

CENTRO DI ARCHEOLOGIA CRETESE - UNIVERSITÀ DI CATANIA
SCUOLA ARCHEOLOGIA ITALIANA DI ATENE

STUDI DI ARCHEOLOGIA CRETESE

XI

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FESTÒS E HAGHIA TRIADA
RINVENIMENTI MINORI I
Materiale per la tessitura



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ABSTRACT

PHAISTOS AND AYIA TRIADA. SMALL FINDS I. TEXTILE RELATED MATERIAL

The volume presents the study of the material associated with textile manufacture, deriving from the Neolithic and Minoan levels of Phaistos and Ayia Triada. It includes 6 chapters and 5 technical appendixes.

In the **first chapter**, the archaeological sequence of both sites is described with particular attention to the areas and periods with more important evidence of textile production.

In **chapter II**, the nature and consistence of this evidence is discussed. Only some of the tools used during the different phases of the «chaîne opératoire» of textile manufacture are found in the archaeological record as many of them are of perishable material and the surviving items, mainly spind-whorls and loom-weights, are often difficult to identify due to the unspecialised nature of the tools themselves. Both spinning and weaving rely more on the dexterity and expertise of the spinners and weavers than on advanced technologies. Any centrally pierced object can be used as a spindle-whorl and many objects, be they pierced or not, can be used as loom-weights. Therefore, the distinction between spindle-whorls and beads, loom-weights, net sinkers, drill weights, etc. is difficult. Context can provide valuable aid in defining the role of each item, but for many of them, identification remains uncertain.

Bearing these provisos in mind, the following classes of material been identified:

- 1) Fusi/conocchie (*spindles, distaffs*);
- 2) Fuseruole (*spindle-whorls*);
- 3) Pesi da telaio (*loom-weights*);
- 4) Vasi per filare (*spinning bowls*);
- 5) Aghi, punteruoli (*needles*);
- 6) Altri materiali (other materials);
- 7) Prodotti finiti (*textiles*).

Spindles and distaffs are very rare, while spindle-whorls are common. After a review of the evidence, we defined spindle-whorls as all the centrally pierced objects with a symmetrical shape weighing between 5 and 100 grams. The following typologies have been acknowledged according to the classifications given by the Centre for Textile Research (fig. 2.1):

- Fuseruole fittili sferiche (spherical SW);*
- Fuseruole fittili semisferiche (convex SW);*
- Fuseruole fittili biconiche (biconical SW);*
- Fuseruole fittili lenticolari o a ciambella (torus shaped SW);*
- Fuseruole fittili troncoconiche (conical SW);*
- Fuseruole fittili, litiche e in osso discoidali (discoid SW in clay, stone or bone);*

Fuseruole fittili cilindriche (cylindrical SW);
Fuseruole fittili da stelo di kylix (SW from kylix stems);
Fuseruole fittili concavo-convesse (concave-convex SW);
Fuseruole fittili e litiche coniche (conuli).

Loom-weights posed similar problems. Any object of weight can be used to assure tension to the warp. For the Minoan world, however, a consensus studiorum exists for the interpretation of discoid, spherical globular, spherical ovoid LW and cubes as textile tools. We also included some other typologies which have been interpreted, or can be interpreted, as serving purposes other than LW. The spool (*rocchetto*) has at times been considered a spacer used in kilns, but now its pertinence to textile manufacture is widely accepted. The flat trapezoidal weight has been interpreted as a label and has never been found in large groups in Phaistos, nevertheless its pertinence to textile tools can be proposed. The flat discoid stone weight (stone ring) is dubious. In Cyprus, similar objects have been interpreted as hammer heads, but this interpretation does not fit our contexts. Stone rings have therefore been cautiously included in our catalogue. Cylindrical LWs are not very common outside Phaistos. Some of them bear seal impressions, so the same labels interpretation proposed by Weingarten for pyramidal impressed objects from Palaikastro could be applied to our pieces. Moreover, similar artefacts in Akrotiri have been interpreted by Tzachili as counting devices (*abaci*) due to the presence of imprinted circles. However, seal impressions and incised signs are very rare among our objects and all of them have been found in sets or groups, so the interpretation as LW seems more probable.

The following typologies have therefore been identified:

Pesi fittili cilindrici (cylindrical LW);
Pesi fittili sferico globulari o sferico ovoidali (spherical ovoid or globular LW);
Pesi fittili con solcature (a melograno) (grooved LW);
Pesi fittili discoidali con appendice (tabulated LW);
Pesi fittili discoidali (discoid LW);
Pesi fittili cubici (cube);
Pesi fittili a piastra (flat trapezoidal, flat rectangular LW);
Pesi fittili a rocchetto (spool);
Pesi litici discoidali (torus shaped LW) o a piastra forata (anelloni) (stone discoid LW, stone ring);
Pesi litici cilindrici (cylindrical stone LW).

A third class of objects relates to spinning vases, such as the well known spinning bowls. Two other shapes (called «vaso a gabbietta» and the «vaso a corni») as spinning device have also been interpretation as spinning devices and have therefore been inserted in our catalogue.

Chapter III includes the catalogue of tools divided according to sites, classes (SW, LW, spinning vases, needles, other materials, textiles) and typologies. The following information for each item is supplied: provenance, year of excavation, current location, morphology, fabric, measurements (in mm) and weight (in grams). Chronology is also added where possible unless it is given for the whole class, e.g. for kylix stems or spools.

All in all 730 items are in the catalogue numbering from 1 to 717 with ten «bis» (15, 104, 143, 248, 255, 478, 507, 577, 631 and 703) and three «tris» numbers (15, 47 and 577). Three sections are distinguished: the first two include the material from Phaistos and Ayia Triada, stored in Phaistos or Herakleion; the third section is devoted to the material from Phaistos or Ayia Triada (sometimes provenance is not clear) currently stored at the Museo

Pigorini in Rome and in the Museo Archeologico in Florence. Autopsy has been possible for the first two groups, while data from existing publications have been taken into consideration for the third group.

	Phaistos	Ayia Triada	Museums in Italy	TOTAL
Spindle-Whorls	261	9	73	343 (46%)
Loom-Weights	229	104	14	347 (47,53%)
Spindles	2			2 (0,37%)
Needles	3	3		6 (0,82%)
Vases	17	12		29 (3,97%)
Fibers	3			3 (0,41%)
TOTAL				730 (100%)

SWs are almost half of the material With the great majority coming from Phaistos, especially from the Neolithic (biconical SWs) and LM III layers (kylix stems, conuli).

LWs, almost the same in number, are distributed in a more balanced manner between the two sites, but Phaistos remains better represented. The most common typology is the cylindrical type (115 specimens) typical of MM II Phaistos, followed by the spherical shape (110 samples in both sites), and by the discoid LW with only 25 examples. All the other typologies are represented by less than 15 specimens each.

Very few, often broken, spindles and needles appear in the catalogue. Spinning vases include spinning bowls and other vases. Spinning bowls appear in MM I in Phaistos (1 specimen), continue in Ayia Triada in MM III (1 specimen) and are well represented in the final Neopalatial phase in Ayia Triada. Vasi a corna and Vasi a gabbietta are only found in MM II Phaistos.

Finally, «textiles» include an assemblage of vegetal fibres found in Protopalatial Room IL in Phaistos, the impression of a textile in a *cretula* from the same period, and a mineralised string preserved in a bronze plaque from the LM III necropolis of Kalyvia.

In chapter IV, the different typologies of SWs and LWs are analysed according to morphology, fabric, use, wear and metrical data. The fabric varies from coarse (Neolithic SWs) to semi coarse (spherical LWs) and fine ware (kylix stems, cylindrical and discoid LWs); very often belonging to the same fabric of contemporary pottery. LWs are normally well fired, with the exception of cylindrical LWs and the spools, which can be of unfired clay. Finally, a group of cylindrical LWs look fired at a low temperature, but we do not know if this was due to intentional firing or the consequence of unintentional exposition to high temperature.

As far as dimensions and weight is concerned, both the wider range of metrical data and the mean values is given for each class or, where possible, the major concentrations. Finally, for LWs, the tension in the thread expressed in grams per centimetre has been calculated. In the typologies of LWs with significant differences in height/diameter/thickness, the tension varies according to the way the LWs were arranged in the loom: parallel or transversal to the warp (see table 38).

The data of the more significant typologies are given below (D = diameter; H = height; Th = Thickness; W = Width).

Phaistòs. LW

Typology	Dimensions Range	Weight Mean value or major concentrations	Weight Range	Dimensions Mean value or major concentration	Fabric	Chronology
Spherical SW	D 18-21	D 19	6-38	16,2	Semico arse	Neo-Prep.
Biconical SW	D 25-66 H 18-47	D 40-55 N.c.e.	13-136	55, 75, 100g	coarse (46%), kitchen (33%) semicoarse (21%).	Neop.
Conical SW	D 40-54 H 20-35	D 45 H 26	42-90	62	Different	Neo Prep.
Cylindrical SW	H 13-37 D 16-52	H 21 D 30	7-53 80 (later examples)	25-48		Prepal. Postpal.
Kylix stems	H 8-32 D 18-36	H 18 D 20	4-22	12,4	Fine	LM III
Clay Conuli	H 20-29 D 27-34	H 25 D 31	14-21	17,5	Fine	LM III
Stone Conuli	H 9-23 D 16-27	H 15 D 22,5	3-17	21		LM III
Stone discoid SW	H 9-20 D 38-62		18-147	18-36 54-75		N-LM III

Phaistòs. Loom-weights

Typology	Dimensions Range	Dimensions Mean value or major concentrations	Weight Range	Weight Mean value or major concentrations	Tension (grams per cm) (arrangement)	Chronology
Cylindrical LW	H 20-73 H 18-47	H 35-73 (media 48) D 40-70	27-700	100-300 (mean value 180)	31,57 gxcn (parallel) 37,50 gxcn (transversal)	MM II- LM III
Spherical LW	D 50-95	D 69,34	85-1021	85-120 180-340 (mean value 277,80) More than 400	44,44 gxcn	LM I- LM III
Discoid LW	D 47-80 Th 10-27	69 Th 19,7	95-250	150	21,68 (parallel) 71,74 (transversal)	Neo-Prep
Spools	L 37-68 D 31-57	L 50 D 44	30-200	70 159	9,68 e 38,46 (parallel) 10,34 e 45,71 (transversal)	LM III
Stone rings	D 55-110 Th 22-53	D 76 Th. 39	130-410	204	49	EM

Ayia Triada: Loom-Weights

Typology	Dimensions Range	Dimensions Mean value or major concentrations	Weight Range	Weight Mean value or major concentrations	Tension (grams per cm) (arrangement)	Chronology
Spherical SW	D 35-118	D 72,2	120-1330	230-270 350-400	61-66 gxcn	Neo-Prep.
Discoid LW	D 57-110 Sp 11-32	D 81 Sp 20	62-250	135	16,7 gxcn (parallel) 68 (transversal)	MMIII- LM III
Stone rings	L 80-120 Sp 20-60	L 100 Sp 45	220-800	270-400 600-700	52 (parallel) 120 gxcn (transversal)	EM

In chapter V, find contexts are analysed according to sites, chronological horizons, areas, rooms, spaces and loci. Contexts have been reconstructed «bottom up», starting from all the items with the same provenance (forming a «group»), therefore when possible linking the groups in «deposit» i.e., sets of tools originally belonging to the same systemic context.

In Phaistos, 12 Neolithic «deposits» have been reconstructed and attributed, when possible, to the first phase (deposits 1, 7, 9, 10) or to the second phase of Phaistian Neolithic (deposits 2-6, 8, 11). All the deposits but one (12, in Propileo II) were found in the area of the Central Court with a major concentration in front of and under Neopalatial Room 25.

For the Prepalatial period the evidence is scant and only 4 deposits have been recognized: deposit 13 in Room 71 of the Palace, deposit 14 in the *Strada Nord*, and deposits 15-15a in the area to the South of the Ramp (table 42).

The Protopalatial phase is instead well documented by mainly cylindrical LWs, with a few spinning vases («vasi a corna» or «a gabbietta») and very few SWs.

Deposits are concentrated in the palace, especially in the South-Western Quarter. Re-examination allowed us to distinguish the set of tools from the ground floor (so called I fase

Levi: deposits 18, 20, 23-29, Tav. 43.1) and those from the first floor (so called II fase Levi: deposits 16-17, 19, 21-22, 30, Tav. 43.2). The more important deposits are number 20 (Vano LIII), 24 (Sottoscala LIII/LV), 28-29 (Vano LXIV) and 16-17 (Vano IL primo piano). As far as their interpretation is concerned, deposit 24 represents a storage area, deposits 28-29 represent a temporary material storage area during reparations to the palace after an earthquake, while deposits 20 and 16-17 demonstrate the presence of weaving areas.

Only few tools have been found outside the Palace: a couple of SWs and spinning vases and two LWs in deposits 31-34 (table 44).

During the Neopalatial period, a dramatic change in the distribution of textile related tools is apparent. The Palace is no longer interested in spinning or weaving activities and a large concentration of LWs is found preserved in the LM I mansion of Chalara (deposits 35-37). Only one SW and one LW come from Ayia Photini.

After the LM IB destruction, evidence of occupation in Phaistos is not clear. Late and post-palatial structures (LM IIIA-C) have been identified in four areas: to the West of the West Court (so called Casa Micenea); in the area of the ramps (Room O and LM III ramp); in the area of Court LXX; in the Acropoli Mediana. Only few findings are known to be from Chalara.

The most important groups originated from Casa Micenea (table 46.2; 47). Some discoid LWs, many kylix stem SWs and some spools can be attributed to 9 different deposits. Thanks to research by E. Borgna, who kindly provided me with the results of her still unpublished study, we have decided to attribute those deposits to three different phases: deposit 38 to phases 1-2- LM IIIB, deposits 39-42 to phases 2-4- LM IIIB/C, deposits 43-46 to phases 4-5- LM IIIC/Subminoan. While discoid LWs are only to be found in the first phase, kylix stem SWs and spools continue until the end of the period. A further group of spools (deposit 47) come from the area to the South of the House.

Textile tools, often isolated items, have also been found in the area of the Ramps (Casa O and Rampa Micenea) to the North of Piazzale LXX (Tav. 48.1). Here deposit 48 was identified and includes spherical LWs, spools and one discoid SW.

A group of LWs (deposit 49) from the upper layers of Room IL is of uncertain chronology (Neo- or Postpalatial). The same chronological problems arise when dealing with the material from the area of the «geometric» houses of Piazzale LXX. Working activities involving this area in the LM, geometric, archaic and Hellenistic periods make it difficult to determine the chronology of the material found here., LM III LWs and SWs (kylix stems, spools, discoid LWs) in deposit 50-54 are associated, with other items (cylindrical and discoid SWs) of perhaps later (protogeometric?) chronology.

Finally, in the Acropoli Mediana, the two deposits 55 and 56 belong to the LM III period (table 48.2).

In Ayia Triada, the evidence for textile manufacture only begins in the EM I period. To this phase the stone rings from deposit 101 (an EM dump in the Piazzale Superiore of the Villa) can be attributed, as well as those from deposit 102 (from the necropolis area). LWs from the Protopalatial period are few and include a few isolated items (discoid LW, spinning bowl).

In the Neopalatial period, however, textile tools appear widely distributed according to a coherent pattern. In the Villa (table 49) they are concentrated in the Quartiere Sud-Ovest (deposit 103, Room 27) and in the adjoining Quartiere Nord-Ovest (Room 15, deposit 104). The numerous spherical LWs from the Piazzale Superiore (deposit 105) can be attributed to the same groups of the Villa, from where they were displaced during Halbherr's excavations. LWs from the Villa indicate the probable existence of weaving areas inside the building.

In the village, LWs are concentrated in some major groups: the Bastione (deposit 106), the Casa del Lebete (deposit 107), the Casa delle Sfere Fittili (deposits 108-109), the Casa del Vassoio Tripodato (deposit 110) and the Casa della Soglia Alabastrina (deposit 111). Deposit 110 is dated to early LM I, deposit 111 to MM IIIB/LM IA and all the others to LM IB. In some cases, as for deposit 108, LWs were stored in a cupboard under the staircase; in the other cases, they may have pertained to a weaving area.

In the necropolis area and in the Settore Nord-Est, groups of LWs, spinning bowls and one SW have been attributed to the different phases of life of the *Casa della Mazza di Breccia*. Deposits 112-113 belong to the final phase (LM IB late), while deposit 115 to the first (LM IB). The pattern of distribution in the two phases is similar: small storage areas (deposit 112 vs. 115) correspond to weaving areas in the artisanal sector of the house (deposit 113-114). LWs of deposit 116 from the area of Tholos B should originally pertain to the same *Casa della Mazza di Breccia*.

The enormous construction activities carried out in Ayia Triada for the construction of the LM IIIA2 Stoà, Edificio P, Edificio W, Edificio NW created deep fillings and terracing, making difficult attribution to LM I or LM III of some items found in the foundation trenches of the above-mentioned monumental buildings. As a consequence, some findings have been included in a chronological section called «orizzonte neo o post-palaziale».

LWs and SWs attributed with certainty to the late palatial period belong only to its initial phase, early LM IIIA1-2. They were found in the «private» houses later demolished for the construction of the public buildings Casa con Gournà, Vano Alfa under Edificio P (deposit 117) and the area to the East of the Agorà (deposit 118).

After the careful review of the contexts, **chapter VI** attempts a wider reconstruction of the technical and social transformations of textile manufacture in Phaistos and Ayia Triada from the Neolithic to the final Bronze Age.

From a technical point of view, the typological evolution of tools seems very clear (table 37): biconical SW in the Neolithic gave way to hemispherical and cylindrical ones in the Prepalatial and to cylindrical shapes in the Protopalatial. The few SWs of the palatial and late palatial periods are stone discoid, while from LM IIIA onwards, SWs from kylix stems appear together with clay and stone conuli and with cylindrical clay SWs in LM IIIC, which becomes more common at the beginning of the Iron age.

The presence of LWs in the Neolithic period is far from being certain, since the published «Neolithic» items could in fact belong to the end of EM. In the Prepalatial period, the evidence of the use of the vertical loom is also uncertain since only stone rings can be considered as weaving tools. The first sure LWs, represented by the flat trapezoidal type, appeared in MM I, and were quickly replaced by the cylindrical ones in MM I-II. Spherical LWs are known in this period, but they seem to be more variants of the cylindrical shape. The last form completely disappears in the Neopalatial period when the spherical ovoid or globular types become predominant until LM IIIA. Discoid or tabulated LWs, typical representatives of Minoan culture abroad, are in fact not so abundant. Discoid and spherical LWs seem to be also present in LM IIIB layers and, from the end of LM IIIB beginning of LM IIIC, spools make their appearance in Phaistos and Ayia Triada.

This technical evolution goes hand in hand with a transformation in the social and economic mode of production. Four main phases can be identified in the long history of Phaistos and Ayia Triada as far as the organization of textile production is concerned. Textile activity appears since the beginning of occupation of the hill of Phaistos, in the Final Neolithic III, as a household activity. A special pattern can be discerned in the last phase of

the Neolithic settlement (FN IV) in the area of Room 25, perhaps explainable as a ritual performing of spinning during ceremonial meetings (a consequence of the introduction of woollen fibres?). During all the Prepalatial period, spinning and perhaps weaving occur at the domestic level and show no special symbolic significance. In the later stages of EM, the vertical loom appears. A first gap in this continuous development can be detected at the beginning of the Protopalatial. New tools and better technologies were introduced, leading to the production of a great variety of products of very fine quality. In the case of Phaistos, the standardization of tools and their concentration within the Palace seem to be aimed at the control of the specialized production of a very specific, veil-like fabric. This means, however, that all the ordinary products were produced elsewhere and were not under the control of the Palace.

In the following Neopalatial period a deeper interest of the central administration in textiles seems to be demonstrated by the documentation in a few Linear A tablets of wool (PH 3, HT 12, 24) and cloth (HT 16, 20, 27, 38; HT Wc 3019) and by the introduction of a weight system for wool. As in the preceding period in Phaistos and Ayia Triada as in the other palaces, however, the concern is more on the weaving and consumption of special cloths, as demonstrated by the groups of tools in the Villa, the Bastione and perhaps in the Casa del Lebete, while a large part of production, consumption and trade, remained outside the direct interest of the administration.

With the end of the Second Palaces and the start of the Mycenaean administration of Crete, continuity and changes are apparent. Continuity is represented by the use of the same tools and techniques, and by the persistence of the know-how and expertise acquired in the preceding centuries, as can be seen in the manufacture of richly decorated dresses. Change is demonstrated by the inclusion in the existing system of decentralized and independent production, in a centralized organization dependent on the Palace, which controlled all phases of textile manufacture, from production to consumption. This process is known only from written texts, and is not evidenced in the material record. SWs and LWs show no distinct concentration within factories or sites.

A further gap followed the collapse of the centralized system at the end of the XIII century, with the emergence of a domestic mode of production, the introduction of new tools, and a contrasting picture of crude LWs and fine worked SWs, sometime in stone (stone nodule). Changes in shape and perhaps techniques of manufacture seem to represent the deep social (and ethnical) transformations which characterize Mesara and Crete at the end of the Bronze Age and the beginning of the Iron Age.