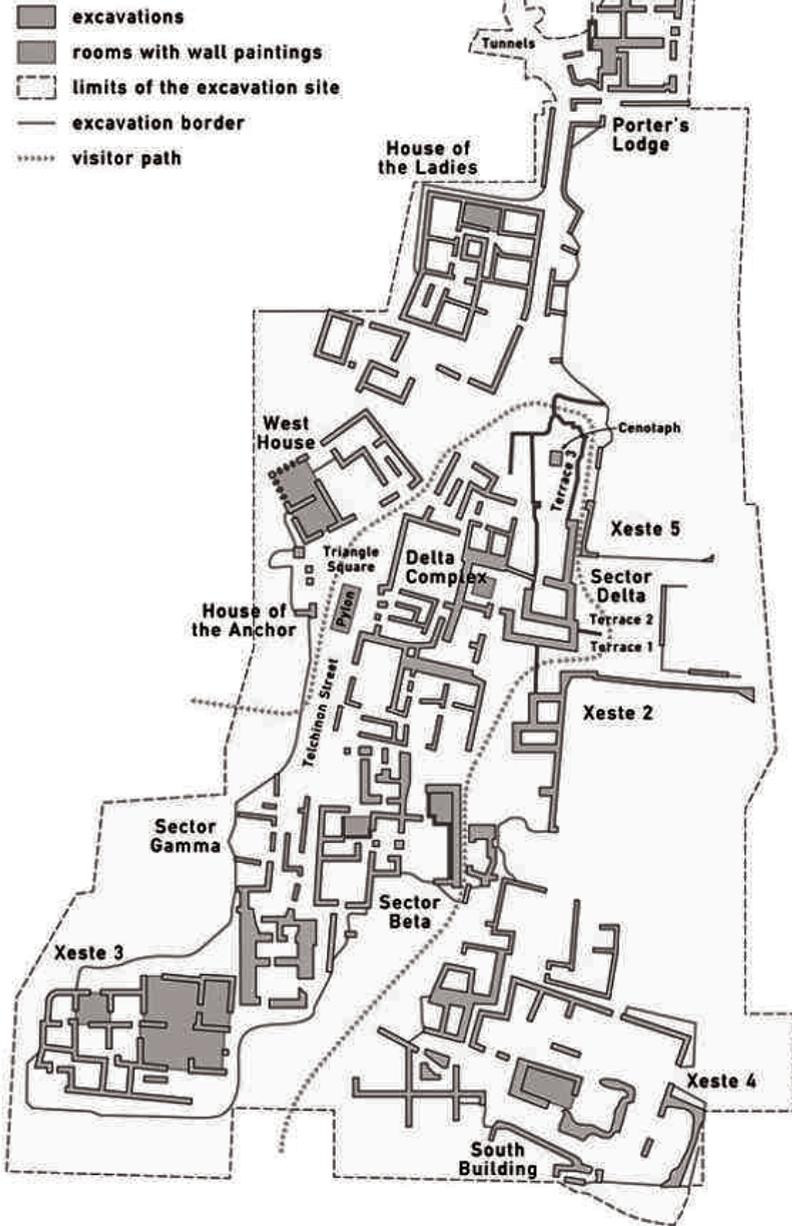
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Sophia Vakirtzi
 19 V. Amalias Street
 Kifissia 145 61
 Athens
 Greece
 sophievak@gmail.com

Akrotiri in the Bronze Age
about 1600 B.C.



Map of Akrotiri in the Bronze Age, *ca.* 1600 BC (source: Maximilian Dörrbecker, Wikimedia Commons). Not on scale.