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# THEFBO

## The cultural-historical importance of textile production in the prehistoric wetland settlements

### Introduction

THEFBO – “The cultural-historical importance of textile production in the prehistoric wetland settlements on Lake Constance and Upper Swabia - in the context of the requirements for textiles: objective and perception” is a co-operation project within the funding framework of “The Language of Objects - Material Culture in the Context of Social Development” from the Federal Ministry of Education and Research in Germany. This funding framework offers a great opportunity for collaboration between a range of faculties and disciplines, addressing various cross-cutting issues and integrating archaeological objects in archaeometry, conservation work, modern textile research, experimental archeology and museology. Only with the involvement of all these faculties can the full potential of textiles in wetland archeology be fully unfolded. The potential is there for understanding the key elements of textiles in the cultural historical context of these settlements in southern Germany, an understanding that may likewise change the perception of early arable crop farmers locally and even internationally.

The project will run from September 2018 until August 2021. It is coordinated by the Department of Textile Archaeology at the State Office for Cultural Heritage Baden-Württemberg in Esslingen. The partners are The University Erlangen-Nürnberg, the Archaeological State Museum Baden-Württemberg in Konstanz, the Curt-Engelhorn-Center Archaeometry GmbH in Mannheim and the University of Würzburg.

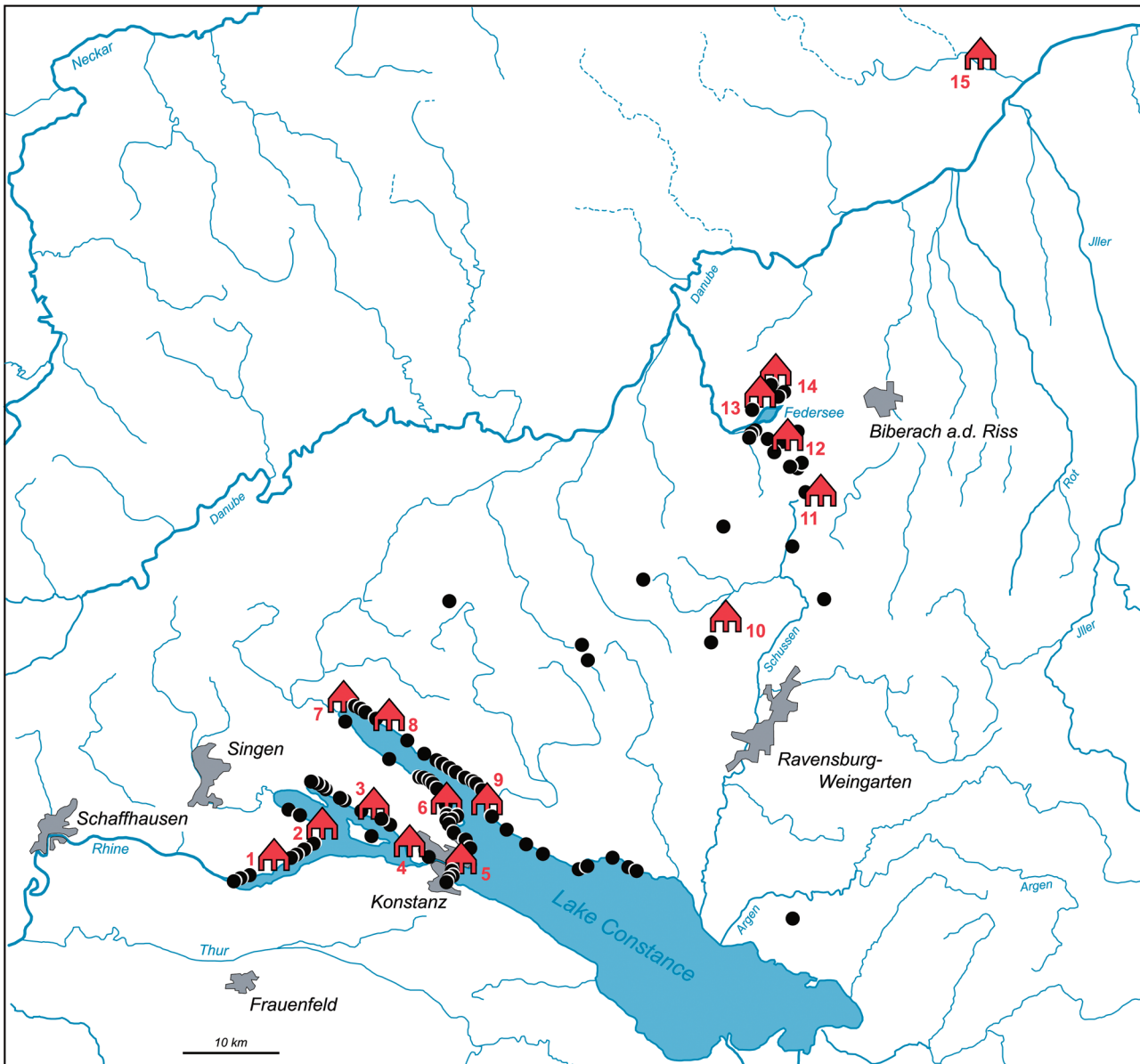
### Pile-dwelling settlements – early textile production


Pile-dwelling settlements have so far been documented around the Alps, e.g. the lakes and bogs in and around

Switzerland, eastern France, northern Italy, Slovenia, Austria and south-west Germany, and they belong to the most important prehistoric discoveries in Europe. These important and unique groups of well-preserved settlements were placed on the UNESCO Cultural World Heritage list in 2011, thus confirming the significance of these outstanding sites that have an abundance of archeological material.

A significant amount of pile-dwelling settlement research has taken place in Baden-Württemberg, where some large-scale, interdisciplinary projects have been in progress since the 1970s. These projects, in cooperation with the State office for Heritage Management and Archaeology and with universities and museums, have all played an important role in the gathering and archiving of material from these sites (Pfahlbauten 2016) (fig.1). In Switzerland, as well as eastern France, textile fragments from numerous well-preserved sites have been excavated and published (e.g. Bazzanella et al. 2003, Médard 2010, Rast-Eicher & Dietrich 2015). Only a small percentage, however, of the data on textiles of the south German wetlands has so far been published (Körber-Grohne & Feldkeller 1998, Feldtkeller 2004; Banck-Burgess 2015).

The primary focus of early textile production research has most often been the weaving perspective and the introduction of flax fibers. This perspective is decisively influenced by the modern perception of textile production techniques. It often places too much emphasis on the production aspects of weaving that required mechanical facilities and was classified as “höhere stoffbildende Techniken”, in contrast to the main textile techniques of prehistory that were reclassified as “primäre stoffbildende Techniken”



-  UNESCO World Heritage nominated prehistoric pile dwellings in Baden-Württemberg:  
 1 Wangen-Hinterhorn, 2 Hornstaad-Hörnle, 3 Allensbach-Strandbad, 4 Wollmatingen-Langenrain, 5 Konstanz-Hinterhausen, 6 Litzelstetten-Krähenhorn, 7 Bodman-Schachen/Löchle, 8 Sipplingen-Osthafen, 9 Unteruhldingen-Stollenwiesen, 10 Wolpertswende-Schreckensee, 11 Olzreute-Enzisholz, 12 Bad Buchau-Siedlung Forschner, 13 Alleshhausen-Grundwiesen, 14 Alleshhausen/Seekirch-Ödenahlen, 15 Blaustein-Ehrenstein.

- associated prehistoric pile dwellings in Baden-Württemberg

Fig. 1: Pile dwellings in Baden-Württemberg (Image: Yvonne Mühleis, State Office for Cultural Heritage Baden-Württemberg in Esslingen)

(Seiler-Baldinger1991). The history of linen is often referred to as part of a prehistoric revolution that had its origins in the Near East (Karg 2015). The main

thesis in this project, however, aims to illustrate the significance of textile fibers and their manufacturing process with the context of the early agrarian settlements. There are five hypothesis that are being followed:

**1:** The contemporary manufacturing textile techniques that are present at the Neolithic Lakeside



Fig. 2: Sieve; twine binding; pile dwelling Sippligen (Image: Yvonne Mühleis, State Office for Cultural Heritage Baden-Württemberg in Esslingen)

settlements around the Alps were already in use during the transition to early domestic lifestyle. The knowledge of techniques in use stems directly from the previous hunter-gatherer cultures. By researching and establishing exactly how these techniques and processes came into being, it should become possible to demonstrate the astounding efficiency and the close symbiosis between different production techniques and the more specialised processing methods of textile fibers. It may likewise become clear that there were no multifunctional textiles in the early Neolithic society but instead specifically made objects that were adjusted to fit the precise function. These technical textiles could well have been normalized standards but still have had certain textile characteristics that point towards a specific adaptation of their functions (fig. 2 and fig. 3).

**2:** The extraction, transformation process and production of tree bast fibres, including the portable production of mesh fabrics, braids and warp fabrics for two and three dimensional textile objects, had reached a high level of production during the early Neolithic culture. Although the flax fibre for woven textiles was already well established there seems not to have been a sudden or enormous requirement for this production.

**3:** Flax fibres in their earliest usage are primarily found within the context of fishing. The design of finely produced flax fibre fishing nets generated a significant increase in the catch spectrum for the Neolithic people.

**4:** While technical textiles were important for the early farmers they were less important towards the end of the Neolithic culture with the transition to metal-bearing cultural groups. In this time, referred to as shifts in socio-political culture, it seems that woven textiles

i.e., with large, two-dimensional scale increased. The woven fabrics were primarily used for clothing and textiles that had a social significance. This response is linked to the convenience of different weaving facilities such as the warp-weighted loom. Wool, at the end of the fourth millennium began slowly to gain importance in Central Europe, and may have had a significant role in this context. This change might emerged by a change in the requirements of textiles, a shift in the perception of textiles and therefore their production.

**5:** An increase in large-scale fabrics at this time also led to a loss of knowledge, namely the extraction and processing of tree bast fibres. This in turn led to a decline in textiles from tree bast fibres. In this context the storage basket largely replaces the range of different, individually produced vessels, containers and other technical textiles.

#### The archaeological material

These five hypothesis are being carried out on textile complexes from well documented wetland settlements around Lake Constance and Upper Swabia. There are over 1700 objects, the majority of which are stored in the state archives of the Archaeological State Museum Baden-Württemberg in Rastatt. The textiles from the Neolithic settlement of Hornstaad -Hörnle IA (dated BC 3917-3902) is unique with more than 1200 objects. No other Neolithic wetland settlement in Europe has yielded such an extensive amount of textiles covering such a short settlement period (fig. 4 and fig. 5). Many other outstanding wetland textiles are currently stored at the Landesmuseum Stuttgart, Rosgartenmuseum Konstanz, Tübingen University Collection, Hohenzollern Collection in Sigmaringen, the Reiss-Engelhorn Museums in Mannheim or are exhibit in the Archaeological State Museum in Konstanz. Only a small number of these finds has been published so far: about 100 objects from Hornstaad-Hörnle IA (Körber-Grohne & Feldtkeller 1998), about 30 objects from Seekirch-Achwiesen (Feldtkeller 2004), a comparable number of textiles from Degersee in Upper Swabia (Banck-Burgess 2015) or as isolated finds from Bodmann-Schachen (Köninger 2006). The research results are concentrated in a databank especially for this purpose.

#### Research priorities

The vast majority of textiles from the pile dwelling were produced from tree bast, especially lime bast. In the ethnographic literature, there is very little information found regarding its extraction process, its treatment and processing methods. This has already

been addressed (Harris et al. 2017). Research on lime-bast fibers will be carried out within the framework of the project but driven by research in paleo botany, modern fibre research, textile archeology and hence demonstrate the potential of this raw material. Interdisciplinary research of individual textile groups, such as on ropes or stitched bark containers, combined with experimental archeology should emphasize their outstanding and versatile usage in everyday life of the farming settlements (Banck-Burgess 2017). A compilation of European textile finds from the Mesolithic culture is intended to show to what extent the conditions for such a high-end textile trade already existed in Mesolithic Central Europe.

#### Cooperation between the research partners and practice partners, and the division of tasks

A comprehensive survey and analysis of wetland textiles is taking place in the central archaeological archive of the archaeological Landesmuseum in Rastatt. This is accompanied by the wetland archeology of LAD in Baden-Württemberg with regard to evaluation of finds. The design and development of a suitable database ensures that these important finds are also accessible to future research. The functional classification of the sewn bark container and coiled baskets should be supported by the study of the food and remaining residues, which will be carried out at the University of Tübingen/Archaeometry. The practical usage of coiled baskets and bark containers will be based on results from experimental archaeology at the University of Exeter. The collections of ropes and cords are examined at the University of Nürnberg-Erlangen. They should be examined in accordance with their expected functional use within pile-dwelling constructions, the transfer of heavy objects, and binding of different objects. Theoretical consideration on the amount of raw materials necessary for textile production, especially the need for tree bast fibers, will be sketched out. In order to make optimal and sustainable use of the knowledge resulting from the project, in particular concerning the research and identification of lime bast fibers and lime bark, two of the THEFBO partners, the archaeometry center in Mannheim (textile research) and the Dendrology/Palaeobotany of wetland archeology at the LAD (Hemmenhofen) are to share a position. From Mannheim, material tests by the German Institute for Textile and Fiber Research (DITF) in Denkendorf, will be coordinated. These tests will be based on samples from experimental archeology to determine material properties of lime bast and flax fibers. In order to assess the potential of limebast at different stages

of preparation and processing, partners working together at the University of Erlangen and ALM will carry out an investigation of production techniques. An important partner in this joint project is the museum's specialist at the University of Würzburg. The opening of a small exhibition at the Federseemuseum is part of a workshop in June 2020. An Internet forum is already developed for the purpose of becoming an intensively used portal for providing up-to-date information that can be exchanged between all partners during the span of the project. This forum will allow a closer and more immediate communication between individual specialists. A website ([www.thefbo.de](http://www.thefbo.de)) provide the public with information about the project.

#### Conclusion

THEFBO's vision is to prove that the transition to settled communities within early farming culture



Fig. 3: Part of a back carrier; pile dwelling Hornstaad-Hörnle IA (Image: Yvonne Mühleis, State Office for Cultural Heritage Baden-Württemberg in Esslingen)

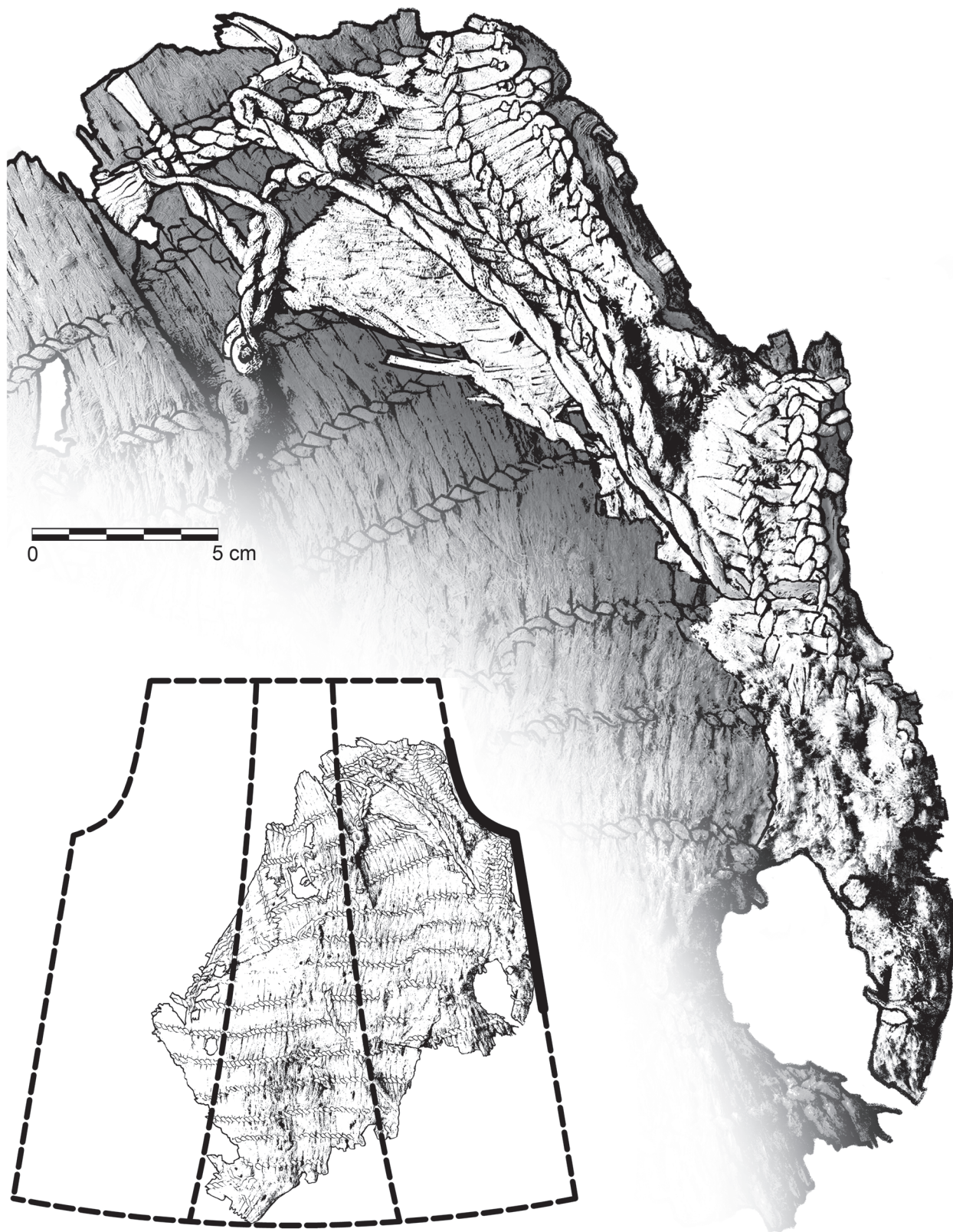


Fig. 4: Fragment of a piece of clothing; pile dwelling Hornstaad-Hörnle IA (Image: Christina von Elm and Johanna Banck-Burgess, State Office for Cultural Heritage Baden-Württemberg in Esslingen)



Fig. 5: Stitched bark container; pile dwelling Sipplingen (Image: Yvonne Mühleis, State Office for Cultural Heritage Baden-Württemberg in Esslingen)

was largely determined by textile production. In this collaborative project, the research team will use textiles artifacts to demonstrate a new and exciting perspective of early agriculturally-oriented settlements. The aim is to show that these settlements were essentially shaped by textiles, in their daily livelihood, their cultural self-understanding and their cultural-historical development up to the Bronze Age. The interdisciplinary group of scholars from textile archeology, palaeobotany, archaeometry, fiber and textile research, experimental archeology and museology will pursue not only the main research areas, but also with the intention of supporting and strengthening textile archeology as an academic discipline and bring the results to the attention of a wider public.

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