

The Unwound Yarn

Birth and Development of Textile Tools Between Levant and Egypt

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6 Conclusions

The analysis of the spinning and weaving tools from the Levantine and Egyptian areas revealed a great similarity between the two geographic areas and allowed the drawing-up of many conclusions and the posing of various questions, through a comparison of contexts normally studied separately. Some issues that have been here considered have no firm answers at this time and require further and deeper analysis of the materials under question. One of the lingering problems is constituted by the excavation reports used for this work. First, not all reports explain in an equally detailed way the tools that might be related to textile production, and sometimes the absence of certain objects depends on their lack of recognition as such, or a choice made to exclude mundane or fragmentary objects at the time of publication. Certain categories of objects suffered particularly from these judgement calls, such as stone pierced-discs and spindle whorls made of pottery sherds.

As highlighted during this work, there is no certain identification of these objects with spinning and weaving tools, but in order to carry out a more complete work in the future, it was thought to include all the tools that may have had anything to do with the textile sphere. The precision of the statistical data and their relationship with other tools is, however, lost if particular categories are left out of the excavation reports. This problem is noted for the reports from Levantine sites, but it is even more prevalent for Egyptian site reports, in which many objects are often only schematically reported, lacking data essential for the study of these materials (quantities, exact measurements, etc.). Moreover, the lack of textile-specific studies for the Egyptian area makes it difficult to trace a clear picture of the chronological evolution of weaving tools and techniques.

Despite these objective difficulties, some of the conclusions that have emerged in this work appear to be significant. Firstly, it can be seen that spinning tools, spindle whorls in particular, began to appear in the Levant during the Pre-pottery Neolithic, which is remarkably earlier than in Egypt. The production of spindle whorls later, however, seemed to develop in parallel across the two areas, with stone whorls predominating for both the Levant and Egypt, with a secondary production of ceramic whorls and those made of re-used pottery sherds. Wooden spindle whorls are regularly attested in Egypt from the Middle Kingdom onward, but this production most likely began in a much older era.

Production from stone, though expensive, may be related to spinning technology or to the yarn being produced. For stone and ceramic whorls of equal dimensions, a stone spindle whorl will weigh more than a ceramic example, which does affect the twist in the yarn that it can create. For stone and ceramic whorls of equal weight, a stone example will be necessarily smaller than ceramic or wood examples, so it runs faster and for less than a wooden one. This fact makes small stone spindle whorl less adapt to spin long vegetable fibres, such as flax, than wide and light wooden spindle whorls.

From the Middle Bronze Age onward in the Levant a category of precious bone and ivory spindle whorls – frequently found in tombs and which do not correspond to the objects found in Egypt – began to develop.

During the Pharaonic Period Egyptian spinning was always performed with the spindle whorl placed at the top of the spindle. This fact is well-confirmed by iconographic representations and archaeological finds. In the Levant however, we have no clear evidence for where upon the spindle the spindle whorl was placed. A few scattered pieces of iconographical evidence seem to suggest that in Southeastern Anatolia and Northern Syria, as well as at Susa, spindle whorls were placed at the top of the spindle, at least during the Iron Age. The placement of whorls in the Levant, however, is not possible to argue one way or another.

Interesting and divergent data come from tomb contexts. In the Levantine area, spindle whorls and loom weights are well-attested in tombs, especially those of the Late Bronze Age, which are richly supplied with bone and ivory spindle whorls. In Egypt, however, where objects and scenes of daily life are regularly included as grave goods, spindles, spindle whorls and other tools of textile production are never included. One theory used to explain this is that in Egypt spinning and weaving took place in large workshops (as paintings and models demonstrate) and therefore were activities that had little to do with the daily life of most individuals. A similar explanation has been provided for the Mycenaean area, in which spindles of rare materials and distaffs typical of the Mediterranean area during the Late Bronze Age period are very rarely evidenced. These began to appear as grave goods only after the Dark Ages, likely due to social changes that occurred during the transition from a centralised Palatial redistribution system to the 'oikos' system of a small-scale organisation (Borgna 2003, 532).

This explanation, however, does not suit the evidence stemming from either the Levant or Egypt, where it seems that a 'mixed system' existed, with private individuals supplying their own family requirements for cloth (and perhaps creating extra for small-scale trade), alongside the great palatial and temple workshops that provided all the textiles for the court and temple, in addition to those used to pay worker's wages. This situation in Egypt is testified to by the remains from various Worker's Vil-

lages (excavated at Kahun, Amarna and Deir el-Medina), where families depended directly on the palace and received wages that included fabrics although almost all domestic contexts have also brought forth spinning and weaving tools.

The analysis of Egyptian spinning-related objects showed clearly how frequently wood was used for the creation of these tools, which are completely lost in the Near East. Ancient Near Eastern texts reveal that Levantine textile production was oriented towards the use of wool rather than linen, as opposed to the practice in Egypt; this fact suggests that wooden spindle whorls, so important for spinning linen, might have been less common in the Levantine area than in Egypt, but there is no evidence on which an argumentation may rest (wooden spindle whorls could have been used for the spinning of wool).

The results achieved from the analysis of the weights, in particular comparisons made between the two geographic areas, are also very interesting. Although the difficulty of recognising a loom weight from another type of weight is here acknowledged, we can definitively say that the warp-weighted loom was well-known in Palestine and Jordan in the Early Bronze Age, but not widely used in Syria, where the horizontal ground loom was likely used. Beginning from the Middle Bronze Age, loom weight production is well attested, but appears to decrease in the late phase, even in the Southern Levant, until an almost total absence of loom weights is recorded for the Late Bronze Age. This fact seems to be related to the invention of the vertical two-beam loom, the origins of which are uncertain, but which might be found in the Levant. Levantine sites were aware of both the horizontal ground loom and the vertical warp-weighted loom; therefore it is likely that this new invention, which combines elements of both looms, may have happened there.

At some point between the end of the Middle Bronze Age and the beginning of the Late Bronze Age the new vertical two-beam loom was definitely in use in Egypt, as it began to be represented in tombs of the 18th Dynasty. From the Iron Age onward, Egypt and the Levant seem to follow two very different paths regarding textile creation. The warp-weighted loom is well-documented by countless unbaked or lightly baked clay loom weights throughout the Levantine area during the Iron Age. Small numbers of loom weights seem to have been posited for Egypt, but if the warp-weighted loom was in use there, it did not become a prevalent technology.

The controversy of the warp-weighted loom was highlighted by Mace (1922, 75-6) the excavator who recognised dozens of loom weights at Lisht, early on; but there has not been substantial progress regarding this issue in the last one hundred years. Today's research instead seeks to discover which types of weights are to be recognised as loom weights rather than counterweights (for mats, roofs and so on), as those weights made of unbaked clay require an explanation. Three details are particularly signifi-

cant to this question: the weights in Egypt show both original 'Egyptian' shapes as well as shapes well-known in other areas of the Near East, such as bell-shaped, conical, globular and truncated pyramidal shapes. The second detail is the extremely small number of Egyptian loom weight examples, which may be due also to choices made during the publication of the finds. Thirdly, only some of these potential loom weights come from contexts where other textile production tools are attested.¹

Egyptologists typically identify all weights (except those made of clay) as net weights, but there is no reason to exclude the stone objects as loom weights. In their simplest conception, both loom and net weights require only a perforated or roughly-shaped pebble. The weights as found, however, are characterised by defined shapes. We assume that these shapes were designed either for fishing or for weighting the warp; but they may have been re-used for other activities.

The Egyptian documentation provides some interesting data, as there are several representations of fishing scenes in which nets and weights are represented. Still, if all the stone weights are to be seen as net weights, how to explain their common association with spindles, spindle whorls, needles, spatulae and other textile production tools? The explanation could be provided by the representations in tomb paintings, which show that the manufacture of threads for nets was carried out with most of the same tools used to create fabric. Following this idea, the recovery of several weights in a group may not be due to the presence of a loom, but to the presence of a net with weights still attached; once the net is decomposed, it would have left traces similar to that of a loom. Such revised interpretations, supported by Egyptian iconographic and archaeological data, causes one to wonder whether all the weights seen in the Levant prior to Iron Age should unquestionably be considered loom weights.

At Ugarit, Jericho and Arslantepe,² in the Neolithic and Chalcolithic levels there are certain types of objects that can be defined as weights. A first type is a rounded pebble with a longitudinal engraving that makes it resemble a coffee bean, but which is well-suited for fixing a thread. A second type is formed from a pebble with lateral edges worked in order to make them concave. These are the type that are called *galets à encoches* at Ugarit (De Contenson 1992, 128, pl. CXII). Weights similar to these are also found in Egypt throughout the Pharaonic Period and are the most common types of weights. Currently, it is not possible to take the contexts of all weights into account as well as the proximity of their find-spots to the sea or to fish-bearing watercourses, nor is a reference to the different kinds of weights and their quantities per site and morphometric data

1 The weights from Buhen, for example, are not related to any textile tools or material.

2 Personal communication of Dr. Laurito who is studying one type of these weights.

available. Only in the future it will be possible to create a general picture of their primary function within the Levant, while considering the data provided by the Egyptian area.

The remarkable collection of materials kept in the Museo Egizio has allowed the deepening of this analysis, especially as concerns spindles and spindle whorls, of which a good number of examples have been preserved. It has been possible to verify that there existed at least two types of wooden spindles, both types with a groove on the upper end, and that spindle whorls were placed close to this groove. The two different spindle types were of different weights and therefore had different effects on the quality of the spun fibres. The spindle whorls were all made of wood and almost all of them have a cylindrical shape except for very few truncated conical, lenticular and dome-shaped cases. The weight of the intact spindle whorls is light, between 4 g and 19 g, although desiccation has slightly decreased the weight of the wood. Their wide diameters, however, indicate a production of medium quality, not extremely fine yarn. Dimensions, morphologies and weights of the whorls are, however, quite standardised, although we must consider the possible loss of spindle whorls made of other materials.

It is not possible to claim the same level of standardisation for the hanks and balls of yarn, which show threads of various thicknesses, twist directions, quality and purposes. The frequent use of the technique of splicing can be noticed particularly in the most ruined hanks, because the unravelling thread allows a more detailed analysis, which is difficult for pieces where the twist is still very tight.

Weaving tools are not very numerous in this collection because heddles and other parts of looms are missing (but, as it is not easy to distinguish these from pieces of furniture, it is not impossible that some parts of looms may be present). A warp spacer is in evidence, although incomplete; these are not present in large quantities at any of the sites here considered. Of great interest is the spinning bowl found by Schiaparelli at the prehistoric village of Heliopolis, considered to be of New Kingdom date. The possibility that the bowl should actually be dated to the Predynastic period is raised by the Tell el-Farkha excavations, where a particular type of spinning bowl was manufactured from at least the Naqada III Period onward. The absence of spinning bowls in Old Kingdom contexts could be due to lack or errors in recognising this type of objects.

In conclusion, analysis of the artifacts of the Museo Egizio in Turin has made it possible to clarify some technical issues related to the preparation of textile fibres and the spinning system employed; it also allowed us to recognise that spinning bowls were already being used in the Predynastic Period of Egypt. This study has also raised additional questions about some tools whose function is unclear, such as certain types of weights/spindle whorls, and spacer bars. Comparisons between the techniques of spinning and weaving in the Levantine and Egyptian areas has allowed us to iden-

tify some characteristics of spindle whorls, such as the various materials employed to make them. The comparison between the types of weights in evidence has not only reopened the discussion about whether or not the warp-weighted loom was known in Egypt, but has also raised questions regarding the effectiveness of the methods of loom weight identification for the ancient Near East.