Textile Terminologies from the Orient to the Mediterranean and Europe, 1000 BC to 1000 AD

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The papers in this volume derive from the conference on textile terminology held in June 2014 at the University of Copenhagen. Around 50 experts from the fields of Ancient History, Indo-European Studies, Semitic Philology, Assyriology, Classical Archaeology, and Terminology from twelve different countries came together at the Centre for Textile Research, to discuss textile terminology, semantic fields of clothing and technology, loan words, and developments of textile terms in Antiquity. They exchanged ideas, research results, and presented various views and methods.

This volume contains 35 chapters, divided into five sections:

- Textile terminologies across the ancient Near East and the Southern Levant
- Textile terminologies in Europe and Egypt
- Textile terminologies in metaphorical language and poetry
- Textile terminologies: examples from China and Japan
- Technical terms of textiles and textile tools and methodologies of classifications

The 42 contributors include Salvatore Gaspa, Cécile Michel, Marie-Louise Nosch, Elena Soriga, Louise Quillien, Luigi Malatacca, Nahum Ben-Yehuda, Christina Katsikadeli, Orit Shamir, Agnes Korn, Georg Warning, Birgit Anette Olsen, Stella Spantidaki, Peder Flemestad, Peter Herz, Ines Bogensperger, Herbert Graßl, Mary Harlow, Berit Hildebrandt, Magdalena Öhrman, Roland Schuhmann, Kerstin Droß-Krüpe, John Peter Wild, Maria Mossakowska-Gaubert, Julia Galliker, Anne Regourd, Fiona J. L. Handley, Götz König, Miguel Ángel Andrés-Toledo, Stefan Niederreiter, Oswald Panagl, Giovanni Fanfani, Le Wang, Feng Zhao, Mari Omura, Naoko Kizawa, Maciej Szymaszek, Francesco Meo, Felicitas Maeder, Kalliope Sarri, Susanne Lervad, and Tove Engelhardt Mathiassen.

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Textile Terminologies
from the Orient
to the Mediterranean
and Europe,
1000 BC to 1000 AD

Salvatore Gaspa, Cécile Michel, & Marie-Louise Nosch, editors

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2017
This volume is the fruit of a longstanding collaboration in the field of textile terminologies. Since 2005, Cécile Michel and Marie-Louise Nosch have collaborated on numerous academic activities – joint teaching, lectures at conferences, experimental workshops, co-publishing and co-editing. One of the highlights was the first Textile Terminologies of the 3rd and 2nd millennia conference, an exploratory workshop with a diachronic and interdisciplinary scope held in Copenhagen in March 2009 with the generous support of the European Science Foundation.

The French-Danish scholarly cooperation on textile research was further consolidated in the “Programme International de Coopération Scientifique” TexOrMed (2012-2014). The European Science Foundation Exploratory Workshop on Wool economy in the Near East and the Aegean organized in Nanterre in November 2012 was one of the flagship projects of this collaboration.

In 2013 Salvatore Gaspa joined the team with a prestigious Marie Curie Grant from the Seventh Framework Programme of the European Union (FP7). Together they fostered the idea of continuing the textile terminological research but widening the scope to Central and North European and Asian languages and focusing on the 1st millennium BC and 1st millennium AD, thus providing a platform for the textile terminological exchange of the classical languages of Greek and Latin, but also including Germanic languages, Armenian, Italic, Semitic, Chinese and Japanese.

The second conference on textile terminology was held in June 2014 at the University of Copenhagen. Around 50 experts from the fields of Ancient History, Indo-European Studies, Semitic Philology, Assyriology, Classical Archaeology, and Terminology from twelve different countries came together at the Centre for Textile Research, to discuss textile terminology, semantic fields of clothing and technology, loan words, and developments of textile terms in Antiquity. They exchanged ideas, research results, and presented various views and methods.

It was a specific aim to cross disciplinary boundaries, both between language families and chronological phases, but also to keep the focus on textiles and garments as visual, tactile and material items, and not simply words. This multi-faceted view is also apparent in the present volume. We have, as far as possible, included illustrations where it was possible, in order to marry images, objects and words.

The present volume has been prepared within the frame of an international cooperation, the Groupement de Recherche International ATOM = Ancient Textiles from the Orient to the Mediterranean (2015-2018) which involves several research institutions and universities in France, Denmark and the United Kingdom. ATOM aims to define both the impact of textile production on agriculture, husbandry and the environment, its role in handicrafts, in trade, and, more generally, in the ancient economy, but also the uses of clothing in the construction of gender and individual and collective identities.

We are delighted that Zea Books of the University of Nebraska–Lincoln Libraries’ Office of Scholarly Communications accepted this volume for publication. The open and free access will make our joint efforts available worldwide, and this is particularly important for a topic such as textile terminologies, which represents a truly global phenomenon. The electronic interface makes the papers searchable for those colleagues wishing to follow the paths of a textile or garment term, or for those who will search for textile techniques, tools or professions across languages and culture. We hope that the specialized papers will reach experts around the world, and enjoy a large and interested global readership who finds that the terminology of textiles is an intriguing endeavour.
We warmly thank all participants for their insightful and stimulating papers, lively discussions, inspiring exchange of ideas, both during the conference and in continued exchanges after the conference.

We would like to express our sincere gratitude to those individuals and institutions who have contributed to the success of the conference and to the editorial work for the publication. First and foremost, for the generous financial support from our sponsors and hosts providing the institutional and financial framework for this conference and its publication: The Danish National Research Foundation’s Centre for Textile Research (CTR), the Alexander von Humboldt Stiftung, the PICS TexOrMed, the GDRI Ancient Textiles from the Orient to the Mediterranean (ATOM), and the Centre National de la Recherche Scientifique (CNRS). Financial support has also been provided by the Marie Curie Intra-European Fellowship within the Seventh Framework Programme of the European Commission for research activities at the University of Copenhagen (ASTEX Project no. 36539).

This publication benefitted from the assistance and advice of our colleagues Peder Flemestad, Cherine Munkholt, Cailin Kwoh and Sidsel Frisch.

Salvatore Gaspa
Cécile Michel
Marie-Louise Nosch
December 2016
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Naoko Kizawa is interested in the historical use of organic materials such as wood, fibers and related technologies. Kizawa especially concentrates on that of wood. The study of wooden artifacts provides us with a lot of information about the tools used to make them as well as the development of manufacturing techniques. In Japan, a country rich in natural vegetation, many kinds of wood species have been used since the Jōmon (Neolithic) period to enrich human lives. It is significant to understand people’s ideas concerning the use of wood and the surrounding environment throughout these remains. Naoko Kizawa and Mari Omura have been studying excavated combs from ancient East Asia, and comparing instances of combs excavated from Japan with those found in other countries, in the Korean Peninsula and in China. Moreover, combs were so popular to everyone that they could easily be carried by people from region to region. So it is possible to know about relationships between Ancient Japan and the surrounding areas by studying them.

Götz König is currently research associate at Ruhr Universität Bochum/Germany. He has studied Iranian Studies, philosophy, German literature. His work is mainly based in the field of Zoroastrian Studies and comprehends philological studies as well as research in the field of religion, literature and intellectual and cultural history. His current work is focused on the Xorde Avesta (its texts, translation, genesis and history), a history of rationality in Old Iran and a description of the Pahlavi literature as a reformulation of the Zoroastrian tradition under the influence of Greek philosophy.

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Susanne Lervad, PhD, is visiting scholar and terminologist at the Centre for Textile Research at the SAXO institute at Copenhagen University. She is trained at the University of Southern Denmark and Université Lyon 2 (Centre de Recherche en Terminologie et Traduction) in specialized communication within the textile field, — especially weaving and the configurations of verbal and nonverbal representation of concepts in terminology. She has a series of publications in diachronic as well as synchronic aspects of textile terminology (see Dury, Lervad [2010], “Synonymic variation in the field of textile terminology”, and Dury, Lervad & Nosch [2011], “Verbal and nonverbal configurations of textiles, a diachronic study”), and is co-editor of Verbal and nonverbal representation in terminology, proceedings of the TOTH workshop 2013 at the DNRF’s Centre for Textile Research in 2013 and author of the book’s epilogue “Professional Nonverbal Communication in the field of textiles”. Since 2007 project member of the textile terminological project www.textilnet.dk, member of CIETA and the Danish and international networks of terminology: DANTERM, NORDTERM and the European Association of Terminology (EAFT). Owner of and terminology coach of the consultancy firm Termplus aps 2003.

Felicitas Maeder born in St. Gallen, Switzerland, in a family of former textile entrepreneurs – a fact that might have had some genetic implications. As an autodidact, she initiated in 1998 at the Natural History Museum Basel, Switzerland, the Sea-silk Project – with three goals: compiling an inventory of all objects in sea-silk still existing; tracing the history of this forgotten textile material, its production and processing; and the
documentation of the knowledge and the remains of this cultural heritage of the Mediterranean. Today the inventory includes more than 60 objects. They are presented online together with the biology of the fan shell and its fibre beard called byssus, the history and the production process of sea-silk in English, Italian and German (www.muschelseide.ch). It includes also an extensive bibliography. In 2004 she curated the world’s first thematic exhibition at the Natural History Museum Basel: Muschelseide – Goldene Fäden vom Meeresgrund / Bisso marino - Fili d’oro dal fondo del mare. The exhibition catalogue is the first illustrated monograph and completely bilingual, in German and Italian. In 2012, Felicitas Maeder received for her research an honorary doctorate of the Faculty of Humanities of the University of Basel, Switzerland. The main research topic lays now on terminological studies: What is the difference between the antique textile term byssus and sea-silk – often called byssus silk? And what were the terms given to sea-silk from Antiquity till late Middle Ages in different languages and cultures, at different times? Also the search for other sea-silk objects continues.

Luigi Malatacca is an Assyriologist. His focus is on the Neo- and Late Babylonian period and, in June 2016, he completed his PhD at the University of Naples “L’Orientale”. His work is entitled Cultura materiale nella Babilonia del I millennio a.C.: L’industria tessile (Material Culture in First Millennium BC Babylonia: The Textile Industry) and it is about Neo-Babylonian textiles in the textual evidence.


Francesco Meo is an archaeologist, Adjunct Professor in the Department of Cultural Heritage at the University of Salento (Lecce, Italy). In 2011, during his PhD in Ancient History, he has been visiting scholar at the CTR in Copenhagen. He is the co-organiser of the International Workshop “Treasures from the Sea. Sea Silk and Shellfish Purple Dye in Antiquity” (Lecce, Italy - 26-28 May 2013) and of the VI Purpureae Vestes International Symposium “Textiles and Dyes in the Mediterranean Economy and Society” (Padua, Italy - 17-20 October 2016). In 2014 he was awarded the Italian National Price on Archaeology of Production “FecitTe”. Since 2015 he is Professor of Archaeology of Great Greece at the University of Salento, Italy. Since 2016 he is the Scientific Director of the Muro Leccese Archaeological Project, a Messapian indigenous settlement in Southern Puglia Region — Italy, and member of the International Archaeological Mission.
in Hierapolis of Frigia-Pammukale, Turkey. Last main publications: a monograph entitled *L’attività tessile a Herakleia di Lucania tra III e I secolo a.C.* (Rome 2015); co-editor of the book entitled *Muro Leccese. The Secrets of a Messapian Settlement* (Lecce 2016). His research aims at the study of textile production in Southern Italy between the Iron Age and the Roman Empire and of the changes of the Messapian society between the Iron Age and the arrival of the Romans in the mid-3rd century BC.

Cécile Michel is a historian and Assyriologist, Director of Research at the National Centre of Scientific Research (CNRS) in the *Histoire et Archéologie de l’Orient Cunéiforme* (Archéologies et Sciences de l’Antiquité) at Nanterre, and Professor at Hamburg University. She is a collaborator of the Centre for Textile Research (CTR) since 2005. Working on the decipherment and study of cuneiform texts from the first half of the 2nd millennium BC (private archives of merchants, state administrative archives), her main research interests are Mesopotamian trade, Upper Mesopotamian and Anatolian societies, gender studies, daily life and material culture (fauna, food, metals, textiles), calendars and chronology, history of sciences, education, writing and computing. Coordinator of the International Research Network (GDRI) *Ancient Textiles from the Orient to the Mediterranean* (ATOM, FR – DK – UK), she organized and published international conferences on textile terminologies (with Nosch, *Ancient Textile Series* 8, Oxford 2010) and wool economy (with C. Breniquet, *Ancient Textile Series* 17, Oxford 2014).

Maria Mossakowska-Gaubert graduated from the University of Warsaw. She is an archaeologist and a historian, graduated in Greek papyrology. Former assistant-curator at the National Museum of Warsaw, Department of Oriental Christian Art (1993-1999), she was an externally supported scientific fellow at the French Institut of Oriental Archaeology in Cairo – IFAO (1999-2003), then associate researcher in the IFAO. Since January 2017, she is a Marie Skłodowska-Curie Fellow at the University of Copenhagen’s Centre for Textile Research – CTR. Her current research focuses on the material culture of Egypt in Byzantine, and early Arab periods, combining the archaeological and iconographic data together with information derived from texts. She has a special interest in Egyptian monks everyday life: its economic, social, and religious aspects. She also continues as an active archaeologist and collaborates with many missions in Egypt as a specialist in glass objects. Maria Mossakowska-Gaubert has participated in many international and interdisciplinary projects, co-managing some of them and supervising the publication of their results (e.g. *La vie quotidienne des moines en Orient et en Occident (IVe-XVe siècle); Les moines autour de la Méditerranée : contacts, échanges, influences entre Orient et Occident de l’Antiquité tardive au Moyen Âge (IVe-XVe siècle); Contextes et mobiliers. De l’époque hellénistique à la période mamelouke. Approches archéologiques, historiques et anthropologiques*).

Marie-Louise Nosch is a historian and the director of the Danish National Research Foundation’s Centre for Textile Research (CTR) at the University of Copenhagen and the National Museum of Denmark from 2005 to 2016. She is a Professor in Ancient History in the University of Copenhagen. She was awarded her PhD by the University of Salzburg in 2000 with a thesis on Mycenaean textile administration in Linear B and has subsequently merged Linear B studies with experimental archaeology and textile tool studies; as director of the CTR, she has launched research programmes combining archaeology and natural sciences. She is author, co-author and editor of many works on Aegean Late Bronze Age textile production in the Mycenaean palace economies.


Mari Omura is interested in the historical use of organic materials. She has been focusing on fibers and textile technologies including archaic braiding techniques. Through previous research projects concerning the braids and threads taken from both plants and animals (such as cocoons, lotus, and sheep) the intercultural relationships between these materials and textile technologies from early stages began to be considered. To construct this paper, she was aided by the linguistic awareness gained through her upbringing in the countryside that some dialects contain old terms. An example of this is the term gurumegi which seems to have been derived from kurumeku or kurubeku was still used there as a term for ‘ankle’ in her childhood. The sound of this word seemed strange or odd to her although it is important in the wider context of textile terminologies.

Louise Quillien is agrégée d’histoire and has a PhD in Assyriology from the University of Paris 1 Panthéon-Sorbonne (France) on the topic Textiles.
in Mesopotamia, 750-500 BC, manufacturing techniques, trade and social meanings. She is member of the Histoire et Archéologie de l’Orient Cunéiforme (Archéologie et Sciences de l’Antiquité) at Nanterre. She works on economic and social history of Babylonia during the 1st millennium BC, as well as on history of technics and material culture. She has a formation in history and epigraphy and is specialised in the reading of Akkadian language of the Neo-Babylonian period. Her research focuses on the history of textiles, mainly through the cuneiform texts, and also from the iconography, archaeological remains and textile imprints. In her PhD she studied the economic and non-economic circulations of textiles, the organisation of their production and their various uses in Babylonian society. The clarification of textile terminology is an important aspect of her research, because it is crucial for the understanding of the different aspects of textiles, the technics of manufacturing and the functions of textiles in the Babylonian society.

Oswald Panagl was trained as a linguist and in classical philology in the University of Vienna, Austria. His Habilitation was in 1976. He has taught linguistics in the University of Munich and University of Salzburg. His research areas include Mycenaean studies and historical linguistics, in particular etymology, semantic changes, syntax, historical grammar of the Indo-European languages (especially Greek, Latin, Germanic languages, Sanskrit, and Baltic languages). He is the editor of the conference proceedings Die neuen Linear B-Texte aus Theben. Ihr Aufschlusswert für die mykenische Sprache und Kultur, Wien 2006 (with S. Deger-Jalkotzy) as well as Die frühgriechischen Texte aus mykenischer Zeit. Zur Erforschung der Linear B-Tafeln (with S. Hiller), Darmstadt 1976.

Anne Regourd is Senior Researcher at the Department of Cross-Cultural Studies, University of Copenhagen, Denmark, and she is an Associate at the CNRS, France. She taught Arabic Epigraphy and Papyrology at the University of Vienna, Institut für Orientalistik. She has publications in the fields of history and philology dealing with codicology, catalogrophy, paper studies, papyrology, and epigraphy. She has worked extensively on Yemeni, and now Ethiopian, manuscripts.

Kalliope Sarri is a Marie Skłodowska-Curie Fellow 2015-2017 at the Centre for Textile Research, University of Copenhagen. She has studied history and archaeology at the University of Athens and obtained her PhD at the Institute for Prehistory and Proto-history of the University of Heidelberg. She is specialized in the Aegean prehistory, being particularly interested in settlement patterns, burial customs and pottery production. She has written a book (Orchomenos in the Middle Bronze Age, Munich 2010) and a series of articles on the Middle Bronze Age and on prehistoric pottery assemblages in the Aegean. Her second scholarly interest concerns textile archaeology and terminology and she currently investigates textile technologies during the Aegean Neolithic. Her on-going research project NETIA (Neolithic Textiles and Clothing Industries in the Aegean) is supported by the EU.

Roland Schuhmann studied Classics in Leiden, Indo-European and Classics in Gießen and Indo-European, Latin and Medieval Latin in Jena. Since 2000 he works as research fellow on the Etymologisches Wörterbuch des Althochdeutschen. Between 2005 and 2012 he was research fellow at the Lehrstuhl für Indogermanistik at the Friedrich-Schiller-Universität Jena and between 2013 and 2014 he worked as research fellow on the project Reading and interpreting runic inscriptions: the theory and method of runology at the Centre for Advanced Study in Oslo. Between 2015 and 2016 he is research fellow at the Department of German Studies and Linguistics at the Humboldt-University at Berlin. He has published articles on Germanic and Latin linguistics.

Orit Shamir is an archaeologist who wrote her PhD about Textiles in the Land of Israel from the Roman Period till the Early Islamic Period in the
**Light of the Archaeological Finds** and her MBA about *Textile Production in Eretz-Israel at the Iron Age in the Light of the Archaeological Finds*. Her area of specialization are textiles and related artifacts, basketry and cordage from Neolithic to the Medieval period in Israel. She is Curator of Organic Materials and head department of museums and exhibits, Israel Antiquities Authority. She supervised MBA thesis by Goldman Y., 2013, *Micro-RTI as a Means for the Documentation and Investigation of Textiles: An assemblage from Yoram cave, Judean Desert, as a case study*. M.A thesis. Haifa University. With Ravit Linn and Workman V., 2016, *Textile Finds from Timna and their Social, Historical, and Technological Implications for the Ancient Mining Community*. M.A thesis. Tel Aviv University with Erez Ben-Yosef. She published widely and participated at many conferences. The publications and conferences are listed at: antiquities.academia.edu/OritShamir.

**Elena Soriga** is an archaeologist and a historian of the Ancient Near East specialised in cultural ecology and economic anthropology. She was awarded her PhD in Ancient Near Eastern history by the University of Naples “L’Orientale” in 2016, with a multidisciplinary thesis entitled *Natural Resources of the Bronze Age Textile Technology. Economic, ecologic and symbolic role of the raw materials involved*. Her work focuses on the study of cuneiform texts dealing with natural resources and on the Sumerian and Akkadian terminology of raw materials in order to understand the actual practical use and ideological meaning of animal, plants and minerals in ancient economies and societies of the Eastern Mediterranean and Mesopotamia. Besides textiles and dye technology, her research interests include trade and maritime exchanges in Bronze Age Eastern Mediterranean, daily life and material culture like fauna and flora, foods and food practices, tools, medicine, cosmetics, and ornamentation as well as identity and gender studies. Her methodological approach combines philology, archaeology, iconography, linguistics, literary and religious studies to bioarchaeology, natural sciences, experimental archaeology and ethnoarchaeology.

**Stella Spantidaki** is a Greek archaeologist specialising in Greek archaeological textiles. Her PhD, *Textile Production in Classical Athens*, published in 2016 by Oxbow Books, focused in textile production in Classical Athens. She is interested in interdisciplinary research combining fields such as ancient philology, ancient history, archaeology, art history, chemistry, biology and experimental archaeology. Since 2015 she is the Director of ARTEX, the Hellenic Centre for Research and Conservation of Archaeological Textiles in Athens.

**Maciej Szymaszek** is a postdoctoral fellow and project manager at the Department of Historical Studies, University of Gothenburg. He is principal investigator in the Swedish Research Council project *Tracing the provenance of ancient Egyptian textiles: Tove Alm’s collection* (2015-2019). He is currently editing a volume on the origins and histories of ‘Coptic’ textile collections and has forthcoming articles on the Nubian fabrics kept at the Oriental Institute Museum in Chicago and the Museum Gustavianum in Uppsala. His doctoral research has been focused on the so-called *gam-madia* signs found on Roman and Late Antique textiles. His monograph on this topic included an extensive catalogue of over 500 archaeological textiles and representations. He has published papers about the region of Tur ‘Abdin, pioneers of art historical research in Syria and Mesopotamia, visualizations of historical buildings, and textile terminology in the 1st millennium AD.

**Le Wang** is an Associate Professor at the College of Fashion and Design, Donghua University, Shanghai. She was awarded her PhD by Donghua University in 2009 with a dissertation on the silks discovered in Dunhuang. Her research focuses on history of textiles and costume. She is currently working on the topic *The Design and Cultural Exchanges Reflected by the Silks along the Silk Road from the 2nd Century BC to 10th Century AD*. 
Georg Warning is an independent researcher based in Konstanz / Germany. His interests include languages and history, particularly of the area Anatolia – Iran – Caucasus. With a professional training in chemistry, he is likewise interested in botany and zoology, again with a focus on the historical perspective.

John Peter Wild studied Classics and provincial-Roman Archaeology at the Universities of Cambridge and Bonn, obtaining a doctorate for a dissertation on provincial-Roman clothing and textiles. Thereafter he was appointed to a post at Manchester University to teach Greek and Latin language, later archaeology, and remained in that university until retirement. His principal archaeological fieldwork has been in the Nene Valley (Peterborough, Eastern England) where he has directed excavations on a series of Roman pottery-production sites. His personal bibliography, however, reflects for the most part his research on aspects of archaeological textiles and textile manufacture across the Roman Empire.

Feng Zhao is the Director of China National Silk Museum, Hangzhou. He is also a Professor for history of textiles and costume in Donghua University, Shanghai. He received his PhD from China Textile University (present day Donghua University) in 1997. His main research is on the textiles along the Silk Road, especially based on the excavations. He focuses on the interdisciplinary research on science and technology history, art history and archaeology. As a director of China National Silk Museum, he also pay attention to the conservation of ancient textiles and the inheritance and innovation of traditional crafts. His publication *The General History of Chinese Silk* (editor in chief) was awarded the First National Publication Award for 2007 and *Chinese Silks* (editor in chief for the Chinese version) was awarded the R. L Shep Ethnic Textiles Book Award for 2012.
Textile Terminologies, State of the Art and New Directions

Salvatore Gaspa, Cécile Michel, Marie-Louise Nosch

The first published volume dedicated to the diachronic study of ancient textile terminologies gathered contributions on Semitic and Indo-European studies based on texts dated mainly to the 3rd and 2nd millennium BC.1 It provided a rich body of data and the first steps in elaborating a methodology of how to analyse textile terminologies and technologies according to various categories. Yet, it also highlighted the problems that were encountered in such studies. For example, some areas such as Greece, Italy, Anatolia and Italy are rich in texts providing numerous textile terms but do not yield many ancient textiles, which can be compared to the textile terminology. Likewise, other areas, such as Northern Europe and the Alpine region yield archaeological textiles but very few texts to document how the textiles were called.

Several technical words refer to ancient technologies, which are lost today, and thus difficult to understand for the modern scholar. The ancient vocabulary of colours and dye products is also often unclear to the modern reader. Moreover, translations of ancient texts do not always convey correctly the techniques and tools described in the texts, but rather reflect the philologist’s poor understanding of textile techniques. Likewise, ancient (male) authors of high social and economic status did probably enjoy textile qualities but did not necessarily know the technicalities of manufacture, or chose deliberately to be vague about them for poetic purposes. It is therefore highly necessary to embark on more precise studies of textile terminologies, in order to be able to embed this body of knowledge into the understanding of the past.

This new volume includes 35 contributions by 41 experts, exploring a wide range of Indo-European languages, as well as Semitic, Sino-Tibetan, and Japonic languages, spoken and written down between the 1st millennium BC and the 1st millennium. They represent a unique and impressive amount of data; in addition, they offer many new approaches to textile terminologies and help to answer crucial questions concerning, among others, the nature of textile terminologies and their position and inclusion into languages, the characterisation of textile terminologies as specialised, technical language or fully integrated in the generalised language; the relationships between textile terms and technologies, geographical provenance, fashion, or social strata; the distribution and mobility of loanwords; the use of textile and garment terms in figurative language and metaphors.

The fields of textile terminology include terms for garments, fabric types, weaves, textile tools, textile craft professions, dyes and dye plants. Several authors draw inspiration and comparative data from iconography, chemical analyses of dyes, and modern ethnographic surveys.

The evidence presented in this volume forms a distinct geographical pattern. In the case of the textile terminological survey of the 3rd and 2nd millennia, most data stemmed from the Levant, Anatolia (Hittite, Kanesh), Egypt, Greece, and the Near East (Mari, Ebla, Mesopotamia), reaching back into India. In the present survey, the focus is re-positioned to the next two millennia, but in the 1st millennium BC, the surveyed regions remain largely the same as in the 3rd

and 2nd millennia BC: the Near East covers most of our knowledge of textile terminology of the 1st millennium BC (Neo-Assyrian and Neo-Babylonian palatial and private archives). Investigating this area is important in order to understand how Mesopotamian textile terms found their way in the ‘Age of the Empires’ and how this tradition developed during the 1st millennium BC thanks to the enlargement of commercial networks of Assyria and Babylonia and the cultural encounter that took place in these regions between the old Akkadian-speaking urban elites with groups originating from other regions of the Near East. The Hebrew sources represent another treasure trove over the millennia, and Greece makes a noticeable exception with its rich and diverse textual sources of the second part of the 2nd millennium BC, continuing into Archaic, Classical and Hellenistic cultures, and richly preserved, not in Greece, but in the Greek-speaking settlements of Egypt. Most of our knowledge of textile terminologies in the early 1st millennium AD also stems from Greek, as well as from Latin, but the provenance of these sources is to a very large part Egypt, and continues to be so for the late antique periods as well as the early Arabic inscriptions. Thus we encounter with textile terminology the same peculiar situation of selective conservation of texts as the selective conservation of textiles from the dry conditions of Egypt, and these sources frame and precondition our knowledge of antique and late antique texts — and textiles.

**Textile terminologies as a segregated, specialized, technical language, or as part of the general language foundations**

The lexical field of textiles may sometimes follow its own rules, which interact with the development of languages. It is often very difficult to provide definitions of words related to textiles or even to classify them. In some ancient languages, generic terms are used for both textiles and garments, and it is not obvious to make a clear distinction of their functions. Modern textile terms do not necessarily match ancient terminologies, and thus it is necessary to retool classifications. Philologists today have the complex task of trying to understand and translate what is hidden behind words supposed to refer to specific materials, shapes, colours, uses, techniques, etc.

In a few cases, archaeology and the materiality of textiles can actually assist us in matching terms and textiles. In ideal cases, like the inscribed fabric sample from Fatimid Egypt studied by Anne Regourd and Fiona Handley, the textile itself states what it is and where it comes from. In other exceptional instances, textiles were buried together with inventory lists giving precise descriptions of the clothing items in the burial, and the burial was so well preserved that the garments themselves also came to light. Thus, Le Wang and Feng Zhao could compare a range of clothing terms with the archaeological clothing items, and identify, e.g., the name of a purple jacket thanks to the textual records buried together with it and giving the inventory of the tomb excavated in the Ganzu province.

Several studies carried out on single textile and garment words show that they may convey many different meanings. Stella Spantidaki notes the ambiguity of several ancient Greek terms for textiles tools and fabrics, because of the polysemy of the language. In particular, the word *mitos*, which may have been the generic term for thread or yarn, or the specialised and technical term for linen thread used for handle leaches. A similar observation is made by Peder Flemestad, Mary Harlow, Berit Hildebrandt, and Marie-Louise Nosch: in the *Edictum Diocletiani* of the years 301 AD some words refer to very specific tools, while others, like *acus*, carry multiple meanings, perhaps linked to its shape and multi-functionality.

When lacking specific terms to refer to some textile materials, qualities or characteristics, like colours, these can be expressed by paraphrases. Thus, according to Ines Bogensperger, the great varieties of purple dye qualities attested in the Greek papyri are rendered with the help of descriptive adjectives or additional nouns. Composite terms are also widely used to describe garments. Moreover, abbreviations of textiles appear in some ancient texts, and even if their meanings were obvious to the ancient authors, they are difficult to understand today, as noticed by Herbert Graßl.

**Traditions and technological innovations through textile terminologies**

Languages reflect traditional practices and preference for certain materials, colours, shapes, etc. According to
Nahum Ben-Yehuda, Hebrew and Aramaic texts contain an extensive Semitic vocabulary referring to flax and linen suggesting that the production of linen textiles is indigenous and age-old in the region. Likewise, Omura and Kizawa explain that the ancient Japanese records focus entirely on bast fibres, pointing to a local vegetal textile product with a long history. Silk comes subsequently, introduced from China and accompanied by a new vocabulary to denote this novel animal fibre.

The identification of specific techniques behind textile terms may be challenging, as noticed by John Peter Wild and Kerstin Droß-Krüpe, when identifying the words for taqueté (vestis polymita) and tapestry (vestis plumaria) in Roman Egypt. In some cases, we can follow the transmission of a technique or its evolution. Indeed, the continuity of a technique is visible through the terminology of the professional craftsperson and their tools. Elena Soriga suggests that similar types of tools were used in the process of fulling, from the Near Eastern Bronze Age to the Classical Greek and Roman times. The only perceptible difference is linked to the raw materials involved in this technique, which are determined by the local ecosystems.

A radical change of vocabulary can be the result of a change of technology. Up to the middle of the 2nd millennium BC, in Mesopotamia, sheep would shed their wool naturally, and the wool was plucked off the animals (baqāmum, qaṭāpum). Then, following the mutation of the animal, they had to be shorn (gazāzum), and Louise Quillien notices accordingly the appearance of iron shears in the texts; thus an indication of a double technological innovation, of new sheep breeds and iron tools. Progress in dyeing techniques is also observable with a growing variety of words to denote colours, as in the classical Armenian language studied by Birgit Olsen.

A section of this volume is dedicated to the textile terminology used by scholars in textile research, and the contributors conclude how important it is to be concise in the technical terms. The words we apply to archaeological artefacts, often borrowed from ancient languages, have an impact on their interpretation. According to Francesco Meo, circular loom weights from the northern shore of the Taranto Gulf dated to the 3rd and 2nd centuries BC, which allowed the weaving of dense fabrics, were traditionally referred to by the word oscillium; but this term does not convey the functionality of weaving and thus conveys a wrong meaning. Along the same lines, Felicitas Maeder follows the path and interpretations of byssus, from its Semitic origins, entry into Greek and Latin and its afterlife in varied and erroneous Biblical translations. Other words, depicting very specific types of decoration, can be transmitted in the long term with the same meaning, as noticed Maciej Szymbaszk with the word gammadia, a right-angled motif, used since the end of the 1st millennium AD.

The terminology of fashion and decorations

Toponymic designations of clothes are very frequent and yet often ambiguous since they can refer to many aspects linked to textiles’ origin, techniques, decoration or fashion. The geographical origin of words may reflect the introduction of a foreign decoration technique, including new colours. Agnes Korn and Georg Warning notice the replacement in the book on the same line of the word corresponding to kermes (insect dye) used in the other books of the Old Testament by a term referring to an Armenian dye and the colour obtained by using it.

Words are transmitted or borrowed and can convey different meanings. When excavating textile terms in dictionaries and encyclopaedia, we perceive the geographic and diachronic deformation of their meaning; in some instances, a new meaning is applied to the word. Felicitas Maeder explains how the ancient Semitic word byssus, which denominated fine linen textile in antiquity, was used to designate sea-silk textiles in the 16th century, presumably because of their resemblance. Textile words thus change their meaning over time and also with the introduction of new fashions. Maria Mossakowska-Gaubert studies the Greek vocabulary for tunics in Egypt during the Roman and Byzantine periods: the construction of a new vocabulary accompanied the introduction of tunics with long sleeves and a diversity of the way to wear them.

Textile terminologies as an indicator of social status and origin

The types of textiles documented by texts and images usually reflect high quality and luxury items, those worn by the court and elite members, or exchanged
as diplomatic gifts. They are made of expensive materials, like silk, which was always a luxurious fibre. However, during the Middle Byzantine period, according to Julia Galliker, the great variety of textile terms used in association with silk of a wide range of qualities suggest that silk had become widely available in Constantinople. A social distinction through the use of silk-based material was then made via the development of complex decorative weaving techniques.

Outside the realm of elite textiles, some texts, like the Roman marriage contract papyri from Imperial Egypt listing dowries, including women’s wardrobes, give an idea of the garments worn by more common people; these are described by Kerstin Droß-Krüpe who notices a high proportion of red and yellow clothes. Another example is provided by Luigi Malatacca who explores the Neo and Late-Babylonian sources for evidence of ordinary people’s clothing, and notes that this terminology is limited and often generic, referring to ‘dress’ and ‘garment’.

**Loanwords in the lexical field of textiles**

Textile terminologies are informative concerning contacts and influences between peoples, languages and areas through the use of loanwords. A variety of factors can determine the relation between a textile term and the referred item and, consequently, its meaning and later semantic developments, such as the socio-economic context where the item was fabricated, used or purchased, as well as the written practice and the prestige of schools and writers. Some text corpora are especially rich for such an investigation of cultural influences, like for example the rabbinic texts, which reflect traditions from the Late Antiquity Eastern Mediterranean. Nevertheless, as Christina Katsikadeli explains, the identification and interpretation of loanwords in these sources may be affected by the texts’ transmission and their various manuscript editions.

The donor languages change according to the considered domain, and loanwords may be more present in specific lexical fields, as for example the one of textiles. In 1st millennium BC Assyrian texts, according to Salvatore Gaspa, Aramaic textile loanwords attest to the presence of skilled Aramaic craftspeople in Assyria. Many of these terms were still in use in the Late Babylonian dialect and this demonstrates the deep impact of Aramaic in the textile lexical field of the whole East Semitic area. Thus, the chronology of the transfers and borrowings is an important aspect to take into consideration as well as that of the cultural-historical contexts that determined them.

In many cases, it seems that loanwords come with the ‘loan thing’. This could be the case for the borrowings observed by Peder Flemestad and Birgit Annette Olsen between Greek and various Italic languages, among which are Sabellic and Latin. The meaning of foreign words was not always obvious, even for those using them, as Miguel Ángel Andrés-Toledo explains concerning the name of a silk textile translated from Avestan to Pahlavi, which needed to be explained by the translator.

Roland Schuhmann demonstrates that the many textile loanwords in Old High German were borrowed primarily from Latin and Old French, and these textile loanwords arrive from the south and from the west into the Old High German area. It is worth noticing that the number of Latin and Old French loanwords increases gradually from the 8th and 12th century. Moreover, the borrowings belong to three specific semantic fields: new and previously unknown materials and their products, garments for clerics and cushions.

The **symbolism of textiles and garments and the metaphors they generate**

Essential parts of human life are expressed in textile and garment expressions. A recent dimension of textile research is to explore the role of textile technology in the mental universes of the past, in cult, rituals, mythology, metaphors, political rhetoric, poetry and the language of the sciences. Expressions, such as urban *tissue*, the *fabric* of the universe, the *outskirts* of the city, the common *thread*, the time *warp*, the world wide *web*, all belong to the figurative and metaphoric language, which persists today. Also in the past, languages contained such references and they can be identified in a long literary tradition, from Sanscrit, to Greek archaic poetry and Ovid. Stefan Niederreiter has systematically outlined the metaphoric use of textile terminology in the Rigveda, a collection of sacred hymns from...
ancient India composed in Vedic Sanskrit. Giovanni Fanfani demonstrates how the textile vocabulary and the vocabulary of music, performance and composition are interwoven, and Oswald Panagl surveys the symbolism in the semantic field of weaving, which by no means has become a dead metaphor but has remained productive from antiquity to the present day. Terms related to textiles constitute a powerful means of conveying religious ideas through sacred texts. Götz König’s investigation focuses on those parts of the Avesta, the holy scriptures of Zoroastrianism, that describe items worn by priests and warriors along with other objects, showing how the components of the warriors’ clothing were conceptualized as an armour and as offensive/defensive tools in the framework of the Avestan religious symbolism.

We can conclude that these metaphorical and figu- rative textile expressions are not merely stylistic tools but rooted in cognitive, terminological and experien- tial realities of the past. They inform us of technical terms, of textile practices in daily life in antiquity, and thus have a strong didactic and rhetorical value in ancient literature. Magdalena Öhrman highlights exactly this practical and tactile aspect of textile manufacture in her demonstration of how Latin poets use sound-play and the rhythm of weaving in their texts, integrated in the stylistic expression of poetic descriptions of textile work.

Another kind of textile terminology is related to the religious, social and legal regulations of clothing. Here Orit Shamir examines the concept of sha’atnez which regulates the forbidden blend of animal and plant based product in ancient Israel, including the forbidden blend of wool and linen. Her study also gives interesting insights into how these ancient religious regulations are followed in modern-day Jewish communities in a world dominated by synthetic fibres and characterized by a globalized economy.

Studying textile terms also leads us to the problem of classifying terms and realia. Since textiles circulating in antiquity and the techniques used to produce them have disappeared, it is necessary to continue the fruitful dialogue between all scholars with expertise in history, linguistics and material culture studies in order to achieve a better understanding of the ancient textiles and their characteristics. This dialogue must also include textile craftspeople.

Classifications of textiles, textile-related materials and relevant terms are another important field highlighted in this volume. Starting with an investigation into the use of saffron as dyestuff in antiquity in the light of a recently discovered Lycian inscription, Peter Herz presents a classification of dyestuffs according to how these substances were produced, thus offering an interesting analysis of a relevant aspect of the history of ancient techniques and economic history.

The problems and the opportunities of a classification of textile terms are also highly relevant as regards the preservation of the textile lore of modern and contemporary societies, since traditional textile production and the relevant technical lore accompanying it are dying out not only in Western societies. Through the description of an important digital term bank and the discussion about how to classify textile-related terms and concepts, Susanne Lervad and Tove Engelhardt Mathiassen demonstrate how the combination of terminological studies and information technology can help scholars preserve and communicate the cultural heritage of words and expressions for clothing and textiles. Along similar methodological lines is Kalliope Sarri’s paper, which presents a costume term database of 3000 years of the Greek language. The aim of this ongoing multi-thematic project is to collect Greek costume and other textile-related terms from all periods and regions of Greece. Such a multidisciplinary approach will be crucial in illuminating social aspects of clothing production and dress codes in former periods of Greece and the Eastern Mediterranean area.

With the exploration of textile terms we have highlighted an important aspect in textile terminological investigation: that of transmitting the cultural heritage of past civilizations’ textiles to academic and non-academic audiences, an objective that can be achieved only through interdisciplinary approaches, the involvement of specialists from different fields, and new contexts of scholarly interaction and discussion.
A Diachronic View on Fulling Technology in the Mediterranean and the Ancient Near East: Tools, Raw Materials and Natural Resources for the Finishing of Textiles

Elena Soriga

Among the operations required in the overall cycle of the ancient production of textiles, Greek and Roman sources refer to the fulling of woollen fabrics as the most complex and expensive technical process performed both in the 1st millennium BC and the 1st millennium AD. Indeed, the finishing of woollen clothes needed a large amount of time, energy and labour, as well as involving the use of specialized skills and costly raw materials. Fulling fulfilled two functions that were necessary for the proper finishing of cloth, namely the scouring and consolidation of the fibres in the fabric. Woven cloth straight from the loom has a rather open, loose texture and the woven threads needed closing or tightening. The fulling process was intended to consolidate and thicken the structure of the fabric by matting the fibres together more thoroughly and by shrinking them. Thus the process transformed the cloth from a loose ‘net’ of threads into a compact, tight, textural whole. This is why in ancient economies, fulled textiles, proof against water and the wear inflicted by weather and time, were considered among the most luxurious and prestigious of fabrics.

Textual, iconographical and archaeological evidence from the Greek and, especially, Roman civilizations provide together quite a complete picture of the procedures, the tools and the raw materials involved, with special emphasis on their natural and geographical origins. In contrast, for pre-Classical fulling, archaeological and epigraphical evidence on the technical phases in the finishing of textiles are unfortunately very scanty, deficient and often of doubtful interpretation. This situation applies to Mesopotamia too. Here the earliest cuneiform texts related to the finishing of woollen textiles date back to the end of the 3rd millennium BC, while seals and sealings representing scenes of fullers at work attest the presence of this technology even around the middle of the 4th millennium BC according to some historians. In fact the terminology of the cuneiform texts limits itself to the name of the textile workers involved, the woollen fabrics undergoing the different operations, and a few raw materials, but they do not describe how technical operations were carried out and the sources of the materials the fullers utilized. Therefore, the study of natural resources mentioned

2. Algaze 2008, 81, 85, 86 and figs. 14, g-h provides as evidence of that seals and sealings of the Uruk periods (ca. 3500-3200 BC). Nonetheless, these iconographical data constitute only a circumstantial evidence because the representations of the men at work are ambiguous: they are interpretable as tanners or other artisans not engaged in textile manufacturing. The first evidence in support of the hypothesis of activities for finishing wool fabrics in Bronze Age Mesopotamia is some Early Dynastic Period texts dated to the middle of the 3rd millennium BC. See also Peyronel 2004, 72.
in 1st millennium Classical texts is extremely useful: it helps first to close the loopholes in both earlier and contemporary cuneiform documentation, and then to better understand the economic and cultural role played by specific plants, animals and minerals belonging to the Near Eastern ecosystems before the advent of mechanized fulling. Several scholars have stressed the substantial uniformity of the technology of fulling, whose procedures and raw materials remained unchanged from Classical antiquity until the end of the Early Middle Ages, when the fulling of cloth was carried out in a textile water mill. It is hence believable that even before the 1st millennium BC Near Eastern fullers were exploiting the same or analogous natural resources for cloth-making, using them in the finishing of woollen fabrics in the same technical operations.

Therefore, this present research employs 1st millennium BC and AD sources to draw an ethnographic parallel with the fulling operations, tools and raw materials recorded in Near Eastern textual documentation during the two previous millennia. Sumerian and Akkadian terminology linked to technical procedures, but also to the names of plants, animals and minerals occurring in the cuneiform texts concerning the finishing of woollen textiles, will be analysed in the light of the historical and anthropological comparisons with the Greco-Roman world. This should reveal new or overlooked aspects of the Mesopotamian and Near Eastern fulling as performed in the Bronze and Iron Ages.

Terminology and technology. Names of procedures, tools and textiles

Archaeological, iconographical and textual sources of the Classical times prove that the fulling of woollen fabrics had its own chaîne opératoire, entailing the performance of consecutive and different steps of finishing: washing, felting, rinsing and drying and often, but not always, raising, shearing of the nap and cropping of the resulting hair. Some of these technical operations are recorded by various cuneiform texts of the early 2nd millennium BC: a few tablets from the Old Assyrian city of Kanesh (modern Kültepe), in Cappadocia, and an Old Babylonian text, whose provenance remains unknown, provide very accurate instructions on how to full textiles. These cuneiform texts demonstrate that many of the technical processes, as well as the greater part of tools and raw materials, required in Middle Bronze Age finishing of textiles were essentially comparable to those employed in the fulling of woollen cloth during the Iron Age and further described by Greek and Roman sources.

Nonetheless, the textual evidence of some techniques is sometimes ambiguous because several verbs exist to describe common processes occurring in diverse finishing treatments. For instance, the washing of fabrics was conducted by fullers in many different tasks: in the scouring and the rinsing of the woollen textiles intended to be fulled, in the ordinary cleaning of soiled garments, in the bleaching of linen items and finally in the partial or comprehensive restoration of damaged fabrics.

This indistinctness in terminology applies too to the very occupational name of the fullers themselves and thus on the how the technical processes they performed was known. Indeed, the elusive nature of the ancient fuller’s work has already been often stressed by eminent scholars who intermittently have translated this occupational name as ‘laundryman’, ‘bleacher’ or more simply as ‘finisher’ or ‘textile worker’.

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3. Uscatescu 2010. Around the 10th century AD, Muslim engineers invented water-powered fulling mills and introduced them throughout the Mediterranean area. See also Peyronel 2004, 73.
5. For the Old Assyrian text TC 3/1 17, see Veenhof 1972, 104 and Michel & Veenhof 2010. For the Old Babylonian tablet AO 7026, see Lackenbacher 1982.
7. Starting in the mid-3rd millennium BC, cuneiform texts mention a professional class of artisans engaged in the finishing of textiles. Since the Early Dynastic period, the Lexical lists record the Sumerian ašlàg GIŠ.TŪG.(PI.)KAR.DU and “azlāg/”azlāk as professional designations for the finisher of textiles. Cf. Lexical List Diri III (ašlāku) in MSL XV; see also discussion in CAD A/II, 447.
It is well known that being derived from cellulose, flax lacks scales and thus its fibres are not able to felt. Nonetheless, from the end of the 3rd millennium BC, cuneiform texts list, among the textiles delivered to the fullers, cloths marked with the determinative for linen.9 Vocabularies and lexical texts equate the term ašlāku ‘fuller’ and the writing LÚ.TÚG.UD, used since the 1st millennium BC by Neo-Babylonian texts to denote exclusively the craftsmen entrusted to whiten new and used linen (LÚ pūsāy).9 The occupational name pūsāya (LÚ. TÚG.BABBAR) ‘laundrer’, linked with the term pešū (BABBAR) ‘white’ but also ‘clear, shining’, actually occurs only in the Neo-Assyrian and Neo-Babylonian texts concerning the working and finishing of linen and not before.10 It seems thus reasonable that among his many offices the ašlāku was originally in charge of the bleaching of linen and the ecru wool either through the use of fuller’s earth or glassworts dissolved in lye or by treating them with sulphur vapours. Moreover, mineral and vegetal alcalis can be useful also to brighten and to freshen the dyed textiles that have faded due to sulphur or to the caustic action of the lye.11 During the 1st millennium BC, as the availability of flax in Mesopotamia increased, this specialization became more significant until it was separated and identified as a profession apart, namely the pūsāya. The issue remains still controversial but there is no doubt that the equivocation of the occupational terminology is due both to the wide range of activities performed by the fullers and to the lack of information about the raw materials and tools used in their activities.12

Moreover, there is evidence of a metonymic use of some verbs, where a single operation within the overall finishing process is used to indicate the complete process of the fulling of woollen textiles. This latter suggestion is confirmed by the original meaning of the two verbs used in the ancient Greek terminology to indicate the work of the fullers: πλύνω, reserved for linen, means ‘to wash, to clean, to scour’, whilst κναφεύω, used with reference to the woollen cloths, means ‘to teasel, to raise, to card’. Yet, both verbs mean lato sensu ‘to full, to launder’. Similarly the Latin carmēn ‘to card the wool’, and related to carmēn, ‘carding, wool comb’, means also ‘to soak

sub ašlāku. Both terms are equated with the Akkadian ašlāku ‘fuller’, a calque of the latter Sumerian word. Cf. LEX/ED Illa/Fara ašlāg SF 070 o 3 7; LEX/ED Illb/unknown ašlag; Early Dynastic Lú E, 33. See also Lackenbacher 1982, 137: ‘On traduit parfois LÚ.ASLAG = ašläkum par «blanchisseur» ou «foulon», mais certains auteurs ont déjà souligné qu’une traduction plus vague comme «travailleur du textile» serait bien préférable, car les tâches de cet ouvrier sont plus étendues que celles que désignent ces deux termes’. With regard to the fulling terminology in the Middle Assyrian texts, Postgate (2014, 408) states: “I know of no Middle Assyrian terminology which would refer to the fulling (fouler, walken) of cloth. The one reference to ‘fuller’ (written lú-túg) is in the law code (fragment M), and he here appears more to be concerned with cleaning of an already manufactured garment, than with an interim stage in the production of cloth”.

8. Waetzoldt 1972, 155.
9. CAD A/II, 447 sub ašlāku.
10. CAD P, 538 sub pūsāya ‘laundrer’. The πλύνης ‘washers’, recorded in a stele of the 4th century BC found in a stadium of Athens, were entrusted with tasks analogous to those of the Mesopotamian pūsāya. In the Roman world, the corresponding term for the pūsāya-profession was the nacca. These occupational names designate fullers skilled in scouring and whitening linen, whereas the Akk. ašlāku, Gr. κναφεύς and Lat. fullō indicate fullers engaged chiefly in wool-cloth treatments.
11. CAD P, 538 records few passages in the text where the activity of the pūsāya concerns some wool items. GCC I 1 145:4 records the delivery of wool to a ‘laundrer’ for a handiwork (ana dullu); in UCP 9 103 No. 41:6 the pūsāya receives instead one mina of green-yellowish wool (SIG ḫaṣaṣṭu), besides two minas and 15 shekels of a sail.
12. With regard to this, the greatest part of terminological information is supplied by some cuneiform texts of the early 2nd millennium BC. The recensions B and D of the Old Babylonian series Lú known as lúazlág = ašlāku, lists a huge number of occupations, whose greatest part is otherwise unknown in contemporary texts; therefore these names have been interpreted as a roll of the numerous activities of the fuller’s craft (Sum. nam-azlag; Akk. ašlākātu) rather than different professional designations. See MSL XII, 158, 177, 204; MSL XII, 151: “The name of professions listed in OB Lu designates usually the performer of specific tasks within a given profession (examples of this are the ašlāg-group in Rec. B I 1 21…’); see Lackenbacher 1982, 137. The comparison of lúazlág = ašlāku with tablet XIX of the series HAR-ra = ḫubullu, a lexical text concerning the names of textiles, enlightens the different technical operations concerning washing, thickening, teaseling and cropping of wool textiles, whose names are recorded in contemporary and earlier cuneiform texts dealing with the production of cloths by fullers.
linen”.13 Such an overlap between different technical operations belonging to subsequent stages of the same chaîne opératoire is attested also in the Bronze Age cuneiform texts where, for instance, Akkadian mašādu is alternately translated ‘to full a cloth, to finish a wool textile’ and ‘to comb’ because of its relation with mušṭu ‘comb’.14 Thus, in my view, the verb mašādu has a metonymic function: it can be used to indicate the operation of the fulling in cases when the woollen item is intended to be “combed” with brushes and teasels in order to raise the nap.15

Terminology of finishing treatments and technical operations

Washing cloths

Washing was instrumental not only in cleaning the fibres by eliminating oils, dirt and other impurities but also, as has already been said, in consolidating and thickening the structure of the fabric. In ancient Greece and Rome, textiles were immersed and then scoured in a hot solution of water and a lump of some fatty or chemical substance with alkaline, bleaching or absorbent and degreasing properties. This soapy lye, named in Greek κονία ‘dust, ashes, chalk, lime’ (from κονιάω/κονιάζω ‘to sprinkle with ashes/to plaster with lime’) and in Latin lixa ‘ashes, lye’ (from ēlixo ‘to boil, to drench in hot water’) was rubbed on the surface of the fabrics in order to felt together the threads of the weave, give thickness and strength to the fabric and thus increase its waterproofing properties.16 The connotation of the 1st millennium BC terms for ‘lye’ (Gr. κονία; Lat. lixa/lixivium) as dust, ashes or lime suggests that these detergents were obtained in the form of powder from sources of alkali (sodium- or potassium-carbonates) belonging to the mineral or vegetal kingdom.17

Bronze and Iron Age cuneiform texts attest the occurrence of mineral powder and vegetal ashes among the raw materials used by Near Eastern fullers to wash the woollens intended to be fulfilled, the linens to be bleached and the soiled garments that needed to be simply cleaned.18

The alkaline ash, earth or ground preparation was put in a vat with boiled (still hot but not boiling) water together with the fabrics and vegetal oil or animal grease or, more likely, was mixed with these fatty substances until it reached the form of a homogeneous paste and then rubbed on the textiles soaked in hot water.19 This last suggestion is supported by a lexical text dating back the mid-2nd millennium BC where the Akkadian verb sēru (Sum. SÚ, šu-ūr) ‘to rub down, to plaster, to cover with a clay slip’ is listed in a group with other two verbs describing two major tasks mastered by the fuller: mēsu (Sum. LUḪ) ‘to wash, to clean’ and kabāsu (Sum. GIRI US) ‘to step upon, to full cloth’.20 Thus, as well as the Greek

13. Smith 1875, 553; Rocci 1516, πλύνω: ‘lavo, risciacquo; netto lavando’; Rocci 1058, κυμαρίω: ‘scardasso, cardo, lavo i panni, fo i lлавандаio’ most likely derived from κυνάω ‘to scrape, to scratch, to tear’. IL, 151, carminio ‘cardare la lana’ e ‘macerare il lino’, see Pliny, NH 9, 134 and 19, 18.
14. For mašādu, see the above-mentioned Old Assyrian text TC 3/II 17, 12-14 and 19-22 in Veenhof 1972, 104 and in Michel & Veenhof 2010, 249-252. In his first edition of the text, Veenhof (1972, 106) prefers to translate mašādu ‘to comb, to teasel’, linking it with the substantive muštu (Sum. #ga-rig) ‘comb’, but AHw 687a he rejected this etymology. Waetzoldt 1972, 116 mentions also the #ga-rig-ak with the meaning ‘carding comb’. Michel & Veenhof (2010, 249) translate the verb with the original meaning ‘striking/biting’ and reject the translation ‘to comb’ since mašādum “is applied to wool and hair, not to a fabric”.
15. A metonymic use of mašādum was proposed first by B. Landsberger (1965, OLZ 60, col. 158, on no. 299) in Michel & Veenhof 2010, 252. Regarding this, Veenhof (1972, 106) states: “K. Balkan presents Landsberger’s ideas on this terminology. He warns one to distinguish between similar treatments applied to the wool, the threads and the woven tissue. In the latter case the subject of the present letter - he distinguishes three treatments: a) mašādum; b) mašārum; c) qatāpum” and n. 179.
16. Fosbroke & Lardner 1833, 342-345; Aristophanes, Batrakhoi, 712.
20. Erînîyû = anantu II, 42-44 in MSL XVII, 28; MSL XVII, 1: “This series seems, like the similarly structured series Antagal, to aim less at analysing the various meanings of a Sumerian word (whether by contrasting it with other Sumerian words or by enumerating different Akkadian equivalents) than at collecting a set of words from one semantic field: synonyms, homonyms, complementary concepts (black/white), etc.”
κονιάω/κονιάζω, the verbs sēru and šu-ùr describe the felting of the threads of the textiles with the aid of a cleaning powder or lump rubbed on their surface.21

Walking cloths

In the fulling of woollen fabrics and cloth-making process, the next step is widely attested by textual and iconographical sources produced by the Classical civilizations. The soaked and soaped textiles were beaten, wiped off and wrung out by hand, pounded by cudgels or trodden by feet.22 The detergents were pushed through the cloth and penetrated deep into the threads by the trampling of the fabrics and by their scrubbing. The microscopic barbs on the surface of the wool fibres hook together, making the textile softer, thicker and more resistant.23

A passage from the Corpus Hippocraticum describes the fulling of cloth as an alternation of trampling (λακτίζουσι), striking (κόπτουσιν) and pulling (ἔλκουσι).24In the first half of the 3rd century BC, the Roman poet Titinius describes in his comedy Fullones the work of the textile craftsmen as argutarier pedibus ‘nattering, making a noise with the feet’.25Around the middle of the 2nd century BC, Cato the Elder described the Roman fullones engaged in all these operations.26 Seneca described the movements of the fullers at work: with a certain amount of irony he likened them to dance steps (Lat. saltus fullonicus).27 Contemporary archaeological and iconographical sources confirm the textual references. A fresco from the fullery of Veranius Hypsaeus in Pompeii shows one fuller trampling clothes in a tub placed on the floor and three other workers scrubbing and wringing them to facilitate their felting (Fig. 1). It is very probable that the actual fulling process was performed by trampling the soaped cloths throughout the Mediterranean and Near East long before the Roman period, though the little direct evidence collected so far does not clarify where and when this technique had its origin.28 In the 5th century AD Horapollo, in his Hieroglyphica, mentions that the Egyptian symbol to indicate a fuller consisted of two feet in a tub filled with water.29 At the beginning of the 2nd millennium BC, a Middle Kingdom depiction from Beni Hassan shows three textile workers standing in what seems to be a large vat, but it is unclear whether they were actually walking on the clothes.30

The philological study here presented on the Akkadian and Sumerian terminology in cuneiform texts related to the cloth-making process is able to demonstrate that the technique of fulling underfoot was performed by Mesopotamian fullers of the same period as the Egyptian picture of Beni Hassan. Old Assyrian and Old Babylonian texts dealing with the finishing treatments of different kinds of woollen textiles describe the fulling procedure by using the verbs mašādu ‘to press, to walk upon, to full cloth’, maḫaṣu ‘to strike, to weave’ and kamādum ‘to weave and prepare cloth in a specific way’.31 The modalities of this ‘specific treatment of the cloths’ are disclosed

21. CAD S 227, sub sēru; Rocci 1071.
24. The use of the present tense emphasizes the continuity and alternation of the treatment, Flohr 2013, 100 and n. 12.
25. Titinius, Ful., fr. X; Flohr 2013, 101; IL 97 sub argūtor; “fig. argutarier pedibus: saltellare”, ‘to hop’.
27. Seneca, Epistulae, XV, 4.
28. Flohr 2013, 101 remarks that fulling with the feet was efficient “as the pressure a human can generate below his feet is much higher than that which he can generate with his hands”. Fulling with this technique was still performed until the early modern period and in some Mediterranean regions even over the last century such as in Crete where fulling by foot was done until the 1950-1960s (Doniert Evely, personal communication). Indeed mechanized fulling in water mills (Lat. molendinum ad fullandum; molendinum fullonum) did never fully replace the traditional foot-fulling carried out by physically trampling the cloths in tubs. In Anglo-Saxon countries and particularly in Scotland the cloth-making process was called walking/waulking still after it became mechanized. See Uscatescu 2010.
29. Nonetheless M. Flohr (2013, 101) states: “the symbol does not seem to be known from any hieroglyphic text”.
30. Forbes 1955, 84, fig. 3; Flohr 2013, 101.
31. Probably a difference in meaning distinguishes the tree verbs kahāsu, mašādu and kamādu but it is perhaps too subtle to have been
understood by the ancient scholars, who were unfamiliar with the material world of textile production. It is, however, noteworthy that in TC 3/I 17 and in contemporary lexical texts, kamādum is directly followed by qatāpum ‘shearing’, thus overlooking the step of the teaselling, whilst, when kamādu is preferred to mašādu as in the case of text AO 7026, it is immediately followed by mašārum ‘teaseling’. Thus, I propose that the verb mašādu might denote a kind of synthesis of the two technical operations indicated by the verbs kamādum and mašārum. For a terminological study of the technical operations described by the verbs kamādum “foulage à la main” and mašārum “lainage”, see AO 7026 in Lackenbacher 1982. See also Michel & Veenhof 2010, 252; Veenhof 1972, 105-109. CAD K, 108, sub kamādu and 121 sub kamdu and kāmidu; CAD M/I, 71, sub maḥāsu.

32. MSL XII, 177:13; 204:9.
33. CAD K, 5 sub kabāsu; see also the substantive gabāsu “contraction” (CAD G, 3) and the verb kapāṣu “to bend over, to curl” (CAD K, 181).
34. The rinsing in fresh water was to wash the excess chemicals out and with them the greases and the lye’s stink they had released. Unfortunately, there is no evidence from Classical antiquity for this stage of the fulling process: rinsing is not discussed in literature,

### Raising, shearing and polishing the nap

Following the washing treatments, the soaked textiles had to be presumably rinsed, then wrung thoroughly and hung out in the sun or in a place with enough fresh air circulating through the textile. These stages were essential tasks to be carried out before subsequent processes of the raising, shearing and polishing of the nap.

Several Roman frescos testify to the performance of these operation: the paintings from the House of the Vettii at Pompeii represents a cupid brushing a
nor is it depicted in paintings or reliefs. Regarding the drying, depictions of the fulling process from Pompeii, Ostia, Roma and Sens show clothes hanging out over beams. Seneca describes a fullo, ‘fuller’, as sprinkling water over a garment stretched out to be brushed in order to moisten it: this suggests that fulled textiles were usually dried before polishing. See Flohr 2013, 104-105 and 108-109. Ethnographical comparison with the fulling of pre-industrial Europe attests the importance of this practice: wet or damp woollens had to be dried in a place with a sufficiency of circulating fresh air, by hanging them over beams or spreading them out over a large wooden frame called a ‘tenter’ to prevent their shrinkage, as well as stopping the development of a rather unpleasing fusty smell. As noted by Quillien (2014, 286), in ancient Near Eastern religions, the (pleasant) smell of something in part denotes the god’s radiance. Thus fullers and bleachers often are recorded as recipients of aromatics and scented resins to perfume the clothes, thereby covering any residual stench of the chemicals used in fulling and dyeing processes.

Flohr, one of foremost authorities on Roman fulling, stated that these technical operations “seem to have belonged to the core business of fullones”.

Perhaps for this very reason, metonymic overlapping between the verbs describing the actual fulling (as performed first during the washing) and those related to the raising, shearing and polishing of the nap is found both in Bronze and Iron-Age texts. Classical texts report that fulled textiles were treated with gentle brushes or special combs named teasels (Gr. κνάφος; Lat. aena fullonia) able to raise the nap of the woollen cloth without damaging its weave. From the ancient Greek word κνάφος ‘teasel’ come the terms κνώφειον ‘fulling workshop; laundry’ and κνάφ/γνάφ-ευς ‘fuller’. This latter noun is descended from the occupational name Myc. ka-na-pe-u ‘fuller’ found in the Linear B tablets from Pylos and Mycenae in relation with sheep wool and not vegetal fibres. This fact suggests that even before the 1st millennium BC, in the Aegean area, the raising, shearing and polishing of the nap of woolen textiles underwent a fulling process so important as to lend its name to the profession as a whole.

In the ancient Near East, the textile terminology applied to some finished products provides evidence that the fulling of woollens included the performance of these following steps, at least since the end of the 3rd millennium BC. Among the different woolen items delivered to the fullers of the Ur III texts, the piece of cloth; the fresco from the fullery of Veranius Hypsaenus (VI 8, 20-21.2) depicts a fuller busy performing the same procedure (Fig. 2).

Fig. 2. Upper section of the fresco of the Pilastro dei Fulones (9774 b) from the fullonica of Veranius Hypsaenus in Pompeii depicting textile finishers working in the fullonica; on the left a teaseler raises the nap of the cloth with a brush whilst a woman and a little girl inspect the processed textiles; on the right a man carries the viminea cavea and a bucket with sulphur or another bleaching substance. 1st century AD, Museo Archeologico Nazionale di Napoli, after De Albentiis 2002, 137.

35. Flohr 2013, 113-115 and Fig. 26 and Fig. 27.
36. Flohr 2013, 113.
37. PY Cn 1287, En 74/Eo 267, Eo 269; My Oe 129, Oi 701. See Del Freo et al. 2010.
38. Some tablets from Pylos testify to the importance of this profession in the Mycenaean world. One text records a man named Pe-kita, a craftsman from Cyprus, as fuller of the king (Myc. ka-na-pe-u, wa-na-ka-te-ro). See Palaima 1997. Pekita may be a nickname linked to the task performed by this craftsman: it is related to the Mycenaean pe-ki-ti-ra, the occupational name designating ‘female combers, carders’ and to the finished fabric named te-pa pe-ko-to, a very heavy wool cloth most likely first undergone to the thickening and fulling processes and then intended to be teased until reaching an hairy appearance resembling the sheep fleece (Myc. po-ka). Yet, with regard to the weight of the te-pa pe-ko-to textiles, Del Freo et al. 2010, 357 state: “How and whether this fact is technically related to combing is still an open issue”. The above-mentioned Mycenaean terms are all connected to the root *pkt-en from which derive Lat. pecten and Gr. κτείς ‘comb’ and πέκω ‘to comb’, whose meaning “in Mycenaean Greek therefore seems to cover both the treatment of wool and also a treatment of textiles” (Del Freo et al. 2010, 358).
túg guz-za is described as ‘a special fabric of flocky and shaggy texture’. The tablets of Girsu prove that this fabric underwent the túg sur-ra and túg kin-DI-a treatments performed with oil and alkali and hence it can be considered a kind of fulled textile. Furthermore, in the early 2nd millennium BC, túg guz-za (akk. mügizzu) “étoffe poilue ou rêche” is the only type of textile qualified in the texts of Mari as bar-šar-ra or bar-karrű, an adjective denoting a coarse waterproof fabric.

Around the same time the Old Babylon tablet AO 7026 and a lexical text demonstrate unequivocally that the shagginess of the túg guz-za resulted from the raising of the nap of the cloth (Akk. mašāru) by the fullers with at least two different kind of teasels.

The contemporary Old Assyrian text TC 3/1 17 gives the following instructions: “Let them full/comb/prepare for raising one side of the textile (ša šubātim pānam); they should not shear it (lā iqattūšu); its weave should be close (ṣulūsu lu mādat) … the other side (pānam šaniam) one should fully slightly (i-li-la limṣudī). If it is still hairy (summa šārtam itas’ū), one should shear it (iqattūšu) like a kutānum”. The text records therefore the shearing of a formerly brushed side, perhaps the outer one, in order to clip the hair extracted by the teasels and to get an even and smooth surface. The verb utilized is qatāpu ‘to shear, to crop’ rather than ‘to pluck’, found also in the series Lū as LŪ.TŪ.G.PA.KU₅.RU.DU = qa-ti-pu. In the Old Babylonian text AO 7026 the same procedure is performed in the finishing of the TŪ.G.BAR.DIB (nanbū) and TŪ.G šē-e-tim under the name of laqātum ‘to gather, to pick up’, a verb sometimes written with the logogram KU₅, which occurs in two different operations (laqātum pānum and laqātum lā pānum) performed on the surface of a fabric.

These cuneiform texts demonstrate that many of the technical processes required in the Middle Bronze Age finishing of textiles were actually comparable to those described by Greek and Roman sources in the 1st millennium BC. Furthermore, túg guz-za, kutānum and other woollen cloths produced by Mesopotamians fullers show several analogies with some thick, water-resistant woollen cloths still manufactured in Europe with traditional techniques as the loden, the panno casentino and the Sardinian orbace: these fabrics, renowned for their sturdiness and endurance, first undergo the shrinking and fulling treatments and subsequently are brushed with a fuller’s teasel; then the nap is cropped.

If the textile terminology of Bronze Age cuneiform texts provides evidence that the technical operations carried out by 1st millennium fullers and described by Classical sources were already performed in the
ancient Near East during the previous two millennia, then too the study of the raw materials and the natural resources involved in the cloth-making process can demonstrate how similar were the treatments of fulled textiles across the millennia.

**Terminology of natural resources exploited as raw materials and tools**

**Minerals as alkali sources and detergents**

Among the mineral sources of alkali, natron (Lat. *nitrum*; Gr. νιτρόν, λίτρον) was in ancient times the most coveted. It is a natural mixture of sodium carbonate, sodium bicarbonate and sodium sulfate along with small amounts of other salts (halite, sodium chloride), and was used to perform many different tasks. The use of natron was advantageous because it was found ready for use in nature: no further costs of extraction of the soda carbonates accrued, as was the case for other sources of alkali.

Even so, natron is found only in contexts with specific pedological and ecological conditions. The most famous provenances were localities in Egypt, where the word used was *nṯrj*, ‘to be pure, clean’. Here, the flood waters of the Nile permeated the soil and, once evaporated, deposited incrustations of carbonates of soda.46 Sodium carbonates used by Greek and Roman fullers had to be imported from far away and were thus rather expensive: during the Ptolemaic period, Egyptian natron formed an important state monopoly, proving that it was a very profitable business.47 Strabo and Pliny report that in the period straddling the 1st century BC to the 1st century AD, natron (Lat. *nitrum*; Gr. νιτρόν, λίτρον) was still imported from Egypt.48

During the 1st millennium BC the use of natron in textile manufacturing is attested in Near Eastern textual documentation too: Neo-Babylonian and Neo-Assyrian tablets record the importation of natron (Akk. *nitiru/nitru*) from Egypt in abundance beside alum (Akk. *muš-gabū, aban gabî*), another substance used in the finishing of textiles. In the Bible, natron (Heb. דַּוּר) is mentioned for its cleansing power alongside the *bōrît*-grass, a kind of soapwort used by fullers of the ancient Israel.49

Classical sources quote however fuller’s earth (Lat. *creta fullonia*) as the detergent *par excellence* used by fullers in textile laundering, whitening and presumably in cloth-making. Under this generic label are collected several mineral substances very different from each other in their sedimentological and chemical qualities. These soft clay-like materials, actually often derived from powdered rocks, share alkaline and smectic properties: once rubbed onto the fabric, they absorbed and removed the greases, imparting a lustre and brightness to the cloth.50

The variable amount of the component substances (iron, magnesium, alkaline metals, alkaline earths) naturally contained in these washing powders confers on them absorbent, cleaning and, eventually, whitening properties as in the case of the bentonite, montmorillonite, kaolinite and saponite ‘clays’.51 In his *Naturalis Historia*, Pliny the Elder mentions several qualities of fuller’s earth (Lat. *creta fullonia*) that possess different properties and, consequently, different purposes.52

The most appreciated species of fuller’s earth came from the Eastern Mediterranean: straight after the first-rate ‘tobacco-pipe clay’ (Lat. *terra cimolia*; Gr. κιμωλία γῆ) from Kimolos in the Cyclades, Pliny mentioned the ‘clays’ from Thessaly and Epirus and those from the islands of Cyprus, Samos and

47. Brunello 1973, 44.
49. Oppenheim 1967, 243; Jeremiah II, 22; Malachi, II, 2.
50. Cf. Rougemont 2011, 375; Firth 2013, 140: “Although the wool would have been washed before it was spun, there would have some residual natural oils in the wool. In addition, oil may have been used to lubricate the threads during weaving.”
51. Pliny, NH, 17, 4.
52. For instance, Pliny (NH, 35, 196) refers to the use of fuller’s earth from Sardinia (*creta sarda*) which was used with sulphur (*sulpur*) and employed in the cleaning or bleaching of white fabrics, Moeller 1976, 20; Robertson 1949.
The first reference to the use of the kaolin gypsum from Κίμωλος is found in a comedy of Aristophanes and dated to the year 405 BC. In the 4th century AD, a kind of mineral powder from the Cyclades is also mentioned by the Papyrus Graecus Holmiensis. Because of its ‘astringent’ and ‘caustic’ power, this mineral was compared to the alum used both in the tanning of skins and as a mordant in the dyeing of textiles; hence it was called stupteriōdes gē — Greek, “earth containing alum” — a denomination used by Aristotle, Strabo and Pliny some centuries earlier.

In Mesopotamia, it seems highly likely that the identification of this mineral detergent should be with the raw material named in cuneiform texts na4im-báb-bár (Akk. gasšu ‘gypsum, plaster’), literally “white earth”, because since the end of the 3rd millennium BC it was delivered in large quantities to the fullers for the finishing of cloths. At present, the sedimentological composition of this substance has not yet been elucidated, though the most recent studies have shown that this earth is probably not a kind of clay, but an alkaline powder obtained by crushing minerals such as limestone or chalk together with other cleansing substances like sulphur or another kind of mineral powder named na4im-sáš ‘red earth’.

**Vegetal detergents and sources of alkali**

The use of alkalis in the bleaching of linen and in glass and soap-making makes these raw materials important and expensive, especially when they were imported from far away like the above-mentioned natron. There were other and cheaper sources for such. Classical sources refer to the use of stale urine: animal or human excrement undergoing the nitrification process on the way to becoming ammonia. It is not clear where the fullones procured this matter for their workshops, whether from nearby stock-farms or even from the urban public toilets. According to R. J. Forbes, “in ancient Mesopotamia, like in modern India, it [potassium nitrate used in glass-making] was obtained as an efflorescence of the soil in certain places where organic matter decayed (cattle yards and stables)” but no cuneiform text suggests a use of urine (Akk. šīnātu; Sum. kāš) in the washing or finishing of textiles.

Therefore it is probable that alkalis were obtained from other sources in Mesopotamia before the introduction of Egyptian natron, and later again as its low-priced surrogate. Neo-Sumerian texts show the delivery of a great quantity of vegetable ashes, besides animal and vegetal oils, to the fullers of the city of Girsu for the tūg šā-ha, tūg kin-DI-a and tūg sur-ra treatments of cloths. Actually, the greatest part of the modern and ancient terms denoting soda or, more extensively, lye-wash, are in some ways linked with the incineration of vegetal matters and the resulting cinders. For instance, the English alkali, a modern synonymous for potash ‘vegetal lye made by burning wood to ashes in a pot’, derives from the Ar. al-qalīy ‘calcined ashes’, in its time related both to the Akkadian verb qalū ‘to burn, to roast’ and with the term qīltu used in Neo-Assyrian tablets to indicate both the

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53. Roci 1718 sub στυπτηρίωδης; Pliny, NH 35, 195-201.
55. Healy 1999, 286; the adjective stupteriōdes used to denote this kind of earth indicates it was ‘alum containing’ or ‘astringent’.
56. Firth (2011) carried out an accurate analysis on the sedimentological and chemical properties of the different candidates proposed for the identification of ancient fuller’s earth, determining the use of the im-băbabă and its usage by the fullers in the Mesopotamian textile industry; Firth 2013, 146.
57. See Firth 2011. CAD G, 54 sub gasšu. Note that Pliny (NH, 35, 195) with reference to the creta cimolia, in Roman times the most generally used type of fuller’s earth, distinguished too between a white (candidum) and a reddish (ad purpurissum inclinans) variety.
58. Pliny, NH 38, 66, 91 and 174; Moeller 1976, 13, 20 and 96; Flohr 2013, 103-104.
59. Martial, VI, 93; Moeller 1976, 20; contra Flohr 2013, 171: “Thus, on closer inspection, there is no literary evidence for public urine collection by fullers”.
60. Forbes 1965, 181. Once dissolved in boiled water and washed and refined for days this mixture of salt and saltpetre gave some crystals of an alkaline mineral (Akk. mil‘u and anzabhu) used in the glass-making.
lye and the plant from which alkaline ashes were obtained during the 1st millennium BC.  

It seems likely too that the Biblical bōrît, the ‘vegetal ashes’ obtained by burning a grass or bush named gasûl, and used by fullers of ancient Palestine to prepare the lye and to clean clothes, has to be related to the Heb. bārar ‘to purify, to cleanse’ and to the Spanish word barrilla and its anglicization barilla, a term used since the Middle Ages to denote soda ash and saltworts, glassworts and seaweed, plants that contain widely varying amounts of sodium carbonate and some additional potassium carbonate. In fact, only a few centuries ago, the chief source of alkali consisted of some prickly plants growing by the sea or in saline localities such as salt marshes and commonly named glassworts or saltworts (Salicornia spp., Arthrocnemum spp., Halocnemum spp. Salsola spp. and Kali spp.). When dried and burnt, these succulent and halophyte plants, mostly belonging to the Amaranthaceae family (Fig. 3), produce the best alkaline cinders used in soap- and glassmaking and in bleaching linen.

In the Eastern Mediterranean and Mesopotamia Salicornia europaea, Salsola soda, Salsola kali, Kali tragus and Halocnemum strobilaceum grow along the brackish swamps, in the saline semi-deserts and obviously nearby the seashores. A philological analysis of the terminology actually highlights the link between the term for alkali (Sum. na4naĝa; Akk. uḫultu/ uḫūlu; Hitt. ḫas())] to some plant species grouped under the hypernym Ú.NAGA/úteme ‘saltwort, alkaline plant’.

Lexical lists of the 2nd millennium BC record among these the šāmiṭu, mangu and qaqqullu plants, though the plant mostly quoted in glass-making is the uḫūlu -plant (Sum. Ú.NAGA SI/únaţa-si-e3) as a species belonging to the Salicornia or Salsola genera, characterized by plants with succulent branches similar to horns (Fig. 3). Another species of saltwort could be denoted by the phytonym qīltu that in 1st millennium BC denoted a soda plant and its derived lye. Indeed,

62. CAD Q, 252 sub qīltu. In the Mari texts the term ammidakkū perhaps refer to a kind of lye used in the early 2nd millennium BC for the purification of metals, CAD A/II, 75 sub ammidakkū. Differently from qīltu it is not sure whether ammidakkū is made from vegetable ashes, CAD A/II, 75 sub ammidakkū.

63. Malachi III, 2; Jeremiah II, 22. See Forbes 1955, 179-180; Forbes 1965, 140-141; contra Brunello 1973, 54 who, though, refers to the use of Salsola kali among the fullers of ancient Palestine, and interpreted bōrît as a botanical term and not as vegetable product. Moreover, he identified it with the common soapwort (Saponaria officinalis).

64. Levey 1959, 128; Brunello 1973, 54; Moorey 1999, 212.

65. Levey 1959, 122 uses the old nomenclature Salsola kali “the soda plant, grows near the Dead Sea today and is common in Syria, Egypt and Arabic”; see CAD Q, 69 sub qalû.


67. See CAD S/1, 313 sub šāmiṭu; CAD M/1, 211 sub mangu; CAD Q, 124 sub qaqqullu.

68. CAD U-W, 48-50 sub uḫūlu.

69. CDA, 419 sub uḫūlu(m); NB also uḫūlu, Ug. ukhunu m. & f. (an alkali-rich plant) ‘potash’, Bab. ([Ú.NAGA]; as mineral; for soap; in glass recipe; esp. u. qarnātī/qarnānū [U.]NAGA.SI) ‘Salicornia’ and similar plants for glass, drug. See CAD U-W, 49 sub uḫūlu d; CAD Q, 134 sub qarnu and 133 sub qarnānū.
the term could be linked both to the verbal adjective baqlu/ baqiltu ‘sprouted, horned’, and to its staple product, the burnt material (Akk. qilūtu; Sum. gibīl KI.NE) used as alkali.70

On the other hand, the soda plant named uḫultu (Ú AN.NU.ḪA.RA) is never qualified as sprouted; it produces a salt quoted in the texts as aḫussu or alluḫaru/ annuḫaru used also in tanning of skins and as a mineral dye or mordant to produce a white colour.71 In Mari texts, dating back the beginning of 2nd millennium BC, the annuḫarum used in the finishing of textiles has been interpreted as ‘white alum’ in opposition to another substance named qitmu ‘black alum’.72 In the 1st millennium BC aḫussu, interpreted as by-form of both uḫulu and uḫultu, is found in Neo-Babylonian texts from Eabbarra relating to the bleaching of the linens.73

The tablets of the same archive record another phytonym, denoting a plant used by fullers as a bleaching agent, whose name is composed by the sign NAGA: the GIŠ.NAGA plant.74 According to Zawadzki this sign has to be read gād-šu-naga (Akk. bīnu) ‘tamarisk’ and ‘not alkali’.75 The tamarisk (Tamarix aphylla) is an evergreen tree growing on beaches by the sea and along watercourses in arid areas throughout the Near East. Its occurrence in the above-mentioned texts can be explained by the fact that it is a source of alkali: its leaves are able to accumulate and exudate sodium carbonate, thereby allowing plant to tolerate saline soils and alkaline conditions; hence its name ‘salt cedar’ in the vernacular. In addition to producing the soda ash, the burning of the plant could itself be used to bring to the boil the water for the lye; and to assist in the long, drawn-out incineration of the

70. CAD Q, 252 sub qilūtu “a plant from which lye is extracted: Ú NAGA (ŠE+SUM+IR): ú qī (var. qi)-il-tu[m], Ú NAGA.SI, Ú SA.AD. GAL : Ú MIN qar-ni, Uruanna II 271-273”; CAD B, 100 sub baqlu: naga(ŠE.SUM+IR).ḫu-tul, MIN-gu-li = ba-q([]i)-il-tum in Hh. XXIV 288f.; CAD Q, 252 sub qilūtu ‘firewood, burnt material’.
71. CAD U-W, 48 sub uḫultu; CAD A/I, 216 sub aḫussu; CAD A/I, 359-360 sub alluḫaru.
73. Zawadzki 2006, 63 and n. 129.
74. BM 84054 and BM 83647 in Zawadzki 2013, 65 and n. 39; Zawadzki 2006, 61, n. 128 reports the case of a bleacher named Bal-assu and a fuller named Šamaš-šu-iddin who receive tamarisk for producing alkali. This indicates that the ašlāku can occasionally act as pāṣāya. See also Quillien 2014, 285 and n. 102.
75. Zawadzki 2006, 63 and n. 129.
Vegetal oils and animal fats for detergents

Homer’s epic poems describe not only wool but also fabrics and garments with different adjectives and expressions related to the idea of a treatment with oil or fat. In the Bronze Age texts dealing with the finishing of woollen textiles, alkalis are mentioned alongside vegetal oils or animal greases. These fatty substances could be made up into a soapy lump which was rubbed on the surface of woollen fabrics. when they were scoured in the washing.

The most ancient evidence for the exploitation of animal fats and vegetal oils in the production of soapy detergents to be used for the finishing of textiles comes from Southern Mesopotamia and dates to the end of the 3rd millennium BC. Indeed cuneiform texts from the Sumerian cities ruled by the 3rd Dynasty of Ur record different kinds of fatty stuffs (Sum. İ; Akk. šamnu) related to different treatments of cloths performed by fullers. The tablets from Girsu, modern Tello in Iraq, listed sesame oil (Sum. ŠE.GIŠ.I) and swine fat (Sum. İ. ŠAḪ) for textiles intended to undergo the túg šà-ha, túg sa-gi₄-a and túg-ge ak(-dè) finishing treatments.

Vegetal oil (İ.GIŠ literally ‘oil of three’) was the chief fatty stuff used by fullers. Šamaššammu (Sum. ŠE.GIŠ.I ŠE.ĠI.SI literally ‘seeds of the plant of oil’) was the main source of vegetable oil in Mesopotamia. This oleiferous plant is traditionally identified...
as sesame (Sesamum indicum or S. orientale) because of the similarity of the Akkadian term with the Semitic šaman, Greek σήσαμον and Latin sēsāma. The term (Myc. se-sa-ma) appears furthermore already in the Linear B documentation from the Late Bronze Age Aegean, but sesame seeds recorded on tablets of the Ge series (602, 605, 607) from Mycenae seem to have been used as spices and not as an oil source.88

Nevertheless, the botanical identification of šamaššammū is still a controversial issue, since the etymology of the most ancient Semitic terms (Akk. šamaššammū; Ug. šmn; Heb. šemen), as well as the Sumerian še-ĝiš-ı, simply point to the main product derived from this vegetable resource: the šaman šammî ‘oil of plant’. Thus, it can refer to several other plants with oleaginous seeds.89

In the Mediterranean area, where the main oil-producing plant is the olive tree (Olea europaea), olive oil was used also for industrial purposes. The olive tree was cultivated in the Near East too, in Syro-Palestine, from at least the Chalcolithic Age. Palaeoecological investigations have proved the presence of its cultivation in Syria in the Early Bronze Age. Its first textual attestation (Sum. GIŠ.Ì.GIŠ) comes from the archives of Ebla and dates back to the second half of the 3rd millennium BC. The Neo-Sumerian texts from Girsu, at the end of the 3rd millennium BC, provide the first evidence of the importing of olive oil in Mesopotamia.90 Cuneiform tablets from Mari inform us that the imported olive oil (Akk. šaman sirdî; Sum GIŠ.ZI.IR.DUM/ Ô.GIŠ.ZI.IR.DU.(UM) was produced in the Amuq valley and the most valued comes from the coastal city of Alalakh, whence a text records the delivery of 2000 litres of oil.91 The coeval and neighbouring site of Pyrgos-Mavororaki on the southern coast of Cyprus preserved vestiges of a Middle Bronze Age industrial and commercial complex, where both olive oil and textiles were produced.92 During the Late Bronze Age, the textual sources show that the amount of olive oil (Ug. šmn) produced at Ugarit per year was so much (5,500 tonnes) that the surplus from this Canaanite city was exported to Egypt and Cyprus.93

In cuneiform texts, olive oil appears listed among other precious foodstuffs, or was used as an ingredient in precious perfumes, ointments for the body or medicine.94 Therefore, it seems to be a luxury good and an industrial purpose is perhaps therefore to be ruled out. Only in a single text is olive oil associated with a textile context: a text from Mari records the delivery of olive oil to women weavers (Akk. ana pašāš išparātim) as an ‘ointment’.95 It seems more
Vegetal and animal teasels

Greek and Latin authors report that brushes to raise the nap of fulled textiles had spikes made of the prickles of a kind of thorn-bush (Lat. *spina fullonia*; Gr. γναφική ἀκάνθη) or the spines of hedgehog skins (Lat. *erinaeus*; Gr. ἑχινή). Actually the natural origin of the raw materials used to make teasels is suggested by the ancient terminology too: etymological studies related κνάφος and the verbs κναφ/γναφ-εύω ‘to card, to wash, to full the wool’, κνάπτω ‘to comb, to card’ and κνάω ‘to scratch, scrape’ to a common root linked with the spinose structures of bristly plants (Gr. ἀκάν ‘thorn, prickle, spine’) and the stings of spiky animals (Gr. ἐχῖνος; ἀκανθίων ‘hedgehog, porcupine’).

The use of vegetable teasels is well-documented in the Middle Ages and later (Fig. 4). Nowadays, this practice (It. *guernissaggio*) is still carried out in the teaseling of special woollen cloths like those made in cashmere, camel, alpaca, vicuna and guanaco. Unlike wire brushes, the thorns of prickly plants, mostly belonging to the genus of the thistle known as *Dipsacus fullonum*, raise the nap in a gentle way, breaking up the yarns rather than tearing the weave of the textile. Botanical terms (En. *thistle*/teasel and *cardoon*; Fr. *chardon à fouillons*; German *Kardendistel*; It. *cardo dei lanaioli*/scardaccione) used to name this plant in modern European languages confirm this ancient custom of employing its spiny heads in the carding and teaseling of the wool.

The terminology of the Middle Bronze Age cuneiform texts demonstrate that Mesopotamian fullers too

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96. We find analogous ambiguities in the Aegean documentation: in the tablet MY Fo 101, OLE=WE ‘oil for anointing’ is allocated to various recipients, including a-ke-ri-ri-ja-i women (specialists in finishing or decorating textiles), but it is not clear whether the oil delivered was used by these workers in their labours. A similar situation arises from the tablet KN Fh 1056 where a tailor ra-pie-re receives 4.8 litres of oil. With regard to the text F. Rougemont (2011, 380) suggests that workers given this professional designation could be performing more operations than sewing alone.


98. Firth 2013, 159.


100. Breniquet 2010; Waetzoldt 1972, 5, 47-48. Fat-tailed sheep are still well-attested in the Middle Assyrian texts but later “became extinct in the first millennium” (CAD G, 126 sub gukkallu), since the gukkallu-breed occurs solely in Standard Babylonian and Neo-Babylonian literary texts. Local fat-tailed sheep breeds are still found in most of the Near East countries today as well as they are common in northern parts of Africa, Pakistan, Afghanistan, Iran, North India, Western China, Somalia and Central Asia.

101. Dioscorides, *De Mat. Med.* IV, 160; Pliny NH, 24, 111, 26, 244 and 17, 92. See Flohr 2013, 114.

used two different types of teasels to raise the nap of the woolen cloths and that at least one was made of a thorny plant.

The lexical lists Lú B and Lú D, dating back to the early of 2nd millennium BC, provide information about at least two different modalities, or more properly tools, used by the fuller ‘to teasel cloths’ (Akk. *mašārum*), a finishing treatment recorded for the tūg guz-zā and tūg bar-dib cloths immediately after the walking of the textiles (Akk. *kamādum* in the contemporary tablet AO 7026.103 In Lú B the fuller in charge of raising the nap is designated both as lú (tūg)-giš-kiši₁₆-ùr-ra, thus the textile worker ša i-na a-ša-gi-im i-ma-as-ša-ru ‘who raises the nap with the ašāgu’ and lú (tūg)-bar-sīg₉-ùr-ra, the artisan ša i-na ku-un-ši-li-im i-ma-[aš]-ša-ru ‘who teasels with the kunšillu’.

The vocabularies used consider the ašāgu (GIŠ.Ú.GÍR/ki-ši GIŠ.Ú.GÍR) as ‘a common spiny plant’ and identify it with a kind of acacia – like the *Prosopis farcta*, or a camel thorn – like the *Alhagi maurorum*.104 Even so, in the lexical list ḤAR -ra = ḥubullu XIX, cloths are teaseled (Akk. *māšru*) with a plant named Ú.GÍR, an alternative writing of giš-kiši₁₆, but also a kind of hyphenym for thorny plants in general.105 In lexical texts, spiny shrubs or weeds with an evil smell or a bitter taste as the apī, dadā, dadānu and kurbasi are glossed as Ú.GÍR and equated with the ašāgu plant.106 The kurbasi is sometimes recognized with a kind of thistle, suggesting that the *Dipsacus* sp. could have been involved in finishing also in Mesopotamia.107 Furthermore, the above-mentioned text TC 3/I, 17, 20 that gives instructions to comb ‘slightly’ (i-li-la li-im-šu-du) one side of a woolen textile may suggest the carrying out of a ‘gentle’ brushing of cloth through the hispid trichome of vegetal teasels.108 The verb mašādu has already been analysed above in connection with muštu ‘comb’ but in this case the use of the adverb illillā ‘slightly’ proposed by Veenhof could suggest a link with the maša’tu, a thorny plant identified by Uruanna with the 玕umumeštu or Ɨbaltu thornbushes.109

On the other hand, the identification of the kunšillu with a natural resource exploited in brush-making is a rather more problematic issue.110 Other than giš-kiši₁₆/Ú.GÍR, no determinative sign marks the term bar-sīg₉/BAR-sīg and thus it is not possible to understand whether it is a vegetal rather than an animal or mineral substance. Vocabularies provide three meanings for kunšillu (ba-ar BAR/bar): 1) thorn used as teasel, carding-comb or teasel for fabrics; 2)

103. Lú D, 3-4 in MSL XII, 204 and Lú B, 5-6 and 7-8 in MSL XII, 177. See CAD M/I, 359 sub mašāru and CAD K, sub kamādu “to weave and prepare cloth in a specific way”.

104. Halloran 2006, 34: “kišig(Ú.GÍR-γumī), kiši₁₆ “a kind of acacia, ašāgu…shok (Arabic shauk), a thorny bush, prosorpis farcta”; CAD A/II, 410-411 sub ašāgu: “The ašāgu can be identified with the modern Arabic shok (Prosopis farcta or stephani-ana) a kind of acacia, one of the most widespread thorny shrubs of southern Iraq”; CAD A/II: “camel thorn”. To my knowledge, the only camel thorn that could be interpreted as ašāgu is *Alhagi maurorum*, a species of legume that grows in the saline, sandy, rocky, and dry soils across the Near East (Cyprus, Syria, Jordan, Lebanon, Israel, Iraq, Turkey and Iran). An Akkadian passage seems, however, to identify this thorn bush with another plant since it reads: “the plant whose appearance is like the sap of the ašāgu thornbush and whose seed is like the seed of lettuce is called ‘sweet plant’” (CAD U-W 179, sub upātu c). Indeed, *Alhagi maurorum* is mentioned in the Qur’an as a source of sweet manna and its healing and sweetening properties are still well-known in local folk medicine and in cookery.

105. Hh. XIX, 194-195 in MSL X, 133.

106. Uruanna I, 79.

107. CAD (D, 17, sub dadā and dadānu) identifies dadā and dadānu as “stinking” subspecies of the ašāgu, in its turn interpreted a kind of false carob. Apart from the ašāgu-group is found another evil-smelling thorny plant, the dadaru “thistle-bush”. This phyto-nym could be related to Heb. dardar “thistle” and according to my studies to the Sum. dar-dar = Akk. tukkupu “to puncture, to stitch”. Another name for this plant is kurdinmu.


109. Veenhof (1972, 106) admits, however, that the translation of the adverb illillā ‘slightly’ and its connection with illillā ‘weak’ is doubtful. CAD M/I, 360, sub maša’tu; CAD 201 “a plant with thorns”; Uruanna I, 192; CAD B, 65-66, sub baltu: “perhaps a camel thorn”.

110. The Akkadian tool kunšillu and the noun kunšu (sig-pē-gilim-ak-a, sig-bar-ta) ‘flock, wad of wool’ are related in the same ways as the Greek terms κυώρακλον ‘teasel, carding-comb’ and κυώρος ‘hank of wool’.
textile worker using the teasel, carder, also abbreviated kun; 3) a part of the body, a piece of meat.111

With this last connotation, Akkadian kunšillu and Sumerian bar could therefore indicate the part of an animal, likely the back, used by the fullers as a teasel in the raising of the nap of the woolen cloths. In fact the logogram BAR means ‘outside, exterior; outer appearance; body; back, edge; fleece’ and moreover, the lexical text Hh. XV lists the kunšillu (zašar-sig) among different kinds of leather: it is recorded after the pāru (zaš-bar) ‘skin, hide’ and qinburu (zaš-bar-kun), an animal skin used as well as for its bristles as tools.112 The identification of the kunšillu with a spiny animal skin would explain why this teasel or ‘thorn’ is neither preceded by the determinative for plants Û or semantic class marker for the wooden instruments GIŠ.

Furthermore, according to some scholars, the sign BAR should have a taxonomical function and be interpreted as a faunal term designating several genera of hedgehog endemic to the Near East (Erinaceus concolor, Hemiechinus auritus, Paraechinus aethiopicus).113 It could be used as an abbreviation for some Sumerian faunal epithets, such as šaḫ-bar-gūn-gūn-nu and šaḫ-zē-da-bar-šur-ra, whose Akkadian equivalent is burmāmu ‘hedgehog’.114 Literally the Sumerian šaḫ -bar-gūn-gūn-nu could be translated as ‘pig whose back is spotted/stitched’, whilst šaḫ-zē-da-bar-šur-ra gives ‘piglet whose back bristles/teasels’.115 The sign šur-ra is a compound of the sign šu ‘by hand’ and úr-ra (Akk. mašaru) ‘to brush, to raise the nap with a teasel’, namely the verb which in Hh. XIX, 194-195 designates the function of the ašagū and the kunšillu (tūg Ú.GĪR.ūr-ra and tūg bar-sig-ūr-ra = mašru).116 This reading seems to be confirmed by the equivalence lū tūg-šu-ūr-ūr = ma-a-še-e-rum denoting the fuller busy in teaseling by hand.117

The identification of the kunšillu with an animal teasel obtained from the skin of a Near Eastern species of hedgehog can be confirmed by Classical sources referring to the same involvement of hedgehog skins in 1st century AD Rome.118 Pliny the Elder refers that the importance of the hedgehog skins

111. CAD K, 542 sub kunšillu; CDA 167 sub kunšillu.
112. Hh. XV, 288-289 in MSL IX, 14; CAD Q, 254 sub qinburu: “probably a bristle, used also as a tool”.
113. Nevertheless, the identification of the plants and animals designated by Akkadian and Sumerian terms with the phytonyms and zoonyms of the modern taxonomy is very torturous and not certain. Even the name of the hedgehog cannot escape this kind of methodological problems. On the one hand, the cuneiform documentation classified the burmāmu among rodents and among swine. On the other, further Akkadian animal names, such as those of some piglets or rodents or even reptiles, have a corresponding Sumerian faunal epithet, which could be translated as a pig. So if we assume that the hedgehog has a specific epithet, and in fact, it is likely to be the one corresponding to the Sumerian šaḫ -bar-gūn-gūn-nu, we can identify the Sumerian šaḫ-bar-gùn-gùn-nu and the related En. giš-gi-a). See CAD B, 330, sub burmāmu.
114. In Hh. XIV 162-164 in MSL VIII/2, 19-20. In Hh. XIV 190a (MSL VIII/2, 22) burmāmu is instead classified among rodents (pēš-giš-gi-à). See CAD B, 330, sub burmāmu.
115. In Hh. XIV 48, MSL VIII/2, 74 is found the equivalence burmāmu = šaḫḫu “pig, hog”. Note that modern languages too bring out the resemblance between these two animals: En. hedgehog; Ar. šayham; It. porcospino and the related En. porcupine, Fr. porc spine, porc-épic designating Hystrix sp. The reduplicated sign gūn probably refers to the most characteristic feature of this animal namely its speckled (Akk. barmumu) back, to which is also related the etymology of the Akkadian zoonym burmāmu.
116. CAD K, 298, sub katāmu; Hh XIX 178 and 194-195 in MSL X, 133.
117. Lū B 12, in MSL XII, 177. This meaning seems to be further supported by the reading of šu-ūr as se-ru ‘rubbed’ and šu-ūr-ra as pāšātu ‘to erase, to scratch out’. See CAD P, 249 sub pāšātu. Hh. XIX, 178 in MSL X, 133 records the equivalence tūg šu-ūr-ra = MIN (= tak-it-mu), where katāmu (Sum. šu; duš) means ‘to cover with garments, to provide with garments, to cover’, perhaps suggesting that this kind of finishing was intended for the fabrication of fulled textiles for overcoats, blankets, curtains or tents.
118. The third of the so-called Kedor-laomer texts provides further indications referring to the nature of the kunšillu: here it appears as a living being with links to the ārihu bird - the former seemingly the ‘prey’ of the latter. The translation of this passage considered the ārihu as a ‘rook’ with the kunšillu as a thistle, since it is qualified as kīnu ‘firm in place’ and the scholars knew its involvement in the raising nap of the fulled textiles. Indeed thistles are very hard to eradicate. Nevertheless, in my opinion the term kunšillu could indicate a small animal that does not draw back in front of the threat of predators and raptors, rather than a motionless plant. Actually the bird most famed as the sworn ‘enemy’ of the thistle-bushes is not the crow but the goldfinch (Carduelis carduelis) or thistle finch (Gr. ἀκανθυλλίς/ἀκανθίς; Lat. carduelis; It. cardellino, Fr. chardonneret), a bird greedy for the seeds of these plants, and probably identifiable with the Akkadian iṣṣūr ašāgi ‘bird of the ašāgu-bush’.
in the finishing treatments of woollen fabrics led the Roman Senate to impose a monopoly on the hedgehog trade and the skin of the animal became one of the most sought-after commodities in ancient times. Nevertheless a mandible of *Erinaceus europaeus* was found in the Augustan deposit of the forum of Pompeii during the excavations: it might be linked with this economical exploitation of the animal described by Pliny. Unfortunately the only archaeological evidence of the tool used as teasel in the Roman age - a couple of brushes found at *fullonica* I 6, 7 at Pompeii - has not been published and does not seem to have been preserved, so it is not clear what they exactly looked like. Indeed there is no evidence for the use of hedgehog skins in textile finishing after the 1st century AD, other than Pliny’s statements. Yet, an indication of how the hedgehog teasels used by Roman fullers were made is provided by the ethnography: these tools made in leather, cork and hedgehog skin (Fig. 5) are still attested today in Sardinia, albeit in a symbolic and ritualized sphere no longer directly related to fulling and cloth-making processes. In fact, a Sardinian Carnival character called s’Erittaju ‘the Hedgehog-bearer’ - a grotesque personification of a fuller - carries hedgehog-skin brushes, attesting to their use until recent times. The clear parallels between the apotropaic rituals performed in the Mediterranean island during the Carnival and those practiced by Romans on

119. Pliny NH, 8, 135: “hac cute expoliuntur vestes. magnum fraus et ibi lucrum monopolio invenit, de nulla re crebrioribus senatus consultis nulloque non principie adito querimoniis provincialibus”.
120. King 2002, 426: “but it is more likely that the bones derive from a natural death”.
121. See Flohr 2013, 115. Unlike the vegetal thistles well attested until recent times, the exploitation of hedgehog skins in raising the nap and polishing of woollen cloths seems to have been lost or at least forgotten. Nowadays, tenuous reminiscences of the ancient use of hedgehogs in cloth finishing can be traced in the attempt to imitate its speckled back in the manufacture of clothes-brushes. This of the little mammal was common until the last century in Denmark (M.-L. Nosch, personal communication). Ulla Mannering has carried out experimental research on the rubbing of hedgehog skins on fulled textiles for The Danish National Research Foundation’s Centre for Textile Research.
122. *S’Erittaju* ‘the Hedgehog-bearer’ is one of the main characters of the traditional ‘Thurpos’ Carnival’ of Orotelli, a little village of the Barbagia, a very conservative area of the inner Sardinia and romanized only from 1st century AD. During the Carnival processions at Orotelli, the *thurpos* characters wear a traditional *orbace* cowl and as a caricature represent the ancient professions of the rural world with disturbing personifications of the peasants, the plough oxen and craftsmen. The *orbace* (Sar. *orbaci, furesu, fresi*) is a well-known woollen cloth subjected to fulling and polishing processes; its production is one of the most important economic activities in the Barbagia region. *S’Erittaju* wears a white *orbace* cloak and some brushes made from hedgehog skins on the chest and abdomen; he has to be considered the grotesque personification of a fuller. The masquerade costume of S’Erittaju had sunk into oblivion; only thanks to the careful and scrupulous research of writer and historian Lorenzo Pusceddu is it now exhibited in the Ethnographical Museum of Nuoro as part of the Sardinian cultural heritage. From a linguistic point of view the term *erittaju* is related to the Proto-Indo-European root *ǵʰér ‘to bristle, to raise the nap’ to from which derive the Gr. χήρ ‘hedgehog’ and the Lat. *ēr* and *ērīcīus* ‘hedgehog’ as well as to Lat. *cārere* ‘to card’ and Gr. καίρος ‘to shear, to smooth’, the two technical operations performed by the fuller right after the fulling of the wool fabrics. See IL 392-293; Rocci 2023.
the occasion of Lupercalia festival, at the same time of the year, suggest that tools and techniques used by Roman fullers might have reached the Sardinian inland over the course of the 1st century AD, when the reason was colonised.\textsuperscript{123}

In the documentation of the ancient Near East, besides the afore-mentioned lexical texts, no direct evidence of the exploitation of hedgehogs and hedgehog skins in fulling and finishing processes of woollen textiles is found. The only archaeological sources documenting a certain importance of the animal in Bronze Age Mesopotamian and Eastern Mediterranean cultures, where wool is the chief fibre and the textile industry is the driving element behind the economy, are iconographic: representations of hedgehogs in the shape of offering vessels, figurines (Tell Mozan), amulets (Tell Brak) and on seals and seal impressions (Isin-Larsa) are indeed pretty numerous.\textsuperscript{124}

Amongst these, the Early Cycladic III (2300-2100 BC) offering vessel found at Chalandriani on Syros, in the north-west area of the Cycladic islands, could have some connection to the fuller’s craft. This little island is not far from Kimolos, the place from where the most renowned quality of fuller’s earth in antiquity was quarried. The ancient place name of Kimolos was Echinousa, namely the island of the ἐχῖνος ‘hedgehog’, or the island of the ἐχῖνη ‘hedgehog’s skin’. The terracotta vessel has the hedgehog sitting and holding a bowl: it is considered a kind of ‘prototype’ of the Aegean hedgehog rhyton found in the Eastern Mediterranean at the end of the 2nd millennium BC.\textsuperscript{125} It is perhaps possible to correlate the diffusion of the Mycenaean type of hedgehog rhyton and the introduction of new techniques of finishing of cloths from the Near East, but more detailed studies are needed.\textsuperscript{126}

It is quite probable that the carding ability offered by the bracts of the teasels was originally observed in the fields when the sheep were shedding. Before the anthropogenic selection of sheep against natural

\textsuperscript{123} During the Carnival processions s’\textit{Erittaju} chases and hugs the fertile women of the community, pricking their breasts with the brushes. It is believed that the ‘teaseling’ of these girls with the itchy pricks of the Fuller/Hedgehog-bearer would stimulate the flow of the milk in the women’s breasts, increasing the fecundity of the earth, animals and human beings, and so secure the fluence of the community. This ceremony can be interpreted as a rite of passage for the girls who have reached the adult age: the ‘fertilization’ should transform the virgins into goodwives and wise mistresses of the household, whose economic contribution in a large part was based on the domestic weaving and working of wool. Such an apotropaic ritual recalls the description of the Roman \textit{lupercia}-festival. The \textit{lupercia}-festival took place in the culmination of the winter, around the middle of February, when the hungry wolves approached sheepfolds and threatened flocks. The festival was celebrated by the \textit{luperci}, young priests with half-naked limbs smeared with grease and a mud-mask on the face; they wore only a goatskin around the hips, obtained from animals sacrificed during the rites. From these skins they cut some strips of leather named \textit{februa} or \textit{amiculum Iunonis} and used them as whips. After a hearty meal, all the \textit{luperci} had to run around the hill. During the race, they jumped about and struck out at both the ground and the women with their whips. Originally the women offered voluntarily their bellies to the \textit{februa} of the priests in order to increase their fertility.

\textsuperscript{124} The earliest hedgehog representations in the Near East may date as far back as the 7th millennium BC, with examples from Bouqras in Syria (dated 6400-5900 BC). The first known ‘hedgehog rhyton’ - a specific type of vessel with two openings used for libations (Gr. πότον from the verb πέψω, ‘to flow’) - is probably the vessel from Arpachiyah from the Halaf period (6100-5100 BC). A hedgehog rhyton dated 3500-3300 BC was found in Jebel Aruda. In the 2nd millennium, hedgehog \textit{ryhta} were used Chagar Bazar and Tell Chueira. In the Late Bronze Age (\textit{LH} III A2-LH IIIB) hedgehog \textit{ryhta} became a Mycenaean production: a small group was found on Mainland Greece (Prosymba, Tanagra and Varni), other examples in Cyprus (Myrtou-Pigades and Maroni) and in the Levant (Tell Abu Hawam, Kamid el-Loz, Tell Sera’ and Ugarit). A Philistine hedgehog vessel was found at Ekron and it is the only known \textit{LH} IIIC example. See Ben-Shlomo 2010, 143-144; Recht 2014; Collon 1986, 159, n. 388.


\textsuperscript{126} In the 1st millennium AD, the Romans believed that fulling was a finishing process originating in the Eastern Mediterranean. Pliny the Elder (\textit{NH} 7, 196) attributed the invention of the techniques of \textit{ars fullonia} to the Greek Nicia of Megara, see Flohr 2013, 101. For the links between the hedgehog and the symbolism of death and rebirth, see Ben Shlomo 2010, 144 and n. 48. Moreover the matter is further complicated by the fact that at the end of the 2nd millennium BC, Mycenaean iconographic sources from Eastern Mediterranean show another use of the hedgehog skins: lots of Late Helladic Period III C (1200-1100 BC) pottery fragments portray warriors and mariners wearing a distinctive spiky headdress, the so called “hedgehog” helmet. This cap has been interpreted as being made of leather or raw-hide or some other perishable material reinforced with bronze bosses and a central short crest to resemble the body of a hedgehog, but some scholars have also suggested that similar helmets could have been actually made of hedgehog skins, see Yasur-Landau 2014, 184-186; D’Amato & Salimbeti 2016, 32.
fleece loss, the specimens of *Ovis orientalis* moulted at the first signs of the height of summer. The wool would stay entangled in the thorns of thistle-bushes, the commonest plant of the grazing lands. Shepherds sought out the tufts of wool, plucking and gathering them one by one. Collecting the wool in this way had the advantage of obtaining it with relatively minimal expenditure of time and energy and, not less important, of it having undergone a first cleaning and sorting of the fibres. In the first half of the 2nd millennium BC in Mesopotamia the gathering was performed without any cutting involved: it was sufficient to pluck the flocks by hand or to use the teeth of a comb (Akk. *muštu šipāti*) to obtain the wool. The pulling out of the hair of the fleece with combs or any prickly tool can explain the use of the shearing terminology in the context of the finishing of fabrics and also the ambiguity of many verbs that could be used to mean ‘to shear, to comb, to card, to teasel, to crop, to full’. The above-mentioned Gr. *κναφεύω* and Akk. *mašādu* have already been analysed, but the Latin terminology also records this same linguistic phenomenon: the tool *carmēn* ‘teasel, carding-comb’ and the natural resource exploited to construct it (Lat. *carduus* ‘thistle, teasel’) are both related to the Lat. *cārere* ‘to card’, in turn linked with Gr. *κείρω* ‘to shear, to smooth’.

In Akkadian the verb *qatāpu* (Sum. *kud*) has the chief meaning ‘to pluck’ and is used not only to indicate the harvesting of the wool by plucking, but to designate also the cropping of a hairy fabric. The synonymous *garādu* (zé) ‘to pluck wool’ and its related verbal adjective *gerdu* ‘plucked wool’, often written GÍR-∗du, could therefore be linked with Lat. *cārere* ‘to card’, in turn linked with Gr. *κείρω* ‘to shear, to smooth’. In Akkadian the verb *qatāpu* (Sum. *kud*) has the chief meaning ‘to pluck’ and is used not only to indicate the harvesting of the wool by plucking, but to designate also the cropping of a hairy fabric. The synonymous *garādu* (zé) ‘to pluck wool’ and its related verbal adjective *gerdu* ‘plucked wool’, often written GÍR-∗du, could therefore be linked with Lat. *cārere* ‘to card’, in turn linked with Gr. *κείρω* ‘to shear, to smooth’.

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Conclusions

In ancient times, fulled textiles were precious and expensive goods. Already in the Bronze Age many Mesopotamian textiles in their finishing processes were designated as ‘royal’, as were certain oils and fats used for scouring; some texts from Pylos, in Messenia, refer instead to a fuller in the sovereign’s service. The fulled textiles’ value has to be understood according to the number of treatments that they needed and the time and raw materials required in each technical operation. I have focused in this analysis on the natural resources involved in the ancient fulling technology, as raw materials or tools. The study of the archaeological and textual sources of the 1st millennium BC gave me the opportunity to investigate too the technology used during the Bronze Age in the finishing of woolen textiles and to compare it with the fulling craft performed in Roman and Greek times, better-known thanks to a richer evidence. Even allowing for differences due to the diverse availability of natural resources from such varied ecosystems and times, the terminology of the 3rd and 2nd millennia BC cuneiform texts reveals that the fulling of woolen fabrics was performed by Near Eastern textile workers with the same techniques and similar tools as described by Greco-Roman sources in Classical antiquity.

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I would like to thank Marie-Louise Nosch for inviting me to submit my contribution and giving me the opportunity to broach the interesting topic of the terminology of the fulling technology through a diachronic and interdisciplinary point of view. I would also like

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128. The *magazazu* ‘shearing blade’ is known from the middle of the 2nd millennium BC, but only in lexical texts. Iron shears are documented from the 1st millennium BC, see Lassen 2010. CAD (M/I, 49, sub *magazazu*) translates *magazazu* as ‘shears’, referring to its equivalence with the sign gi-ir GÍR ‘thorn’.
129. Rocci 1027; IL 151.
130. Whittaker 2012, 585, 590-600.
to express my thanks to the reviewers and to Doniert Evely for the thoroughgoing revision and correction of my article. Finally, I am very grateful to the municipal administration of Orotelli, to the major Nannino Marteddu and to the cultural association Thurpos Erītajos Orotelli for their willingness and enthusiasm in assisting in my ethnographic field research.

**Abbreviations**

- **CAD** The Assyrian Dictionary of the Oriental Institute of the University of Chicago. Chicago 1956-2010
- **Hh.** B. Lansberger (ed.) *The Series ḪAR-ra=ḫubullu, Materials for the Sumerian lexicon. V, VI, VII, IX, X and XI*. Rome 1957-
- **IL** L. Castiglioni & S. Mariotti (eds.) *Vocabolario della lingua latina*. Milano 1996
- **LH** Late Helladic
- **Uruanna** Pharmaceutical Series *uruanna: maštakal

**Bibliography**


2. Fulling Technology in the Mediterranean and Ancient Near East


Garments, Parts of Garments, and Textile Techniques in the Assyrian Terminology: The Neo-Assyrian Textile Lexicon in the 1st-Millennium BC Linguistic Context*

Salvatore Gaspa

\[ išp\]arākma qē amahhaṣ ulabbaš ummānamma
[I a]m a weaver and beat up the threads. I clothe the troops.

Tamarisk and Date Palm (BWL 156, IM 53975 r.5)

At its political and territorial apex in the 8th and 7th centuries BC, Assyria developed into an imperial society characterised by the coexistence of languages and cultures of various origins. The policy of deporting and resettling conquered peoples across the Empire’s territory caused the spread of the Aramaic language and alphabetic script as well as the use of Aramaic as a co-official language alongside Akkadian. The linguistic change caused by these events in the Empire’s core territory emerges from the late stage of the Assyrian dialect, which shows the impact of Aramaic on various grammatical and lexical elements of the language. At the same time, Neo-Assyrian maintained continuous contact with the Neo-Babylonian dialect, the language spoken by numerous individuals employed in the state sector as scribes, scholars, and officials.

The study of the lexicon of material culture may reveal how these social and linguistic changes shaped the everyday language that emerges from Neo-Assyrian letters, administrative records, and legal documents. For the terminology of textiles, it is interesting to observe the coexistence of terms belonging to the common Akkadian textile terminology with designations that are peculiar to the late dialects of Akkadian (1st millennium BC), namely Neo-Assyrian and Neo-Babylonian. Other terms, which are genuinely Assyrian, show continuity across the Middle Assyrian and Neo-Assyrian periods. A West Semitic component of the Neo-Assyrian textile terminology is also evident, along with terms possibly belonging to the Hurrian substratum, presumably inherited from the Middle Assyrian dialect, and others of unknown origin.

To judge from the statements in the royal annals of Assyrian kings concerning tribute and booty from the West Semitic sector, textile products from the Syri-an region were highly esteemed by Assyrians. For instance, Tukultī-Ninurta II (890-884 BC) records the receipt of woven cloths and dark purple wool from Laqē, while linen garments with multi-coloured trim were a common product acquired by Assurnaṣirpal II (883-859 BC) and other kings from these regions.

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such as Bēt-Zammāni. Red-dyed wool garments with multi-coloured trim were also a major portion of the Western textile products obtained by the Assyrians, as evidenced by those from Sam‘al and Damascus, mentioned in the royal inscriptions of Shalmaneser III (858-824 BC) and Adad-nērārī III (810-783 BC) respectively. All of these references demonstrate the value of Western dyed wool and linen products and the Assyrian interest in controlling the rich local textile production.\(^1\) It is reasonable to surmise that the expertise of deported textile artisans from the West Semitic area was put to use by the Assyrian ruling elite in state-controlled textile workshops, thereby integrating Western traditions of textile manufacture with Assyrian and Mesopotamian traditions.\(^2\) Presumably, these workshops, located in the main royal households of the Assyrian cities, employed artisans of various provenances and cultural backgrounds. In light of the Aramaisation affecting various sectors of Assyrian society and state organisation, which reached its apex in the 7th century BC, it is clear that the languages used in these textile workshops were Assyrian and Aramaic. All of the technical phases of the textile chaîne opératoire, from wool sorting to spinning, from weaving to dyeing, were certainly mirrored by a bilingual terminology. Unfortunately, the extant written documents on clay tablets record only a small fraction of the presumably rich bilingual vocabulary used by these artisans. We know that record-keeping in the Empire’s bureaux during the 8th and 7th centuries makes use not only of Assyrian cuneiform on clay tablets or wooden (or ivory) waxed board-books but also Aramaic script on flexible material, namely scrolls, presumably of leather or papyrus.\(^3\) The textiles produced for internal consumption by the Assyrian ruling elite and state sector as well as those produced for export were regularly recorded in administrative documents by the scribes. However, the parallel administrative records of these textiles on Aramaic scrolls have not survived. Consequently, our ignorance of the Aramaic component of the aforementioned Assyro-Aramaic textile vocabulary—at least the one that entered the language of the administrators—renders any attempt to reconstruct the textile lexicon of the Neo-Assyrian Empire limited and partial. In addition to the Aramaic component, Assyrian imperial society of the 7th century BC was enriched by other ethnic groups, such as Elamites, Egyptians, Anatolians, Urartians and peoples from the Iranian area, not to mention other Semitic components, such as Levantines and Arabs. We are totally ignorant of the impact that the languages of these groups, which immigrated into the main cities of the Empire, had on the Assyrian terminology of material culture, especially textiles. It is reasonable to assume that special foreign textile products that were peculiar to their regions of origin were named in accordance with their original designations. However, the assimilation of these foreign groups and their backgrounds of technical terms into the Assyro-Aramaic culture of the Empire is another important process that was at work in this period. This process of unification and standardisation is visible in the case of foreign products (acquired by the Assyrians in the form of tribute or booty) that are named using Akkadian terms.

In the present contribution, observations on Neo-Assyrian textile terminology will concern garments and parts of garments.\(^4\) For a limited number of terms, it is possible to identify the textile techniques after which the end products were named, although the available evidence does not enable us to reach definite conclusions regarding this aspect of the textile production.

**Producing and defining garments in Assyria**

Garments and other items of clothing were produced in Assyria through the work-assignment system (iškāru), namely, through assignment of raw materials from the state to textile artisans, who were obliged

2. Among the sihirīt ummānī, ‘all the craftsmen’, who were brought out from the enemy’s palace and deported to Assyria by the Assyrian kings there were also textile artisans. For references to deported foreign craftsmen in Sennacherib’s royal inscriptions see, e.g., RINAP 3/1, 1:33; 17 i 38 and passim.
3. The visual evidence of Neo-Assyrian scribes holding scrolls and pens has been recently reviewed in Reade 2012, 702-704, figs. 1, 5-7, 9-11, 15, 16.
4. Terms designating head-gear are not included in this study.
to produce and return a certain quantity of finished products. Other textile end products were imported from abroad through trading by state merchants. Reconstructing the terminology of the weaving process and of tools used in the fabrication of garments is difficult since the majority of textile designations in Neo-Assyrian texts refer to finished products. In terms of weaving tools, the archaeological evidence for spherical clay loom weights and remains of carbonised wood from what had probably been a loom from the Neo-Assyrian site of Khirbet Khatunyeh confirms that warp-weighted vertical looms were in use in Assyria. Among the objects found at this site were also a wooden object, possibly a weaver’s ‘shuttle’ or bobbin and a flat bone spatula, pointed at one end, which has been interpreted as a ‘beater-in’ by Curtis and Green, although the correct designation would be ‘weft-beater’. Other weaving tools comprise clay spindle whorls. Tools related to weaving and dyeing activities, such as loom weights, bone spatulae, and terracotta dyeing vats, were found at Til Barsip (Tell Ahmar). All of these items were common equipment for textile artisans of the Neo-Assyrian period. For a number of these textile tools, it is possible to identify the term used by artisans. The dyeing vat, for instance, was called \textit{nasraptu} in Akkadian, but we do not know what loom weights were called in this language. For other items used by textile artisans, however, some suggestions can be made. Terms for the loom and its parts are not attested in the Neo-Assyrian corpus but only in lexical lists and in other periods of the Akkadian documentation. The translations given in the dictionaries are generic. Terms referring to parts of the loom were also used to designate parts of doors, indirectly confirming the use of vertical looms in Mesopotamia. Identification of different components of the loom is extremely difficult since the occurrences are predominantly attested, if not exclusively limited, to lexical sources (the lexical series HAR-ra = \textit{hubullu}). We may reconsider the Akkadian terminology in light of what is known about the horizontal ground loom and the vertical loom. The \textit{asû}, of which an upper (\textit{elû}) and a lower (\textit{šaplû}) variety are known, probably refers to the heddle-bar and the shed-bar in the vertical loom and to the front and back beams in the horizontal loom. The words \textit{habbiru}, literally ‘the noisy one’, and \textit{madakku}, literally ‘the crushing one’, probably refer to the weft beater. The item called \textit{niru}, literally ‘the yoke, crossbeam’, could be identified with the shed-bar, while the \textit{nansû}, could be the heddle-bar. Giving the meaning of \textit{akaiû} as a stick for driving donkeys, it is possible that it refers to the sharp pointed

5. Curtis & Green 1997, 18-19 and fig. 22. The best preserved of these loom weights show considerable variation in diameter (from c. 6.0 to 7.2 cm), height (from c. 4.0 to 6.3 cm), and weight (from c. 126 to 218 g). See also \textit{ibidem} 21 and fig. 25 (nos. 93, 96).
7. Curtis & Green 1997, 20 and fig. 23 (no. 76).
8. Curtis & Green 1997, 20 and fig. 23 (no. 77). But note that the authors define the beater-in as a tool used to press down the weft thread after it has been threaded through the warp threads. This is not correct, since on a warp-weighted loom the wefts are passed upwards, not downwards, and the weft is beaten upwards. On the use of weft-beaters see Andersson Strand 2015, 52.
9. Curtis & Green 1997, 21 and fig. 25 (nos. 90-92). For a copper alloy needle from Level 3 see \textit{ibidem} fig. 25 (no. 87).
11. CAD N/II, 51b s.v. \textit{nasraptu} B.
12. CAD A/II, 347b s.v. \textit{asû} B.
13. These parts probably correspond to the \textit{rās en-nōl} and \textit{qā’ en-nōl} of the horizontal loom used by Bedouins today. See Staubli 2012, 91 fig. 85.
14. CAD H, 14b translates the term as ‘wool-lever’.
15. CAD M/I, 9a s.v. \textit{madakku} 2.
16. CAD N/II, 263b s.v. \textit{niru} A 3b.
17. In the horizontal loom, still used by nomads in present-day Middle East, the loom’s ‘yoke’ is called \textit{minjar}. See Staubli 2012, 91 fig. 85.
18. The dictionaries suggest that the \textit{nansû} was the ‘lever’. See CAD N/I, 261b. For \textit{maššû}, a variant of \textit{nansû}, see CAD M/I, 390b s.v. \textit{maššû} A 2.
19. CAD K, 42a s.v. \textit{kajû} 1; CDA, 154b.
stick or spatula used by the weaver as a beater. As for mukānu (from the verb kānu, ‘to be firm’), it could be another candidate for the shed-bar. Words for ‘shuttle’ or bobbin are (w)āṣītu, literally ‘that which goes out’, muṣabbītu, šiṣītu, of which a large (rabītu), a small (šihīru), a ša paršīkītu and a strong (puggīltu) variety are used, and ukā. Alternatively, it is possible that the word šiṣītu refers to the harness or the heddle of the loom. Unfortunately, we do not know how all of these weaving tools were called in Assyria in the 1st millennium BC since the authors of the written records registering textiles were apparently not interested in the everyday tools used by artisans in the workshops.

Although the terms for textile tools used in Neo-Assyrian workshops remain unknown, we know from the written sources that the Assyrian artisans produced a wide variety of clothing items, such as garments, headdresses, and other textile accessories. Many of these clothes were produced for the palace elite, including royal women. Even if there are few indications of female garments in Neo-Assyrian texts, it is clear that a portion of the palace-controlled textile industry and international trade was determined by the demand for such textiles by women of the royal family. Already in the Middle Assyrian period, we see that special textiles were produced for palace women, as evidenced by a Tell Ali text mentioning 30 minas of wool for the production of three Cypriot(-like?) lubēru-garments for six women. When it comes to designations for garments, we may observe that Neo-Assyrian scribes still use common textile designations such as labussu (lubussu, lubultu, lubuštu), lubāru, and šubātu to refer to garments in general terms. In contrast to CAD, it seems that the last term was also used in Middle Assyrian period as a syllabic writing of the plural logography TŪG.HI.A.

Given that the Ancient Near Eastern costume is, in Durand’s words, an ‘ensemble vestimentaire’, that is, a unity constituted by multiple items of clothing that, presumably, varied across time, region, and social strata, it is possible that the generic term also referred to the main and visually dominant item of clothing worn by a person. In addition to the aforementioned names, terms for specific textile items could also be employed to designate a plurality of garments. Generic terms used to sum up textile products at the end of an enumeration of garments in inventory texts are miḥṣu (logographically written as TŪG.PA), ‘textile, woven fabric’ (from the verb mahaṣu, ‘to beat, weave’), and kuzippu or guzippu (of unknown origin), probably simply intended as
‘garment’ (see below). The beating operation referred to in the root *mišu* is basically associated with the weaver’s use of weaving tools like the weaving swords and pin-beaters or weft-beaters. These tools, usually made of bone, served to unravel knots or remove impurities, position the weft correctly and tighten some points of the weft. The word *mišu* is used as a generic term in both Assyrian and Babylonian dialects of the 1st millennium BC. In Assyria, it refers to a wide variety of garments and other finished textile products in texts from Kalhu (Nimrud), Šibaniba (Tell Billa), Nineveh (Kuyunjik), and Tušhan (Ziyaret Tepe). This use is already present in Middle Assyrian times, as shown by a document listing amounts of wool and summarising the textile end products as *mišu*. Instead, at the end of a list from Assur (Qal’at Šerqāt), we find the word *kuzippu* having the same meaning as *mišu*. In this case, the generic term refers to elements of clothing and other textiles coming from abroad, namely from the city or the region of Hamath (in present-day central Syria). The semantic value of the word *kuzippu* as a generic textile term has already been recognised by Radner and Villard. This use of the word *kuzippu* is confirmed by a letter sent by Urad-Gula to the Assyrian king, where different garments, collectively defined as *kuzippu*, is said to have comprised *gulēnu*, *kitūs*, and *maklulu*-garments. In a fragmentary inventory text from Nineveh we find both *mišu* and *kuzippu* at the end of a list of clothing items; the former is probably used to sum up all the linen garments, while the latter as a generic term for garments in the grand total section of the document. The use of both terms as collective designations for textiles in the same text probably indicates a certain degree of specialization of the words *mišu* and *kuzippu*, but conclusive observations about this aspect cannot be made in light of the extant Neo-Assyrian sources. In any case, these two terms were the common designations for textiles transported for trade. Usually, textiles were transported as wrapped in rolls with attached clay sealings or labels describing the contents of the shipment. The practice of gathering garments into rolls, called with the Aramaic loanword *kirku*, is documented in dowry lists both in Assyria and in Babylonia.
Designations for garments

In the observations that follow, the Neo-Assyrian names of garments are discussed. Terms have been classified into three categories: 1) designations belonging to the common textile Akkadian vocabulary, that is to say, terms that are also attested outside the Neo-Assyrian dialect, namely in other dialects and periods (e.g., in Middle Assyrian, Babylonian, etc.); 2) designations that are peculiar to 1st-millennium Akkadian dialects (i.e., Neo-Assyrian and Neo-Babylonian), including terms of (possible) West Semitic origin; and 3) designations the meaning of which is unclear as well as non-Semitic words.

Assyrian designations belonging to the common Akkadian textile vocabulary

elītu. The term seems to denote an upper garment or a (fringed) shawl. Of this textile there were both a red (or purple?) and a black variety. Other qualifications, some of which are very common in Neo-Assyrian lists of textiles, are difficult to explain. We know, for example, that the red variety of the elītu could be of the country-/mountain-type (KUR = mātu, ‘country’, or šadû, ‘mountain’), perhaps to be understood as naturally red, in opposition to other red dye varieties, such as the red of the port’ or ‘commercial red’ (KAR = kāru) and the so-called ‘limestone red’ (pūlu). This overgarment seems to have had a red-coloured front-part, as witnessed by a list of commodities from Nimrud.

hullānu. This name of a cloak or wool or linen wrap is documented from Middle Babylonian times onwards. This textile was probably a cover or a wrap, to be used for garments and beds. From administrative sources we may see that the hullānu could be qualified as suppu (decorated?) and that they were employed for beds, perhaps, as bed-covers. Another list of textiles mentions house-wraps for women. In this case, it is possible that the item was a cover. On the use of this textile by ladies we are informed from a letter of the crown prince Assurbanipal to his father, according to which an Aramaean woman put a hullānu on her neck. That the hullānu was a sort of garment is also clear from a look at Middle Assyrian documents. In the Middle Assyrian period, the luxury variety of hullānu could have cedar-tree decorations and sleeves (ša aḥāte). A variety with (figures) of (heraldically?) crossed tešēnu-animals, without sleeves, is also attested. In Neo-Babylonian times, it constituted a component of wardrobes for statues of both gods and goddesses.

49. CTN 2, 153:5; 155 r. v 10'; 224:1; 253; SAA 7, 102:4'; 103:2'; 105:9'; 112:6'; 127:8'; STAT 3, 1:4; ZTT II, 33:1. See AHw, 202a; CAD E, 98b; CDA, 70a. For the meaning ‘shawl’, see Postgate 2001, 380 and AEAD, 24b.
50. SAA 7, 105:9'.
51. SAA 7, 105:9'.
52. SAA 7, 105:9'.
54. CTN 2, 155 r. v 11'. However, the logographic writing ZAG.MEŠ is interpreted by Postgate as referring to the sleeves, see Postgate 1973, 172.
55. AHw, 354a; CAD H, 229a; CDA, 119b; AEAD, 38b. But see Postgate 2014, 418 for the generic translation: ‘a luxury garment’.
56. CTN 2, 152:1; K 6323+ r. i' 10’ (Kwasman 2009, 116); ND 2311:1 (Irāq 23 [1961], 20, pl. X); PVA 235, 236; SAA 7, 96:6'; 107 r.3'; 109 ii 3', iii 2'; SAA 16, 17 r.7'. See AHw, 354a; CDA, 119b. In addition to this meaning, CAD H, 229a also intends this textile as a blanket, while in AEAD, 38b the entry is translated as ‘cloak, wrap, hood’.
57. SAA 7, 96:6'. Postgate 2014, 425 tentatively suggests the translation of suppu as ‘embroidered?’.
58. SAA 7, 107 r.3'[x x (x x) GÚ'].LĀ bē-te' ša MĪ.MEŠ.
59. SAA 16, 17 r.6'-8'.
63. See Beaulieu 2003, 15.
kitû. The term generally designates a linen textile, a cloth and a garment, probably a tunic.65 In the Middle Assyrian period linen wraps (nalbētu)66 as well as textiles of thick linen (kitû kabartu) were produced.67 A Neo-Assyrian list of textile products from Assur mentions one white (or bleached?) linen garment (kitû pašitu).68 In Assyria, linen cloth was also used to cover beds and chairs.69

kusîtu. This textile designation has been interpreted as referring to a long garment falling straight to the ground, probably a sort of tunic.70 The term is also attested in West Semitic, as witnessed by Aramaic ksūṯā, ‘garment’,71 and Mandaic kissūyā, ‘veil’72 (<ksy, ‘to cover’). From Middle Assyrian documents we see that this garment was made of wool73 and that multi-coloured cloth (birmu) was used by palace weavers to produce the kusîtu’s hem.74 Analogous details we gain from Neo-Assyrian labels and accounts of textiles. The 1st-millennium kusîtu could be red, of the country-type,75 or multi-coloured.76 Kusîtus of various colours also occur among grave gifts in a royal funerary text.77 White kusîtus are documented in the Middle Assyrian period.78 In 2nd millennium BC Assyria, kusîtus were produced for export, as witnessed by Bābu-aha-iddīna’s archive.79 It was also fabricated in the textile workshop in Dūr-Katlimmu (Tall Śēḥ Ḥamad), from which we learn that a quantity of 8 minas of wool served to produce a pair of these garments80 and that, consequently, the amount needed for one kusîtu was 4 minas, around 2 kilograms. As it may be observed from a list of textiles from Assur, kusîtus could be a palm wide (ṣa puškāie).81 A letter of Nabû-šarru-usur informs us that some kusîtus, which had to be delivered to King Esarhaddon (680-669 BC), were fabricated with red wool by the team of the weavers of (the temple household of) Ištar of Arbela82. It was especially used as an honorific form of dress; in fact, a letter reporting on Sennacherib’s death mentions eunuchs standing in the presence of the mayor, dressed in kusîtus and adorned with rings.83 Various examples of more or less elaborate and fringed long robes are depicted in palace reliefs as worn by the king, high ranking officials, and soldiers. This item of dress could be worn on its own or in...
association with a fringed shawl or a shirt. The use of the kusušu by soldiers is witnessed by a Middle Assyrian document which mentions kusušu of the king’s troops (kusušu ša šāb šarrī) among other textiles destined to the army.

kuzippu. This name refers to a garment, a cloak or a suit (of clothes). It is possible that the textile designation kišiptu is related to kuzippu (see below). No etymology is provided by dictionaries. The connection of kuzippu to the root *kzp/*ksp is doubtful in light of its meaning ‘to think, estimate’. Instead, the possibility that k/guzippu is a compound name related to the word qušippu (also quzippu, quṣippatu), an Akkadian loanword in Sumerian (written as gu zî .i.p.â.tum/zî.â.tum/zî.ba.tum), has never been considered by scholars. The compound word seems to be based on the terms qû, ‘thread, string’, and šippâtu, a term of unknown meaning probably referring to the material or quality of the thread. If this working hypothesis is valid, the garment designation probably referred to characteristics of the thread used in its manufacture. The kuzippu, also attested with voiced plosive [g], guzippu, was a wool garment of which both white and red types were in use in Assyria. A dowry list includes kuzippus of commercial red wool (‘red wool of the port’) as well as white kuzippus. Palace weavers in charge of the production of such a garment were able to create very elaborate types of kuzippus. A Ninevite textile label mentions a kuzippu studded with stones, clearly a textile befitting a member of the Assyrian royal family; an example of such a decorated garment is probably to be recognised in the mineralised textile remains with cornelian beads discovered in the Nimrud royal burial. It is known that the foreign noblemen and messengers who were received by the Assyrian court with great honours were dressed in precious robes: this is the case of the son of a nobleman from an eastern country in the reign of Sargon II (722-705 BC), who received a kuzippu and silver bracelets at his arrival. The palace weavers also produced an ordinary and presumably standard variety of this clothing item for the military personnel. An account concerning the consumption of raw materials for textiles records 2 talents of madar for making the clothes of the chariot-fighters charged for the production of such a garment were at his arrival.

86. CTN 2, 152 e.9; Ki 1904-10-9, 154 r.36, 51 (Iraq 32 [1970], 152-153, pl. XXVII); ND 2097:6, 7 (Iraq 23 [1961], 18-19, pl. IX); ND 2307:14, 17, r.3 (Iraq 16 [1954], 37, pl. VI); ND 2312:1 (Iraq 23 [1961], 21, pl. X); ND 3413:2 (Iraq 15 [1953], 139, pl. XI); SAA 1, 246:8; SAA 2, 5 iv 16; SAA 3, 34:30; 35:60; SAA 7, 97:13'; 112:3'; 115 ii 20; SAA 10, 87 r.2, 5; 189:10; 226 r.3; 234 r.4; 235:6; 246:8, 11, r.7; 258:2; 264 r.1; 270 r.6; 275 r.4; 289 r.3, 10; 293:28; 294 r.28, 35; 338:13; 339:12; 340:11; 387 r.3; SAA 11, 67:1; 176 r.6; SAA 13, 33 r.9; 37:8; SAA 15, 90:25; 91 r.2, 529 r.8; SAA 16, 5:6; 83 r.3; 159:3; SAA 19, 6 r.14', 16'; SAA 2, 244 s.4; 315 e.10; STAT 3, 1 r.35. See AHw, 519b; CAD K, 615b; CDA, 171b; AEAD, 53b.
88. CAD Q, 332b: ‘a type of thread’. Instead, AHw, 515b and CDA, 170b do not offer any translation of this term, although AHw suggests a possible relation between kusušu and kuzippu.
89. CAD Q, 332b. We wonder whether the word in question is šippatu, ‘reed’ (CAD S, 203b). Does this word also mean ‘fiber’? On the correspondent Aramaic word šbt’ see DJBA, 951b: ‘fiber’.
90. The preference for voiced forms seems to be due to the voiced context or voiced root-context, see Hämeen-Anttila 2000, 15-16.
91. See, e.g. ND 2307:14 (Iraq 16 [1954], 37, pl. VI); SAA 10, 87 r.2'-3'.
92. ND 2307:17 (Iraq 16 [1954], 37, pl. VI); SAA 10, 87 r.5'.
93. ND 2307:14 (Iraq 16 [1954], 37, pl. VI).
94. ND 2307:14 (Iraq 16 [1954], 37, pl. VI).
95. ND 2307:17 (Iraq 16 [1954], 37, pl. VI).
96. SAA 7, 97:13'. Garments studded with stones are documented in the written sources of other periods of the Ancient Near Eastern history. See Durand 2009, 72, concerning the item called nahZaBu. See also Beaugeard 2010, 288: ‘une chemise ornée de pierres précieuses’.
98. SAA 15, 91 r.1-2. See also SAA 15, 90:25-26.
as uniforms for soldiers and for the Itu’a troops. The fact that kuzippus as well as other textiles were commodities frequently transferred within the imperial territory is confirmed by a sealing, i.e. a circular-shaped piece of clay bearing impressed a stamp seal; this inscribed object accompanied an unspecified number of kuzippus and šipirtu-textiles. The large circulation of these two items was probably due to the presence of units of the royal army in different area of the imperial territory and to the constant need of provisioning the troops with uniforms and other textiles of everyday use. The sealing operation concerning textiles which had to be delivered from a place to another within the imperial territory is also attested in a letter of Sargon’s royal correspondence concerning tunics (kitû) stored in Dūr-Šarrukēn (Khorsabad). In Neo-Assyrian letters the term kuzippu is also employed to indicate the king’s dress and the garments of the statue of the substitute king. From a Marduk-šākin-šumi’s letter we also learn that kuzippus were used in rituals to be performed in the sacred qirsu-place; the king’s scholar specifies that the garments had to be used as clothing of skulls. Another garment whose use is connected with the qirsu-place is the pazibdu (see below). We may also observe that in mourning periods the king was clothed in white robes. In addition, the royal clothes were used as a substitute for the king when he could not participate in the processions of the gods in person. It is also clear that the term kuzippu was used by Assyrian scribes to indicate garments in general (see above). Perhaps this meaning also fits many of the attestations quoted above. This use of the word may be seen, for example, in the end of a textile list from Assur, where all the items are totalled and qualified as kuzippus coming from the land of Hamath, as observed above. From the literary text of the Marduk Ordeal, it is also clear that the generic semantic value of the word kuzippu is different from that of lubussu; in fact, kuzippu denotes the individual character of the garments in question, not just their being clothing. An administrative document also informs us that a wooden container, called bēt kuzippi, was used to store such textiles. This object must have been a characteristic piece of furniture in the royal palace, given the importance, the richness, and the variety of garments that the king and the royal family’s members used during private and public occasions. In a marriage contract, different kuzippus are listed, among which one pair of kuzippus qualified by the obscure designation magarrūti occurs. Summing up, the term kuzippu appears as a versatile designation for garments, both of luxury (i.e., those of the elite) and ordinary types (e.g., those worn by members of the Assyrian army).

lamahuššû. This is a Sumerian loanword in Akkadian and denotes a wool precious garment used for ceremonial purposes. This expensive garment is already attested in Ur III period as well as in Old Babylonian and Old Assyrian times. This textile

100. SAA 19, 6 r.14’.
102. SAA 11, 67:1.
103. SAA 5, 206 r.6-8’.
104. SAA 10, 234 r.4-6; 235:6-15; 339:12; 340:11-12; SAA 13, 37:8.
105. SAA 10, 189:10-11.
106. SAA 10, 264 6-r.2.
107. SAA 10, 234 r.4-6; 235:6-15.
109. StAT 3, 1 r.35.
110. SAA 3, 34:30 la-bu-su-šu ša a-na 4GAŠAN—UNUG.KI ú-še-bal-u-ni ku-zi-pi-šu-šu-nu, “His clothing which they send to the Lady of Uruk is his robes.”
111. SAA 7, 119 i 19’, ii 14’.
112. ND 2307 r.3 (Iraq 16 [1954], 37, pl. VI).
113. AHw, 532a; CAD L, 58b; CDA, 176b; AEAD, 54a.
name was also known with variants with initial n, like, for instance, namaššuḫum (Old Assyrian) and namansuʾ um (Old Babylonian).114 In Mari it indicated both a luxury garment and a precious fabric for furniture.115 The lamahuššu was an integral part of the wardrobe of the statue of the goddess in Neo-Babylonian times.116

maklulu or muklālu (muqlālu). This term, derived from the verb qalālu, ‘to be light, weak’, seems to denote a wool shawl or a cape.117 In a Middle Assyrian text wool garments (lubēru) with their maklalu are listed.118 The textiles in question are qualified as garments ša šeri, ‘of the steppe/countryside’, perhaps, to be intended as garments with capes which were used for travel or which were characteristic of the nomads’ dress. Postgate suggests the translation ‘hood’.119 Moreover, it seems that in 2nd-millennium BC Assyria also maklulus for work (ša šipri/KIN) were in use.120 The Neo-Assyrian maklulu came in two varieties: one with sleeves and one without sleeves.121 Administrative texts dealing with textiles tell us that the muklālu could be made of biršu, and that it could have a red coloured front-piece and (precious) stones sewn onto it, perhaps along the border. Another document specifies that the colour used for the front-part of the muklālu was the commercial red.122

nahlaptu. This name of textile, which is already attested at the beginning of the 2nd millennium BC,123 derives from the verb halāpu I, ‘to cover, clothe (with)’, probably refers to a wrap and to a coat or armour125 used by Assyrian soldiers. This designation was also certainly used to indicate the metal scale armours imitating the homonymous wool coats. In fact, a record of copper items mentions a light bronze nahlaptu to be polished,126 in all likelihood a soldier’s coat of mail. Assyrian troops dressed in such armours are mentioned in the correspondence of Esarhaddon.127 Moreover, the characteristic scale texture of the Assyrian armours is intended in the curse section of two Neo-Assyrian treaties, where we find a simile equating leprosy with the nahlaptu-garment.128 An alternative logographic form of the word was TŪG.DŪL (= šulālu, literally, ‘shelter, protection’), attested in a document from Tušhan (Ziyaret Tepe) concerning a set of clothing for soldiers.129 As clearly shown by two Middle Assyrian documents concerning textiles, it seems that the production and the supply of nahlaptus as well as other textile products to the army was a concern of the Assyrian central administration. We are informed about the centralised production of this item of dress in Assyria.
since the 2nd millennium BC. Two Middle Assyrian documents reflecting the management of the palace-oriented textile production are particularly interesting: one of them is a list of finished textiles which had to be supplied by a number of contributors; among the listed textiles there are finely executed and decorated(? coats for battles (nahlaptu ša dîkâti ša 'uptu qatattu). In contrast, no explicit reference to military use is made concerning the wool nahlaptu recorded in a Middle Assyrian account of work quotas of palace weavers, although the reference to leggings and chariots in the text supports this hypothesis. That the nahlaptu constituted a characteristic element of the military uniforms also in the 1st millennium BC is confirmed by the mention of nahlaptu (written as nahlaptu) of the military unit of the Qurraeans in two Neo-Assyrian lists from Nineveh. In the Middle Assyrian period varieties of nahlaptu of red, red-purple, blue, blue-black (or blue-purple), white, and multi-coloured wool were produced. The 2nd-millennium nahlaptu could be provided with sleeves (Á.MEŠ) and breast-pieces (GAB.MEŠ) of red wool. Furthermore, the fact that a nahlaptu occurs in a document listing what seem to be royal gifts for a woman shows that the designation also applied to a wrap or coat used by ladies. In this connection, we may note that ordinary coats occur in a Neo-Assyrian dowry list of a marriage contract from Kalhu. With the same textile designation a wrap for beds was also intended. As far as the Neo-Assyrian period is concerned, we may see that in the 1st millennium BC too the nahlaptu comes in several varieties. The Practical Vocabulary of Assur lists multi-coloured, red, red-purple, blue-black (or blue-purple), scarlet, and huhhuratidied types of nahlaptu, as well as a house-quality, a variety used for the breast (or, perhaps, a variety with breast-piece?), and one to be used in association with the obscure kirnāiu-garment. The list also includes nahlaptu with designs (uṣurtu) and a linen-variety. Of other

131. MARV III, 5:9', 10', 16', 18', 20', e.26'.
133. For the variant nahlap, which is already attested in the Middle Assyrian period, see KAJ 77:9 (Postgate 1988, text no. 53) 1 TŪG.na-ha-ap-tu.
134. SAA 7, 112 r.1-2; 115 ii 18.
135. MARV III, 71:2 (StAT 5, 92:2); MARV X, 8:1 (StAT 5, 8); 35:1 (StAT 5, 35).
136. MARV III, 5:10', 16', 18'; MARV X, 40:5-6, e.7-r.9 (StAT 5, 40). Note that in this text the amounts of red purple wool (ZA.GÌN. MI) are summarised in the total as ṣerpu, ‘red (wool)’. See ibidem r.13.
137. MARV X, 77:1 (StAT 5, 77).
138. MARV III, 71:3 (StAT 5, 92); MARV VIII, 97:4; MARV X, 40:1-3 (StAT 5, 40); 64 r.14 (StAT 5, 64).
139. MARV III, 5:20'; MARV X, 8:2 (StAT 5, 8); 36:1 (StAT 5, 36); 59 r.10 (StAT 5, 59); 77:2 (StAT 5, 77).
140. MARV III, 71:5 (StAT 5, 92); MARV VIII, 97:5.
141. MARV III, 5:17'. Nahlaptu-garments with sleeves and breast-pieces are also attested in MARV I, 24:13'.
142. MARV VIII, 73:1.
143. CTN 2, 1:10' 6 TŪG.‘GU-.MEŠ sad-ra-te.
144. SAA 7, 109 iii 2'-3' G[U-.LÁ]/NÁ [0].
145. PVA 222.
146. PVA 229.
147. PVA 227.
148. PVA 228.
149. PVA 230.
150. PVA 226.
151. PVA 223.
152. PVA 224.
153. PVA 233. 154. PVA 225.
155. PVA 234.
156. PVA 232. For the reconstruction of the line, see Postgate 1973, 28 and CAD P, 543a.
two varieties mentioned in this lexical list, one is qualified with the palm-measure (*pušku*), but the use of this unit of measure in connection with textiles escapes us. The same measure also characterises scraps of textiles in a marriage transaction document from Nimrud and *kusītus* in a list of textiles from Assur. In addition to the above-mentioned types, a white variety was also produced in the Neo-Assyrian period. Concerning ritual use, we see that a wool white *nahlaptu* was used in a ritual for the Daughter-of-the-River. Assyrian weavers produced both long and short *nahlaptu*; a short variety is documented in the above-cited list of garments from Assur. Another use of this textile was to cover chariot parts. In fact, in a document from Middle Assyrian Assur a *nahlaptu* is associated with the dust guard of the king’s chariot.

*nēbu hu*. This is a designation for a band, belt or sash, derived from the verb *ebēhu*, ‘to gird, belt up’. From Middle Assyrian documents we see that *nēbu hu* of both red and white wool were produced. Another text specifies the different purposes for which this item of clothing was fabricated in the state textile workshops; the text only refers to the female weavers of Nineveh, whose work assignments are constituted by the textiles listed in this document. The mention of the god Bēl-šarru is probably an indication that these textiles were destined for the wardrobe of this deity. We know that Istar’s statue was clothed with this item of dress in 1st-millennium BC Babylonia.

*niksu*. The word literally means ‘cut, piece’ (from *nakāsu*, ‘to cut’); it probably designated a standard piece of cloth used as wrap, although Middle Assyrian attestations seem to confirm that it was a specific kind of garment. *Niksu* are listed in a document along with amounts of coloured wool and garments, suggesting that they were specific clothing items. In the Neo-Assyrian period, this garment is attested in a legal document listing materials to be used for the king’s *sasuppā*-napkin. The text mentions a depot of four unknown items (textiles?) and four *niksu*, fine work belonging to a god and at disposal of a chief weaver. In a document from Ziyaret Tepe, two *niksu* occur in the context of clothes for soldiers. Details on *niksu* are provided by a list from Assur, from which we learn that this kind of wrap could be white with red sides and front-part (UŠ ZAG Sā). The same text also mentions a Babylonian variety, but no indications are given about what

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157. CTN 2, 1:5’.
158. STAT 3, 1 r.22.
159. STAT 3, 1 r.26.
160. KAR 141:17 (Ebeling 1931, 88).
161. STAT 3, 1 r.33 68 TŪG.GŪ.È kùr-ri.
162. MARV X, 5:1-2 (STAT 5, 5) [x x x x GI]Š.xa’-har-ge-e GIŠ.GIGIR [ša ˹GÌR˺ MA[N].
163. ND 3407:3 (Iraq 15 [1953], 138, pl. XI); PVA 243; SAA 7, 115 ii 16. See AHw, 773b; CAD N/II, 143a; CDA, 248b; AEAD, 76a; Postgate 2014, 421.
164. CDA, 64b.
165. MARV X, 3:14 (STAT 5, 3).
166. MARV X, 3:14 (STAT 5, 3).
167. MARV X, 69:4-5 (STAT 5, 69) 6+x* TŪG.ĪB.LĀ.ʾšaʾ na[m]-hi-ri / 35’ TŪG.ĪB.LĀ.MEŠ / ša lu-uš-me. The meaning of the terms *namhiru* and *lušmu* is unclear.
169. See AHw, 789b; CAD N/II, 231b; CDA, 253b; AEAD, 77a.
170. MARV I, 24:2, 3, 14. *Niksu* and other textiles are summarised as TŪG.lu-bal-tu SIG₂-tu, ‘good-quality clothing’, in ibidem 12. See Postgate 2014, 422 for discussion. For other attestations of this textile in Middle Assyrian texts, see Faist 2001, 6 (Two *niksu* [and/or?] one Assyrian *labēru*); Radner 2004, 82, no. 4:30-31; MARV X, 10:1 (STAT 5, 10).
171. SAA 6, 190:2.
172. ZTT I, 8:3.
173. STAT 3, 1:10.
175. STAT 3, 1 r.31 1 TŪG.nik-su KUR URLKI’. Literally, ‘(of) the Land of Akkad’.
176. See AHw, 1003a s.v. *sāgu* I: ‘ein Arbeitsschurz’; CAD S, 27b s.v. *sāgu*: ‘a piece of clothing’; CDA, 310b s.v. *sāgu* I: ‘a skirt,
differentiates the Babylonian *nīkṣu* from the Assyrian counterpart.

*sāgu*. This term has been interpreted as a name for ‘sack’ and for a garment. In Neo-Assyrian texts it probably represents the Assyrian counterpart of the Neo-Babylonian *saqqu*, a designation for a sack and a garment, and the Aramaic *saq, saqqā*, analogously meaning ‘sack’ and ‘sack-cloth’. In light of the meaning of the word, it is clear that this garment was made with the coarse cloth of sacks. In Assyria, the occupation dealing with the production or trade of these garments was called *šā sāgātēšu*. In light of a letter dealing with Aramean troops going on a campaign, it seems that *sāgus* were a component of travel equipment along with leather bags, sandals, food and oil. The word has long been considered a 1st-millennium textile term in the Assyrian dialect. However, the fact that the same word also occurs in Middle Assyrian administrative documents from Assur demonstrates that it was already known in the 2nd millennium BC. On von Soden’s authority, Prechel and Freydank tentatively translate the Middle Assyrian word as ‘Arbeitsschürze’.

**šaddīnu.** The form *šaddīnu*, with initial <š>, is a peculiarity of the Neo-Assyrian dialect. In the Western Semitic area the same word has initial <s>, as shown by Hebrew *sādīn* and Aramaic *sedīnā*. The 2nd-millennium attestations show that the form was originally *sadīnu*. Its early attestations in texts from Mittanni and the doubled consonant in the ending (-innu) point to a non-Semitic word which, according to Kaufman, could be of Anatolian origin. The Aramaic *sdyn*, *sdyn‘*, ‘sheet’, refers to a textile usually made of...
fine linen.\textsuperscript{193} This West Semitic form is probably at the basis of Greek σινδών.\textsuperscript{194} According to Herodotus, it was used to wrap mummies and wounds received in battle.\textsuperscript{195} The context where this textile appears in the Assyrian texts witnesses to the precious nature of this item of clothing.\textsuperscript{196} This garment, interpreted by some scholars as ‘toga’,\textsuperscript{197} was made of linen.\textsuperscript{198} A letter by Crown Prince Sennacherib to King Sargon lists luxury garments and other commodities coming from Western countries as tribute and audience gifts for the palace personnel. Among the various goods there are also šaddīnu, a number of which are said to be made of būṣu.\textsuperscript{199} The correlation of šaddīnu and būṣu is significant, since it reminds us of the analogous correlation between σινδών and byssus in Herodotus’ work. In fact, the Greek historian specifies that the σινδών was made of linen (βυσσίνη).\textsuperscript{200} Also from Esarhaddon’s royal inscription at Nahr el-Kelb (in Lebanon) we learn that šaddīnu-garments were made of byssus;\textsuperscript{201} in this case, the šaddīnu is one of the valuable objects taken from the treasury of Taharqa’s palace during the Assyrian looting of Memphis. Although it is clear that this is one of the rare attestations in Akkadian of the word ‘byssus’ (Greek βύσσος), it is not clear, however, what kind of fibre was designated with this word. In the light of the studies of Maeder, who carefully reviewed the incongruences of the modern translations of the ancient term byssus, it seems reasonable to think that the material called būṣu had nothing to do with the fibers of \textit{Pinna nobilis}, but indicated, instead, a variety of linen.\textsuperscript{202} What is evident from Sennacherib’s letter is that the word refers to a textile material used in the Western Semitic region, presumably in the Phoenician coastal area. This also suggests that this luxury material was imported in the Levant from Egypt. The West Semitic word \textit{bṣ}, probably referring to fine Egyptian linen, occurs in the Phoenician version of the bilingual inscription of Karatepe, where the king of Zincirli/Sam’al (830-825 BC), Kilamuwa, mentions both linen (\textit{ktn}), presumably of the ordinary type, and byssus (\textit{bṣ}).\textsuperscript{203} The origin of this West Semitic word is still disputed and an Egyptian textile designation has been considered by scholars as a possible candidate.\textsuperscript{204} The Egyptian word \textit{bd3}, meaning ‘pleated stuff’, could be at the basis of the West Semitic form; Lipiński observes that clothing of pleated fabric occurs in Pharaonic art as elite dresses.\textsuperscript{205} Accordingly, the Semitic term \textit{bs}/būṣu, which was borrowed by Greek, was probably used to indicate a valuable textile material. In all probability, the West Semitic term entered the Assyrian language in Shalmaneser III’s reign (858-824 BC), since this king states to have received byssus along with multi-coloured clothing and linen as a tribute from Marduk-aššur-šum-ukin, king of Suhi, in the Euphrates region.\textsuperscript{206} This textile material was highly
appreciated in imperial Assyria, as confirmed by another attestation of the word \( \text{būṣu} \) in an administrative text from Nineveh. In this inventory text, which enumerates precious items probably donated to the gods, \( \text{saddīnu} \)-garments of byssus occur among other valuable commodities;\(^{207} \) in all likelihood, they were used to clothe statues of divinities. This is also suggested by the fact that in the same text dark fine garments of linen (\( \text{qatattu adir tu kītē} \)) are mentioned in connection with the gods Marduk and Mullissu.\(^{208} \) Other occurrences of the word \( \text{būṣu} \) may be found in the Neo-Babylonian documentation. A text concerning vestments for the statue of Šamaš includes yarn of byssus.\(^{209} \) Another Neo-Babylonian text shows that this material was categorised as linen (\( \text{GADA.} \text{bu-ṣu} \));\(^{210} \) the use of the semantic classifier \( \text{GADA} \) for byssus may also be seen in an inventory of linen fabrics for gods’ statues from Seleucid Uruk.\(^{211} \) Consequently, it is tempting to identify this material with a very fine variety of linen. Was the transparency of the fabric the main characteristic of the material called \( \text{būṣu} \)? In one of the drawings of palace reliefs from Nimrud published in Layard’s work there is a scene with two tributaries from Que, who bring provisions and vessels to the Assyrian king’s banquet; interestingly, both individuals wear a fringed outer garment made of a transparent fabric, perhaps a very fine variety of linen.\(^{212} \)

\( \text{šahartu} \). The etymology of the word is not given in the dictionaries, but it may be connected to Akkadian \( \text{šaharru} \) (a Sumerian loanword), denoting a net.\(^{213} \) Accordingly, the Assyrian form would represent a feminine nominal form whose meaning probably refer to the net-like structure of the weave. The word is attested in the plural form \( \text{šaharrātu} \) and refers to leggings or socks,\(^{214} \) especially used by soldiers and envoys. This item of clothing often comes in pairs. It is interesting to observe that representations of leggings worn by soldiers show a net-like appearance given by the leggings’ strings.\(^{215} \) The ‘Middle Assyrian Harem Edicts’ mention \( \text{šaharrātu} \) along with boots (\( \text{šuhuppāte} \)).\(^{216} \) From another text of the same period we learn about leggings or socks destined to the king’s feet.\(^{217} \) Quantitative data about the manufacture of these leggings may only be found in the 2nd millennium. One text from Assur specifies that one mina of wool was needed to produce three pairs of white leggings.\(^{218} \) A Neo-Assyrian document lists leggings among other items of clothing (\( \text{i.e.} \), reinforced undergarments, sandals, upper garments, and waist-belts) for Urartian envoys.\(^{219} \) Reinforced undergarments (\( \text{šupālītu hal-luptu} \)) and waist-belts (\( \text{ṣipirtu} \)) accompany this item also in another text from the central administration and in an affidavit document from Ziyaret Tepe concerning military garments.\(^{220} \) Details on these leggings may be found only in two
texts, which mention red-coloured šaharrāti. Instead, a white variety is attested in a Middle Assyrian text from Assur.

šiknu. This name of textile occurs among various articles of clothing (i.e., mitres, leggings, and sleeves) in a Neo-Assyrian text concerning a royal funeral, but the nature of the textile in question is not clear (a specific item of clothing or a different textile product?). The šiknu is attested in connection with garments (kusītum) in an Old Assyrian text, while its association with bedclothes is documented in Mari.

šuhattu. Apparently, a nominal form from šahātu, 'to wash, rinse, wipe down', although the etymology is not expressed in the dictionaries. CAD distinguishes two šuhattu-textiles: a textile used to wipe clean objects, and a luxury piece of apparel when referred to royal dressing. In Middle Assyrian perfume-making, šuhattu-textiles were used to clean cooking pots. The Akkadian reading of the logographic writing TÚG.KUR.RA as šuhattu is uncertain. The KUR.RA-textile occurs in a Neo-Babylonian letter of the Assyrian royal correspondence, where it refers to a cloak. From another Middle Assyrian text from Assur it seems that šuhattu-textiles were connected to the activity of felt-makers, but conclusive observations on this regard cannot be made in light of the limited evidence.

Names of garments in 1st-millennium BC Akkadian dialects (Neo-Assyrian and Neo-Babylonian)

The textile vocabulary of the Neo-Assyrian period comprises names of garments that are peculiar to the Akkadian dialects of the 1st millennium BC. Some of these designations are common to both Assyrian and Babylonian, others are exclusively attested in only one of these dialects. Some of these 1st-millennium terms may be understood as the development of previous designations based on the same lexical root. In other cases, instead, there are textile designations that are new entries in the late dialects of Akkadian.

harīru. The term is a designation for a type of garment or cloth. Only CDA proposes the translation 'bedspread'. In texts from Mari a textile called harrurum/hurrurum is attested. According to Durand, it is possible that this word is related to the Neo-Assyrian form harīru. It is not clear whether the Neo-Assyrian term has also some connection with the Old Assyrian hirurum. Durand also suggests that the Mari term could have designated a garment with a surface very razed like velvet. The few data about the Assyrian harīru does not enable us to confirm this interpretation. The harīru occurs in administrative lists from Nineveh among various maqaṭṭu- and urnutu-garments as well as after reinforced undergarments. From another list we learn that harīrus could be made of multi-coloured cloth (birmu).

222. MARV III, 5 r.32'
223. 6323r. r. i' 5', 18' (Kwasman 2009, 116).
226. CAD Š/III, 205b.
227. 2015, 18, i 18, 19, ii 16, 20-21, ii 3, 20.
228. Reynolds 2003, 197b. The possible readings of the word TÚG.KUR.RA have been discussed by Malatacca in this volume.
229. SAA 18, 100:11 ‘i'-na TÚG.KUR.RA-sú pa-ni-sú ‘i'-[er-mu], ‘Th[ey covered] his face with his cloak.’
230. MARV X, 81:1-4 (StAT 5, 81).
231. AHw, 326a; CAD H, 102b; AEAD, 35b.
232. CDA, 108b.
233. Durand 2009, 41. See also CAD H, 102b, 121a.
235. SAA 7, 97 r.4; 108 r. ii' 5'; 109 r. iv 6'.
236. SAA 7, 109 r. iv 6'.
237. AHw, 679a; CAD M/II, 242a; CDA, 220a; AEAD, 68a.
musiptu. The word, a nominal formation possibly based on the verb *suppu* II, ‘to decorate, overlay, rub down’, occurs in Neo-Babylonian, where it indicates a (standard) piece of clothing;\(^{238}\) it was used as a generic term for clothing.\(^{239}\) In a Neo-Babylonian letter of the Assyrian royal correspondence, the term is employed to designate garments from Tukrika.\(^{240}\) These garments are qualified as *karkēti*. This term may be interpreted as the adjective *karku*, ‘amassed, gathered, twined’\(^{241}\) or as the substantive *karkītu*, ‘threaded work’, which is not included in dictionaries.\(^{242}\) Both these nominal forms derive from the verb *karāku*, ‘to gather, wrap, twine’. From the same root also derives the word *karikkū*, attested in Mari and translated by Durand as ‘chaussette, bas’.\(^{243}\) Concerning the place name Tukrika,\(^{244}\) it is worth noting that wool and textiles from this place are mentioned in Middle Babylonian texts,\(^{245}\) confirming the importance of the local textile manufacture already in the 2nd millennium BC.

*nāṣbutu*. This item was probably a coat or a sash holder.\(^{246}\) To judge from the administrative sources, this item of apparel was made of *biršu*-fabric\(^{247}\) and it had an edging that could be commercial red-coloured.\(^{248}\) Of the same colour was also the front-piece of this textile.\(^{249}\) As to function, we may observe that this textile appear in dowry lists; probably, it was an ordinary piece of clothing to wear at home. In a marriage contract from Assur it occurs after the *urnutu-* and the *maqaṭṭutu*-garments.\(^{250}\) In the Neo-Babylonian period it is attested in Amat-Nanâ’s dowry list among other items of apparel.\(^{251}\) On the contrary, nothing can be said about the *nāṣbutus* mentioned in a Babylonian letter among amounts of wool, a hat, and other commodities.\(^{252}\) In Neo-Babylonian times, *nāṣbatu*-garments were used to cover the statues of the gods Nanâya, Uṣur-amâsu and Nabû.\(^{253}\)

*nēbettu*. This word designates a girdle or sash.\(^{254}\) The nominal form derives from the verb *ebētu*, ‘to bind?’.\(^{255}\) The dictionaries only list Neo-Babylonian attestations. Texts from Nimrud\(^{256}\) and Assur\(^{257}\) record a multi-coloured variety of this item of clothing, while another document from Nimrud mentions a red type.\(^{258}\)

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240. SAA 17, 122:8 TUG *mu-si-pe-ti i kar-ke-e-ti ša Tuk-riš*.
241. CAD K, 217b.
244. Groneberg 1980, 239. According to Groneberg, this place is to be identified with the region of Luristan.
245. See references quoted in CAD T, 460a s.v. *tukrišu* b.
247. SAA 7, 96:11’, r.1; 97:6’, 11’; 119 r. ii’ 2’.
248. SAA 7, 96:11’, r.1; 97:11’. See also SAA 7, 102:1’.
249. SAA 7, 96 r.1.
252. SAA 18, 19:4’, 9’.
254. AHw, 774a; CAD N/II, 201b; CDA, 248b, AEAD, 76a.
255. CDA, 65a s.v. *ebētu* II.
256. CTN 2, 153:4.
257. Stat 3, 1 r.25.
259. AHw, 908a; CAD Q, 173b; CDA, 286b; AEAD, 87b.
qatattu. The name of this fine garment is the feminine adjectival form from qatnu, ‘thin’.\(^{259}\) This adjective qualifies TÚG.HI.A\(^{260}\) and nahlapktu-textiles\(^{261}\) in Middle Assyrian texts. In the 1st millennium it is used to indicate a specific item of clothing. Dark (adirtu) qatattu-garments of linen are listed in a Neo-Assyrian inventory text from Nineveh.\(^{262}\)

qirmu (or germu, geremu). The term, derived from the verb qarāmu, ‘to cover’, seems to designate an overcoat or mantle, if we follow AEAD’s interpretation.\(^{263}\) Aramaic qrām, qrāmā means ‘covering’.\(^{264}\) Qirmu-garments could have a red-coloured front-part;\(^{265}\) the red dye could be of the commercial type (‘red of the port’)\(^{266}\) or of the country-type.\(^{267}\) Other attestations show that both red and black wool were used to fabricate qirmus.\(^{268}\) This is confirmed by a document from Assur, where one clean (or bright?) black qirmu is recorded.\(^{269}\) In the same text also the multi-coloured variety is listed.\(^{270}\) In Neo-Babylonian documents it occurs as one component of female wardrobes.\(^{271}\)

ša hīli. This term, which is not listed in the dictionaries,\(^{272}\) is based on the word hīlu/hillu,\(^{273}\) ‘covering, wrapping’.\(^{274}\) In Assyria the hillu was used as wrapping or cover for nēbuhu-sashes\(^{275}\) and constituted an accessory element of ša IŠ garments.\(^{276}\) The ša hīli is attested both in Neo-Assyrian and Neo-Babylonian.\(^{277}\) It was made of red wool\(^{278}\) and accompanied kusītu-garments, as may be observed in the description of the clothes of Abu-erība, a relative of the Assyrian king,\(^{279}\) as well as in a list of garments from Tell Billa.\(^{280}\)

ša hurdati. The translation of the word as ‘petticoat, sanitary napkin’ is suggested by AEAD on the basis of the term hurdatu, ‘female genitals’.\(^{281}\) The term only occurs in the lexical list PVA.\(^{282}\) ša IŠ. Fales and Postgate tentatively suggest the translation ‘dust garment’ on the basis of the word...
eperu (IŠ/SAHAR). This garment could also be accompanied by one sīnu-piece (see below).

Another variant of this item is provided by a document from Ziyaret Tepe, which mentions one ša IŠ with wrappings (ša hillānu). Seven large multi-coloured ša IŠ garments are listed in an administrative document along with kusītu-garments. The same text tells us that this textile could also be red-coloured. Its front-part could be commercial ša black.

ša KĀR. The word is attested in the logographic writing TŪG.KĀR in a fragmentary document from Assur listing iron objects and textiles. This is one of the compound names of the type ša X which are very common in the Neo-Assyrian dialect (see also below). These compounds are formed by the determinative pronoun ša and a noun in the genitive. In the case of the logographic writing TŪG. KĀR, the sign TŪG is probably used for the determinative pronoun ša. The syllabic reading of the logogram KĀR is unknown.

ša muhhi. This textile designation, which is not attested in the dictionaries, occurs among other textile designations in a text from Assur. This text mentions an old white ša muhhi of the king. It was an integral part of the royal attire, perhaps corresponding to an overgarment. It is also possible that the item in question corresponds to the Middle Assyrian felt TŪG.UGU, possibly designating a garment or a headdress.

ša qabli. This compound name has been interpreted as a designation for loincloth on the basis of the word qabli, "middle, middle parts, loins". The term only occurs in PVA and in an inventory list of various objects. Perhaps a similar item of clothing was the one worn by King Assurnaṣirpal II in various palace reliefs in Kalhu: the item represented in these scenes is constituted by a short cloth girded around the loins and decorated by tassels.

ša taluk širri. This unusual textile designation is only attested in PVA and in a fragmentary list of textiles from Nineveh, where only the last part of the compound name can be read. The latter attestation has never been recognised and mentioned by scholars. Its meaning, ‘moving like a snake’, seems to refer to a peculiarity of long and large undulating garments’ border. This compound is listed in CAD, but no translation is given there.

šer 'ītu. The word designates a garment for the gods’ statues in Neo-Assyrian and Neo-Babylonian texts. Neo-Assyrian theological commentaries specify that the šer 'ītu-garment was worn by...
Bēl, while Neo-Babylonian texts associate this article of clothing to the gods Šamaš, Aya, and Bunene. The Marduk Ordeal shows that this vestment was stored in the temple’s storeroom (kadammu). In the same text, Bēl’s outfit is compared to the primeval water “which was over (the god) Aššur”. I wonder whether the textile term has something to do with the word šur’ītu, attested in PVA and denoting a kind of wool. This is the feminine form of the adjective šūru, used to qualify textile products in Old Assyrian, Nuzi and Standard Babylonian texts. It is worth noting that šūru-textiles were donated to the goddess Ištar in Old Assyrian times. 

šupālītu halluptu. This item of clothing is usually defined with these two words, only in few texts we find a šupālītu without any other qualification. The adjective šupālū means ‘lower’, while the D-stem feminine nominal form halluptu is translated as ‘armour’ (from hallupu, ‘to overlay, cover’). AEAD interprets the šupālītu as a lower garment, shirt or underwear, while the šupālītu halluptu was a reinforced or armoured undergarment. The nature of this article is not clear, and suggestions have been made about the possibility that it was a sort of felt armour. In Assyria, it was produced or traded by the professional called ša halluptēšu. Texts from the central administration in Nineveh clearly show that it was made of linen as well as of bitru. Different varieties of such a garment were in use; a Phrygian variety is mentioned in a record which enumerates precious commodities, some of which of foreign origin, in connection with state officials. Of the šupālītu-garment, black and white types were known. In addition, this garment could be associated with straps or girdles: one text mentions one šupālītu halluptu with straps or a girdle (šibbu), probably to be identified with the shirts with crossed straps and waist-belt worn by Assyrian soldiers. In

304. BBSt 36 v 44, 52, 54, vi 3.
306. SAA 3, 34:53, 55. See also SAA 3, 35:44-45.
307. PVA 216.
308. CAD Š/III, 367b. This adjective is used in Old Assyrian texts. See Michel & Veenhof 2010, 244-245.
309. BIN 6, 186:18. According to the same text, Aššur receives kutānu-textiles. See CAD S/III, 368a.
310. CTN 2, 153:7; K 6323+ iii 25, r. i’ 12’, 14’ (Kwasman 2009, 115); ND 2097:5 (Iraq 23 [1961], 18-19, pl. IX); SAA 7, 97:4‘, 5‘, r.7; 102:6‘; 104:5‘; 105:9‘, 10‘; 108 r. ii’ 5‘; 109 r. ii 3‘, 5‘; 119 r. i’ 12‘, ii’ 5‘; 124:9‘; 126:4; 127:3‘, 9‘; SAA 11, 28:11; Stat 3, 1:6, 13, r.27; ZZT I, 8:1; ZZT II, 33:3. Another occurrence is in ND 2687 r.9 (Iraq 23 [1961], 43, pl. XXIII) 3 TUG.KI—hal-paṭ! (Reconstruction by the author).
311. KAN 1, 45:1, 6; KAN 2, 12 (= Stat 1, 12); NATAPA 1, 45A:3‘; 45B:1, 6; SAA 7, 94:1.
312. CAD Š/III, 316b.
313. AEAD, 33b.
314. AEAD, 33b: ‘felt armor, armored undergarment, mail shirt’.
315. AEAD, 33b.
316. AEAD, 33b.
317. SAA 7, 115 r. i 8; SAA 12, 83 r.14.
318. SAA 7, 108 r. ii‘ 5‘. We may observe that Parpola’s interpretation of the šupālītu halluptu as a felt armour is based on the assumption that it was exclusively made of felt. The attestation about the linen variety is not taken into consideration by the Finnish scholar in his discussion Parpola 2008, 56.
319. SAA 7, 97:4‘, 5‘; 105:10‘.
320. SAA 7, 126:4-5 2 TUG.K.L.TA—hal‘-le‘-paṭ mu‘-as-ki / ‘ab-dī—mif-ki LÚ*.GAL—ka‘-šīr, “Two Phrygian reinforced undergarments – Abdi-milki, the chief tailor”.
321. SAA 7, 127:9‘.
322. SAA 7, 94:1 (only designated as šupālītu).
323. Postgate 2001, 382, 386 and fig. 9; Faist 2007, 14.
324. SAA 7, 127:8‘-10‘ 2 AN.TA.MEŠ GI / 2 šā—IŠ 2 KI—hal‘.MEŠ GI / 2 sip-rat, “Two black upper garments, two ša IŠ garments,
light of the set of clothing articles which formed the equipment of envoys in a document from Nineveh, we may suggest that a šupālītu halluptu was usually worn in association with a waist-belt (ṣipirtu), an upper garment (elītu), and a ša IŠ garment.\textsuperscript{324} This ‘ensemble vestimentaire’, whose basic components were the šupālītu halluptu and the šipirtu,\textsuperscript{325} could be enriched by the presence of maklulus.\textsuperscript{326} In addition, the šupālītu halluptu was characterised by the presence of nītu-elements\textsuperscript{327} and edging (NĠĪN).\textsuperscript{328}

\textit{urnutu}. This term has not been explained by scholars as regards its etymology and the dictionaries do not offer any indication about its origin. According to von Soden, the origin of the term is unknown. Morphologically, it appears as a feminine nominal formation possibly to be connected to \textit{urnatu}, ‘strong, manly’, a synonym for male only attested in lexical lists.\textsuperscript{329} We cannot exclude a West Semitic provenance. In Syriac, the adjective based on the root ‘rn means ‘hard, harsh’.\textsuperscript{330} This is a textile product which frequently occurs in Neo-Assyrian texts.\textsuperscript{331} The materials used for this garment were wool,\textsuperscript{332} linen,\textsuperscript{333} and \textit{biršu}.\textsuperscript{334} The wool variety is only attested in a document from Nimrud and in a marriage contract from Assur; it probably represented a common variety of this item of dress. Details on colours and peculiarities of the \textit{urnutu} are also documented. We know that \textit{urnutus} could be multi-coloured,\textsuperscript{335} red,\textsuperscript{336} violet,\textsuperscript{337} black,\textsuperscript{338} and with a red front-piece.\textsuperscript{339} The red front-part is sometimes specified as ‘red of the country’\textsuperscript{340} or ‘red of the port’.\textsuperscript{341} This garment also had an edging,\textsuperscript{342} often red-coloured.\textsuperscript{343} Also the red-coloured edging could come in two varieties: the country-type\textsuperscript{344} and the port-type.\textsuperscript{345} A Nimrud document lists a densely-woven(?) or a good(-quality) \textit{urnutu} (KAL/dannu or SIG₁₅/
The Assyrian elite also imported urnal-tus from the Levantine coast; a number of urnal-tus from Byblos are recorded in an administrative list from Nineveh. Decoration in form of animals adorned this garment; in fact, decorations representing bulls and goats are mentioned in a textile list. In another text, urnal-tu-garments are qualified by the word šippu, not translated by Fales and Postgate. If this is a designation for a vegetal element, we may conclude that these urnal-tus were probably decorated with vegetal motifs similar to those adorning the king’s dress represented in palace reliefs. The mention of one urnaltu ‘covering the entire figure’ (ša muhhi lànu) could be referring to a feet-length variety. This means that a shorter variety of urnaltu was also known. Also for the urnaltu we see that a ‘house-variety’, i.e., a type of urnaltu probably to wear at home, was in use in Assyria: the same qualification occurs for the textiles called gulēnu, hullānu, maqattu and nahlaptu. The use of bētu as a qualification for clothes is already attested in the Middle Assyrian period, as witnessed by a reference to lippu-garments É.H.I.A, ‘of the house’, in a text from Assur. Presumably, it was an ordinary type to be worn at home. In a number of Neo-Assyrian attestations the urnaltu-garment is also qualified with the term sāiu. It seems that this technical detail also referred to the urnaltu’s fringe. In one case, this urnaltu was associated with a sūnu-textile.

To come back to the Neo-Assyrian term sāiu, we may observe that it is always attested in the plural form sāiāte and in connection to urnaltu-garments. However, urnaltu could also be defined as ‘not sāiu’ (NU sa-a). It is clear that in all the attestations, the garments were of wool. There is only one attestation in which sāiu qualifies linen garments of unknown nature. Fales and Postgate prefer translating this term as meaning ‘knotted’. Villard follows this interpretation and suggests the translation ‘à point noué’. But this is far from certain. Another
posibility is considering the form sāiu as a variant for samîtu, a word related to an architectural element. The form sāiu as referred to architectures is attested in Neo-Assyrian texts dealing with building activities; as an architectural term, it is translated by Fales and Postgate as ‘scaffold’. In fact, in CAD it is suggested that the Neo-Assyrian plural form sa-a-a-te, attested in connection to textiles, could be a rendering of the word samîtu, ‘battlement parapet’, or (a)sa’ittu, ‘tower’. In addition, we cannot rule out that the singular form was sa’itu, not sāiu. In light of the possible semantic connection with the architectural terminology, it is tempting to identify these sa’itu-elements in wool and linen garments (Fig. 1) with towers or crenellated structures, an ubiquitous motif in Neo-Assyrian art.

Crenellated elements decorated the whole surface of male and female garments as well as their border and tassels. This characteristic element of Neo-Assyrian art had great success and continuity in Central Asia in subsequent centuries, as witnessed by the archers’ garments of the Achaemenid palace’s glazed-brick walls and the Pazyryk shabrak of the 4th century BC discovered in Siberia.

Designations for Neo-Assyrian garments of West Semitic origin

A number of garment designations in Akkadian dialects of the 1st millennium BC are understood by scholars as West Semitic loanwords. In the following list, Neo-Assyrian names of garments of possible

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367. SAA 11, 15 r. i 2, 7, 8, r. ii 7'; 21:9.
368. CAD S, 117b.
369. See, e.g., Layard 1849-53, I, pl. 20; Fales & Postgate 1992, 116 fig. 27.
370. For this decorative element on tassels, see Crowfoot 1995, 115 fig. 4.
372. Details of these decorative elements may be observed in the coloured photograph published in Cardon 2007, 572 fig. 20.
373. CTN 2, 1:12'; K 6323+ r. i’ 13' (Kwasman 2009, 116); ND 2307 r.1 (Iraq 16 [1954], 37, pl. VI); ND 2687:1, r.7 (Iraq 23 [1961],
West Semitic origin, namely Aramaic, are included. *gammīdu* (and *gammīdutu*). This textile is generically intended as a kind of garment.\(^{373}\) The term, which Kaufman considered as a possible old Aramaic loanword in Akkadian,\(^{374}\) probably derived from the Aramaic passive participle *gammīd*, has also been interpreted as meaning ‘mangled garment’\(^{375}\) and ‘smooth gown or cloak’.\(^{376}\) In fact, Syriac *gmd* means ‘to mangle, smooth’, and refers to linen.\(^{377}\) The verb is listed in Sokoloff’s Syriac dictionary as meaning ‘to press’ and refers to the fulling process which follows washing.\(^{378}\) In Jewish Babylonian Aramaic the adjective *gmd*, ‘shrunk’, qualifies felt.\(^{379}\) From the same root derives the word *gmydh*, indicating a type of garment.\(^{380}\) Another possibility is that we have here a type of rug or blanket, thus not properly a garment.\(^{381}\) It seems that the *gammīdu* was made of linen.\(^{382}\) It is not clear whether the grammatical differentiation of the masculine form (*gammīdu*) and the feminine form (*gammīdutu*), an aspect which also characterises the word *maqaṭṭu/maqaṭṭutu* (see below), bears witness to different varieties of the same item of clothing, perhaps based on a variation of size. An account of wool and flax records an amount of 2 minas of linen for the hind-part (*aqqābu*) of one *gammīdu*.\(^{383}\) From a Neo-Babylonian text concerning manufacture of garments for the Babylonian gods we learn that 10 shekels of red wool, 25 shekels of blue-purple wool, half a mina of alum and, perhaps, also half a mina of apple-colour dye were needed to produce one *gammīdatu*-garment.\(^{384}\)

The Assyrian term is tentatively translated *gulēnu*. Of this textile designation no etymology is given in the dictionaries. CAD suggests a possible West Semitic origin, connecting the term to Hebrew *gelōm* and Aramaic *gelîma*, *gelaimâ* (*glym*, *glym’*).\(^{385}\) This term designates a coverlet, mantle, or cloak, in any case a sleeveless item of clothing.\(^{386}\) The change of *<m>* into *<n>* is a phenomenon occurring in Akkadian, Aramaic and Hebrew also in final position.\(^{387}\) Another possibility is that the Neo-Assyrian and Neo-Babylonian form derive from another West Semitic textile designation. In Syriac we find the words *gallōn, gallōnā* (*glwn*, *glwn’*), which are usually translated as meaning ‘garment’.\(^{388}\) These terms are connected to the basic word *gall*, *gallā* (*gl*, *gl’*), which means ‘covering, cloak, horse-blanket, and saddle’ in Syriac.\(^{389}\) Of this textile designation no etymology is given.

43, pl. XXIII); PVA 248; SAA 7, 97 r.8; 104-6; 115 r. ii 18; StAT 3, 1:14; VAT 8659:2-5 (unpubl., but cited in Parpola 2008, 57). See AHw, 279b; CAD G, 36b; CDA, 89b.

375. AEAD, 29b.
378. Sokoloff 2009, 239b-240a. The author quotes the attestation taken from G. Hoffmann, *Opuscula Nestoriana syriace tradidit* (1880), 159:22: “After (the garment) is washed, the fuller presses it, and removes the rumples”.
379. DJBA, 289a.
380. Porten & Yardeni 1986, B3.8 r.7; D2.19 r.2.
382. SAA 7, 97 r.8; 115 r. ii 17-18.
383. SAA 7, 115 r. ii 18.
384. Zawadzki 2013, 419, no. 453:1-6 ‘1/3’ MA.NA Salir 5, 159:22: “After (the garment) is washed, the fuller presses it, and removes the rumples”.
385. CAD G, 127b.
386. LS, 118b; Sokoloff 2009, 237b; DJPA, 130b; DJBA, 287b; Jastrow 1950, 249a (also quoting the Talmudic passage: “it is called *g* because one looks in it like a shapeless body”).
388. LS, 115a; Sokoloff 2009, 233b.
389. LS, 114b-115a; Sokoloff 2009, 231b-232a.
as referring to a cloak, coat, or tunic. Another candidate for this designation could also be ‘shirt’. The *gulēnu* was a linen garment characterised by a red front-piece, which could be of the country- or of the port-type. Neo-Babylonian documents show that this item of clothing could be made of wool or *biršu*-material. *Gulēnu* were an important component of dowries in Babylonia. From a Babylonian letter of the Assyrian royal correspondence we also learn that there was another category of such a textile, known as *gulēnu* ‘of the house’ (É). This textile often occurs as a standard item of apparel in documents concerning uniforms to be supplied to troops and clothes to palace personnel, but it also constituted a common garment for both men and women, as witnessed by its presence among other marriage gifts in a contract from Nimrud.

Another candidate for this designation could also be *maqaṭṭu* (and *maqaṭṭutu*). The Assyrian form derives from the Pa”el participle present from *qṭ’, ‘to cut short’. The form *muqaṭṭutu* shows that it was understood in Assyrian as a D-stem participle. This garment has been interpreted as a sort of gown, perhaps a short-cut gown. The item is also known with the variant *maqaṭṭutu*, also spelled as *muqaṭṭutu*, and it is tempting to see in this feminine designation a variety of the basic *maqaṭṭu*. Of this textile, both a linen and a *biršu*-variety are known. The former is qualified as having a red coloured front-piece, in one case specified as commercial red. Linen *maqaṭṭus* could also be multi-coloured. The variety made with *biršu* could have a black or red front-part. The material called *biršu* (see also above) was probably a course fabric, but some authors think it has to be understood as referring to a cloak, coat, or tunic.
as felt.\textsuperscript{414} However, the term for felt in Assyrian seems to be \textit{tahapšu}.	extsuperscript{415} According to CAD, the word indicates a ‘woolen fabric with raised nap’.\textsuperscript{416} Villard observes that the word \textit{biršu} referred to wool products and that it probably indicated a finishing process which was executed on textiles of ordinary type.\textsuperscript{417} With this coarse cloth other kinds of garments were produced in the Neo-Assyrian period, such as the \textit{muklāulu}, the \textit{našbutu}, the \textit{šupālītu halluptu}, and the \textit{urnutu}.\textsuperscript{418} A group of textile labels from Nineveh also documents the existence of a ‘maqāṭṭu of the house’,\textsuperscript{419} perhaps an ordinary variety of this textile to be used indoors;\textsuperscript{420} it could be red\textsuperscript{421} with a (commercial) red-coloured front-part.\textsuperscript{422} Interestingly, three exemplars of this piece of apparel occur in a marriage contract from the archive of the Egyptians of Assur (Archive N31); among the garments which Pabba’u gives to his daughter Mullissu-hammat as dowry there are also one house-quality \textit{muqāṭṭutu}, one clean \textit{muqāṭṭutu}, and a third-one of good-quality.\textsuperscript{423} This shows that this garment was used by ladies. In another administrative document from Nineveh we may see that this textile could also be fabricated without front-piece; in this case, the \textit{maqāṭṭu} was probably untailed and consisting in the cloth for the rear part of the garment.\textsuperscript{424} Alternatively, it is also possible that the front-part of the \textit{maqāṭṭu} in question was not red-coloured and this indication could have been omitted by the scribe. The production of this textile constituted an important activity of the palace-oriented textile industry of the later Assyrian Empire. According to an account of raw materials made by the central administration, 20 talents of madder were issued by the Palace to produce 600 coloured \textit{maqāṭṭūs} and 600 \textit{urnutus}.\textsuperscript{425} Although the text does not give us any piece of information about the recipients and the final destination of these garments, it is clear that the palace dyers used the issued \textit{Rübia tinctorum} as a colorant to dye the textiles in question. As to their destination, it is possible that they were distributed to palace officials and personnel. In a badly preserved memorandum about clothing, a certain Šamaš-iddin, perhaps a government official, is mentioned as the recipient of a \textit{maqāṭṭu} and an \textit{urnutu}.\textsuperscript{426} The same text also mentions officials who were expected to provide garments to the central administration\textsuperscript{427} and were in connection with a \textit{rab hanšê}, ‘commander-of-fifty’.\textsuperscript{428} Finely woven \textit{maqāṭṭu}s produced by the Assyrian palace weavers were also destined to be distributed as luxury goods to foreign leaders, as seems to be suggested by an amount of 2 minas of red wool for the production of gowns for some sheikhs in a short record of wool and flax from Nineveh.\textsuperscript{429}

\textsuperscript{414} See, e.g., Parpola 2008, 56.
\textsuperscript{415} On \textit{tahapšu} as felt, see Cancik-Kirschbaum 1999; Postgate 2000, 213-217; Postgate 2014, 406-407. On felting in the Ancient Near East see Völling 2008, 150.
\textsuperscript{416} CAD B, 261a s.v. \textit{biršu} 2.
\textsuperscript{417} Villard 2010, 395. There is only one occurrence of the term \textit{biršu} in the Middle Assyrian text corpus. See KAV 99:18-19, concerning a yellow and decorated \textit{biršu}-textile. See Postgate 2014, 418 for the translation of \textit{biršu} as ‘rug’.
\textsuperscript{418} See Fales & Postgate 1992, xxvii.
\textsuperscript{419} SAA 7, 99:2.
\textsuperscript{420} SAA 7, 99:1-2; 94:4.
\textsuperscript{421} SAA 7, 93:1; 94:4; 99:2; 104:2.
\textsuperscript{422} SAA 7, 99:9.\textsuperscript{423} StAT 2, 164:12-13.
\textsuperscript{424} SAA 7, 107 r.9’ [x x (x x) \textit{ma-qa}]-ti’ NU ZAG.
\textsuperscript{425} SAA 7, 115 ii 9-10.
\textsuperscript{426} SAA 7, 112:10’-e.12’.
\textsuperscript{427} SAA 7, 112:3’-7’, r.1-5.
\textsuperscript{428} SAA 7, 112 s.1-3.
\textsuperscript{429} SAA 7, 111:1-2.
**Other Neo-Assyrian terms for items of clothing of unclear meaning and of non-Semitic origin**

The Neo-Assyrian textile terminology includes garment designations whose etymology has not been elucidated by the scholars. Apart from West Semitic loanwords, the nomenclature of garments in Assyria is characterised by the presence of non-Semitic terms.

**hulsu.** The term only occurs in the lexical list PVA and in a document from Nimrud. No etymology is proposed in the dictionaries, which translate the term as ‘a type of garment’. The term is omitted in CAD and AEAD. In Syriac, the word ḥelsā (ḥls, ḥls’) designates a horse-cloth or saddle.

**huzīqutu.** The word is attested in the form hazīqatu only in Akkadian lexical lists as a designation for a head covering. The same form is also documented in Mari. In an administrative text from Nineveh it is attested in the form huzīqatu. In this document the term occurs among sipīrtu-textiles and head-cloths. It has been tentatively interpreted as a nominal form derived from the verb hazāqu, whose meaning, however, is unknown. As a working hypothesis, we may suppose that this verb also had the meaning ‘to gird’, as in Aramaic. A textile designation based on this root is attested in Syriac in the form ḥzāq, ḥzāqā (ḥzq, ḥzq’), which means ‘belt, bond’.

**huzūnu.** The Neo-Assyrian term occurs in a lexical list and in various administrative and legal documents. The word presents a plural huzunāte, also attested in the form huzū ‘āte, with disappearance of [n] in intervocalic position. CDA connects the term to the word ḥusannu, ‘sash, belt’, attested in Neo-Babylonian. In Aramaic, the verb ḥsn (<hzn) means ‘to be strong’. We may then suppose that this designation probably refers to an operation of strengthening of the fabric within or following the weaving process. In an administrative document from Nineveh it is mentioned along with girmus, veils, and gulēnu, while in another document which originates from the same bureaucratic context it occurs between urnutu and elītu-garments. In a marriage contract from the archive of the Egyptians of Assur the huzūnu follows muqattitus and naṣbutu-garments. Neo-Babylonian texts show that it was a component of wardrobes of statues of divinities and other divine beings.
iarītu. The term, which is attested in documents from the Fort Shalmaneser in Nimrud, is only listed in CDA and AEAD. In CDA it is tentatively interpreted as a feminine nominal form from the word aiaru, ‘rosette(-shaped ornament)’, and, consequently, as meaning ‘rosette(-ornamented cloth?)’. Golden aiaru-ornaments are documented in the administrative texts from Nineveh in connection with garments. In addition, hundreds of rosette-shaped appliqués were found in the Nimrud tombs; they served to decorate the garments of the buried Assyrian queens. Possibly, rosette-covered garments were referred to as iarītu in Assyrian. An alternative hypothesis is that the Neo-Assyrian form is a loanword from West Semitic. The Hebrew word yerē’āh refers to a (tent-)curtain made of goat’s hair. This term is also attested in Jewish Palestinian Aramaic and Syriac. The fact that iarītu-textiles also occur in a document from Nimrud dealing with provision of amounts of goat-hair argues against the hypothesis that the iarītu was a finely decorated garment.

išhu. This word is interpreted as a designation for a cloth or a leather item. CAD only mentions the Neo-Babylonian occurrences, where the word is preceded by the determinative for leather objects (KUŠ). It may be suggested that the Hurrian textile designation išhenabe, which is attested in Middle Assyrian texts, and in Neo-Babylonian texts, is probably based on the same lexical theme with the addition of Hurrian morphemes. Differently from the Neo-Babylonian counterpart, the Neo-Assyrian išhu is preceded by the determinative for textiles (TÜG). In addition, this textile is mentioned in an administrative list among other items of clothing (maqaṭṭu, urnutu, hīlu, and nahhaptu).

kandiršu. This item of apparel is listed in dictionaries in different forms, i.e., as kundirāšu/kundirāšu, kundirašši, kandiršu, and kandirši. The origin of this textile designation, only attested in Neo-Assyrian documents, is unknown. Apparently, the ending in -(a)šše seems to point at Hurrian as the language of derivation. Another plausible hypothesis is that the term entered Assyrian via another language. In Middle Assyrian a textile designation kuddilu is attested. Perhaps, this term re-entered Akkadian through the mediation of a Hurrian form with <r> and ending in -(a)šše. Instead, the word kandarasānu, attested in Neo-Babylonian, has nothing to do with kandiršu. Neo-Babylonian texts document linen.
probably coming from Gandar/Kandarašši, a north-eastern region of the Iranian Plateau. The Neo-Assyrian attestations of the term kandiršu are limited to three administrative documents from Nineveh and a marriage contract from Assur. In an inventory text listing various objects, especially metal vessels, a section, unfortunately in fragmentary conditions, is devoted to textile products. The preserved lines include names for items of clothing, among which a number of kundirašši-garments. Moreover, this item occurs as one of the commodities probably received by the governor of Bēt-nayalāni, among animals, wine and other precious items of clothing of possibly foreign origin: apart from one kundirāššu or kundirašši, the list of textile products includes four šaddīnu-garments and one head-cloth. The second Ninevite inventory list seems to connect this item of clothing to a cultic milieu. In fact, all the listed objects and foodstuffs were used in the Aššur Temple cultic rituals. The mention of a tuft of red wool in the same passage confirms the use of all the listed textiles for ritual purposes, in all likelihood for royal rituals to be celebrated in the main Assyrian temple. It is also worth noting the association of the kandiršu-garment with the sasuppu, a textile used in royal rituals as well as in ceremonial banquets. The sasuppu and the kandiršu-garment occur together also in the Practical Vocabulary of Assur; this suggests that these items of clothing were probably complementary. This item of attire was also a component of female wardrobes. In fact, a marriage contract from the Archive N31 of Assur shows that kundiršu-garments (written as pl. kundaraššāni) occur as a precious item of clothing among various types of garments belonging to the woman Mullissu-hammat. The fact that this woman was the daughter of the horse keeper of the goddess Ištar of Arbela corroborates the connection of this garment with the cultic sphere.

kindabasi. This Middle and Neo-Assyrian word derives from Hurrian kindabašše. The 1st-millennium form in Assyrian is kindabasī, while the Middle Assyrian shows the forms kindabásē and kiddapaše (with assimilation nd>dd). The latter can be compared with the Ugaritic textile designation kdwṯ, which has been explained as an assimilated variant of kndpnṯ (/kiddawat(t)-/ <kindapant-/). The change <s> to <š> from Middle Assyrian to Neo-Assyrian may be explained in light of the treatment of sibilants in

469. Ki 1904-10-9,154+r.48 (Iraq 32 [1970], 153, pl. XXVII); SAA 7, 121 i 6’; 174:5’.
471. Ki 1904-10-9,154+r.48 (Iraq 32 [1970], 153, pl. XXVII) 40° TÚG.kun-dir-a-[šē] (Reconstruction of the occurrence by the author).
472. SAA 7, 121 i 4’-6’ 4 TÚG.šad-din / 1 TÚG.kar-ZI.MEŠ / 1 kun-dir-a-šē.
473. SAA 7, 174:5’ TÚG.sa-su-up-pu’ TÚG.kan’-dir-šē.
474. SAA 7, 174:6’ ni-ip-šá ŠIG.HÉ.MED’.
475. See Menzel 1981, nos. 24 i 16; 28:10; 30:6; 31 i 12.
478. Stat 2, 164:10-11 TÚG.ur-na-te GADA 4 TÚG.kun-dar-a-ša-ni / 1 TÚG.ur-nu-tu ŠIG. It is interesting to observe that the material of the four kandiršu-garments is not indicated in the document. Perhaps, kandiršu-garments were not made with linen or wool.
479. Note that the term is recorded as kindabassu in AEAD, 50a, although the singular form is actually kindabasi, as witnessed by the attestations given in PVA 245 (TÚG.kin-da-ba-ši’).
482. Iraq 35, T.13, 1:1 (Freydank & Saporetti 1989, 84) ki-da-pa-šē (with assimilation nd>dd).
483. Del Olmo Lete & Sanmartín 1996, 211b s.v. kdwṯ, ibidem 220a s.v. kndpnṯ. This textile has been interpreted as ‘una prenda de vestir (¿prenda íntima femenina?)’. See also Vita 2010, 329.
the Neo-Assyrian dialect. I wonder whether the term *kindabasi* has something to do with the word *kamdu/kindu*, attested in Akkadian⁴⁸⁴ and Ugaritic⁴⁸⁵ as a designation derived from the verb *kamādu*, ‘to weave in a specific way’, and possibly referring to a cloth woven according to a special technique. From the ‘Middle Assyrian Harem Edicts’ it seems that it was a woman’s undergarment.⁴⁸⁸ This interpretation is also followed by Postgate, who translates the Middle Assyrian term as ‘loincloth’.⁴⁸⁷ Neo-Assyrian occurrences are in PVA and in two administrative documents.⁴⁸⁸ One of these texts deals with the consignment of an unspecified number of *kindabasi*-garments,⁴⁸⁹ presumably for internal palace distribution, while the second document states that this item of apparel was presented as offering material for the gods.⁴⁹⁰ In that case, it is reasonable to think that this garment served to clothe the statue of the god.

*kirbīnu*. This term is only attested in PVA. No etymology is proposed in the dictionaries. Aramaic *krbn* is a variant of the verb *kbn*, ‘to gird (garment)’.⁴⁹¹

*pazibdu*. This term for garment is only attested in a document from Assur⁴⁹² and in an inventory text from Nineveh.⁴⁹³ The word is not included in the dictionaries. While the term is preceded by the determinative for linen items (GADA) in the Assur text, in the Nineveh text it is qualified as a garment (TŪG). Moreover, in this administrative document it is described as a textile for the bathroom (*bēt ramāki*) and the *qirsu*-place.⁴⁹⁴

*piṭu*. This term, which is not included in the dictionaries, occurs in a letter of the royal correspondence, in which Šumu-iddina informs the king about a statue of Bēl in the Esagil temple in Babylon. According to the words of Esarhaddon’s servant, the statue was short one-half of a TŪG,*pi-i-DA*. Cole and Machinist read the occurrence as *piṭu* and interpret it as a name for a garment,⁴⁹⁵ but the reading is far from certain.

*sibrītu*. The term *sibrītu* or *siprītu* occurs in a document from Kalhu,⁴⁹⁶ where it is mentioned in the context of garments and other commodities. CDA tentatively connects the word to the textile designation *siprītu*, indicating a kind of waist-belt or similar item of clothing (see below).⁴⁹⁷

*šipīrūtu*. The word is also attested in Neo-Assyrian in the form *šipittu*,⁴⁹⁸ resulting from the assimilation *rt>*tt. No etymology is given in the dictionaries. In CAD, which explains the term as possibly designating a special weaving technique or treatment, a connection with the verb *šepēru*, ‘to strand (hair or linen), trim, decorate’, is suggested.⁴⁹⁹ Instead, a possible Aramaic origin is tentatively proposed in CDA,⁵₀₀ probably on the authority of von Soden.

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⁴⁸⁴. The dictionaries do not treat the forms *kamdu* and *kindu* as variants of the same term. See, e.g., CAD K, 121a s.v. *kamdu*, 372a s.v. *kindu*.


⁴⁸⁶. AFO 17, 287:105. See CAD K, 384b.


⁴⁸⁸. PVA 245; SAA 7, 166:2; 176 r.5’. Another occurrence is possibly in Ki 1904-10-9,154+ r.49 (*Iraq* 32 [1970], 153, pl. XXVII) [x TŪG,*kin-da-b]*-si GADA (Reconstruction of the occurrence by the author).

⁴⁸⁹. SAA 7, 166:2 ša‘-az-su / ša TŪG,kin-da-ba-si, “A consignment of kindabasi-garments.”

⁴⁹⁰. SAA 7, 176 r.5’-’7’.

⁴⁹¹. LS, 316a; Sokoloff 2009, 596b; Jastrow 1950, 609a.

⁴⁹². STAT 2, 164:14 1 GADA,pa-zi-[ib]-du.

⁴⁹³. SAA 7, 120 ii’ 1 1 TŪG,pa-zi-[ib-du] (Reconstruction of the occurrence by the author). The second sign of the word may be read as ZI.

⁴⁹⁴. SAA 7, 120 ii’ 2-3.

⁴⁹⁵. SAA 13, 181:7.

⁴⁹⁶. ND 2311:3 (*Iraq* 23 [1961], 20, pl. X).

⁴⁹⁷. CDA, 324b.

⁴⁹⁸. ZTT I, 8:1 ‘TŪG’,ṣi-pi-tū.

⁴⁹⁹. CAD Ş, 201b.

⁵₀₀. CDA, 339a.
who suggested a possible derivation from Aramaic spr, ‘flechten’. This West Semitic form has also been related to Arabic ḍfr, ‘to weave, braid, twist’. However, the Aramaic-oriented etymology of the Akkadian word has recently been rejected in light of the fact that a root *ṣpr is not attested in Jewish Aramaic. The reference to linen and especially to trimming in the verb ṣepearu could explain the Assyrian word as a designation for a trimmed textile. The term has been understood as referring to a scarf, (woven) girdle, sash, or waist-belt. Given its attestation in the context of textiles for the personnel of the Assyrian royal army, it has been suggested that the sipirtu was the well-known broad waist-belt of the Assyrian soldiers. In many pictorial representations of such waist-belts, the textiles in question are characterised by trims bordering them. A red-coloured variety ‘of the port’ is attested in a label from Nineveh, while a Nimrud label shows that also a white variety of sipirtu was in use. This term also designated a drape used to cover chairs, probably characterised by the same kind of trim decorating the above-mentioned waist-belts. In an administrative text, an unspecified number of commercial-red coloured siprāt(e) is listed in connection with a chair. This recalls the issues of wool for stuffing stools of the royal palace in a document from the archive of Tell Ali, although in this case, the Middle Assyrian text does not specify the type of textile. In this Middle Assyrian archive we find another attestation concerning the use of sipirtus for furniture; in this case, a number of these textile products appear in association with beds of the royal palace furniture. The same use of sipirtus continues in Babylonia in later times, as shown by a Neo-Babylonian contract mentioning a linen sipirtu related to a bed. Among the coloured textiles represented in the wall paintings of the Assyrian palace at Til Barsip, in Room 47 we may see a drape with a checkerboard pattern covering the back of the royal throne where the Assyrian king is seated. For this second usage of the sipirtu-textile, Postgate suggested the translation ‘rug, blanket’. In Assyria, this textile was produced by a specialised weaver, called ušpār ṣiprāti.

Other terms of the Neo-Assyrian terminology of garments remain obscure. These are datāiu (perhaps, formed with a toponym and the nisbe -āiu),

501. von Soden 1977, 195. See also AHw, 1103b s.v. sipirtu III; DNWSI, 973 s.v. sprh.; Jastrow 1950, 1249b.
502. See AHw, 1103b.
504. K 6323+ r. i’ 8’ (Kwasman 2009, 116); PVA 244; SAA 7, 96:8’; 120 i’ 14, ii’ 12; 124:10’; 127:10’; SAA 11, 28:12; 42 r. i 4’; 67:1; 202 ii 17’; SAA 19, 14:12, r.1, 4; ZTT I, 8:1. The word also occurs in the unpublished text VAT 8659 (quoted in Parpola 2008, 57).
506. See, e.g., Fales & Postgate 1992, 124 fig. 30.
507. SAA 7, 96:8’.
508. ND 2086 (Iraq 23 [1961], 18).
509. SAA 7, 120 ii’ 12-14. See ibidem i’ 14 for another occurrence of sipirtu-textiles.
512. Roth 1989, text no. 38:13. See also Joannès 2014, 460, quoting the Neo-Babylonian contract. Joannès suggests that the sipirtu for beds was probably a sort of tapestry fabric.
513. Albenda 2005, 63, fig. 23.
515. CTN 3, 145 r. ii 14; SAA 6, 301:4; SAA 7, 115 r. i 7; SAA 12, 83 r.8; SAA 16, 55:2. See also the list of professions Sultantepe 52/8 ii 11 (cited in CAD S, 201b).
516. ZTT II, 33:6 4 TUG.da-ta-’a-a, “Four datean garments.” This textile name is not explained by MacGinnis and Willis Monroe. Perhaps, this textile designation may be compared with two non-Assyrian personal names, namely Datā and Dātāna (with shortened form Dātā). See PNA 1/II, 381b-382a.
Designations for parts of garments

The Neo-Assyrian textile terminology concerning parts of garments is very limited. From the extant attestations of these terms it seems that the interest of Assyrian administrators focused on a very limited set of parts of clothing items, presumably the ones that were considered as the most characteristic features of certain garments, such as fringes, edging, and decoration. However, the meaning of some of these terms remains unclear.

ahāte. The plural term refers to sleeves of garments. Pieces of clothing for arms were also called by the compound word bēt ahi (TŪG.Ē—A.MEŠ) in the Neo-Assyrian dialect. Only in a text from Ziyaret Tepe we find the logographic singular form Ā. The qualification ša aḥāte refers to hullānu. The word aḥāte was also used in the Middle Assyrian period as an abbreviated form to indicate ‘garments with sleeves’. Sleeves are treated as a separate item of clothing not only in 1st-millennium Assyria, but also in other regions of the Ancient Near East, as witnessed, for instance, by a 2nd-millennium document from Mari. From a look at Neo-Assyrian palace reliefs it is clear that short sleeves characterised royal and, in general, male dresses, while long sleeves were a characteristic of queens’ garments.

appu, ‘fringe’. This term is usually written with the logogram KA, followed by the obscure sign MA, probably an abbreviation for a word indicating a special feature of the fringe. It seems that

iammuqu, iahilu, kirnāiu (perhaps yet another word formed by a toponym and the nisbe -āiu; it has been compared to Eblaic kirnānu, a name for a linen textile), nimrā’u (a nominal form in -ānu from namāru, ‘to be bright’, or a foreign word? Cf. the Neo-Babylonian textile term guzguzu, of which the word nimrā’u was probably a synonym), supāqu (from the verb sapāqu, ‘to be sufficient’?), [...]rakkatum (the occurrence is broken in the tablet, but it refers to a linen textile, perhaps *apar-akkatu?), zanu[...] (perhaps, to be connected to the verb zānu, ‘to stud [garments] with precious stones?’), and zazabtu (a variant form with allophone [z] from *zazabtu/sabsabtu? Cf. Middle Assyrian sapsapu, ‘fringe of a garment’).
3. The Neo-Assyrian Textile Lexicon in the 1st-Millennium BC Context

appus were characteristic elements of *urnutu*-garments\(^{334}\) and linen *maqaṭṭu*-garments.\(^ {335}\) Another word for fringe was *sissiqtu* (see below). Representations of fringed garments are ubiquitous in Neo-Assyrian visual art.\(^ {336}\) From the colourful wall paintings of Tiglath-pileser III’s palace at Til Barsip we see that fringes of garments could be of different colours in alternation.\(^ {337}\)

*aqqābū* (‘hind-part’).\(^ {338}\) This textile component occurs in association with *gammīdu*-garments.\(^ {339}\) Perhaps, another occurrence of the word may be found in a list of textiles.\(^ {400}\) Von Soden connects this Assyrian word to Jewish Aramaic ‘*aqqābā*, which he translates as ‘Überbleibsel’.\(^ {41}\) However, as pointed out by Abraham and Sokoloff, no such word with such a meaning exists in Aramaic.\(^ {42}\)

*betātu*, ‘strings(?)’.\(^ {43}\) This item is interpreted by CAD as a decoration used on garments and leather objects.\(^ {44}\) It is worth noting that this textile term occurs in connection with *nahlaptus*. In fact, PVA also lists a *nahlaptu ša betāti* among different types of *nahlaptu*.\(^ {45}\) The interpretation by MacGinnis and Willis Monroe that the *betātus* mentioned in a Neo-Assyrian document from Ziyaret Tepe refer to ‘slippers’\(^ {46}\) is only based on El-Amarna attestations concerning leather objects.\(^ {47}\) The editors do not consider that the word is also used in Middle Assyrian times in connection with leather containers and, as far as the Neo-Assyrian period is concerned, for qualifying cloaks. Instead of ‘decoration’ or ‘slippers’, it is possible that shoelaces and purse strings were named with this term. In the case of *nahlaptus*, it is possible that the *betātus* were strings used to tie the cloaks. In fact, from the Ziyaret Tepe tablet we learn that *betātus* were associated with various items of clothing.\(^ {48}\)

*birmu*, ‘multi-coloured trim/border?’\(^ {49}\). This word is a nominal form from the verb *barāmu*, ‘to be multi-coloured’.\(^ {50}\) The item in question is peculiar to the textiles called *kusītu*, *maqaṭṭu*, and *qarrāru*. Postgate supposes that the term *birmu* designated a cloth strip used as an edging for garments, which is, presumably, the same function of the *sīnu*-item (see below), although differences between the two textiles are not known.\(^ {51}\)

It is interesting to observe that a Middle Assyrian text mentions a *birmu* for the statue of the king;\(^ {52}\) presumably, it served to embellish the...
vestments that covered the statue. The *birmu* was produced by a specialised weaver called *ušpār birmi*.553 Another plausible hypothesis is that *birmu* indicated a multi-coloured breast-piece which was added to vestments. Royal garments are usually represented in palace reliefs as having a finely-executed round- or rectangular-shaped decorative part in the breast-area,554 although it is not certain whether such breast-pieces were made of fabric or metal plaques.

**kišiptu**, ‘cut-off piece (of a garment)’.555 This meaning is not included in the dictionaries, which only record the meaning ‘calculation’ (from the verb *kašāpu/kešēpu*, ‘to think, estimate’).556 However, it is clear that the textile-related meaning of *kišiptu* hardly derives from the verb *kašāpu/kesēpu*,557 while the best candidate seems to be *kašāpu* (II), which seems to be a Neo-Assyrian form of *kasāpu*, ‘to cut off’.558

**libītu**. This term, derived from *labū* (*lamū, lavū*), ‘to encircle’, probably designated the rim or border of garments.559 It is attested in the logographic form NIGÍN in lists of textiles from Nineveh as a descriptive element of *našbutu*560 *urnutu*,561 and *šupālītu halluptu*-garments.562 In the case of *urnutu*, the border of this garment was also indicated as *sihru* (see below). The word is not a novelty of the 1st millennium, since the qualification *ša liwītim*, translated as ‘for wrapping’, occurs in Old Assyrian texts in association with textile products.563 The border of Neo-Assyrian garments could be decorated by a variety of elements (e.g., rosettes, square-shaped ornaments, etc.), often in alternation, and the presence of tassels and fringes.564 The Nimrud textile remains show that tassels were used to embellish the border of one or more garments of the Assyrian queens buried there.565

**nītu**. A Nimrud document shows that *nītu*-element(s) characterised the garment called *šupālītu halluptu* in Neo-Assyrian.566 In a text from Tell Billa this item occurs in association with *nahlaptu*-garments.567 The meaning of the word *nītu* is not clear: AEAD suggests that it was a precious item,568 perhaps used as a decoration for this garment. The verb *nētu* means ‘to enclose, surround’ and the idea of enclosure seems to fit well to the function of a metal clasp as well as of a decorative geometrical element, for example, a circle. However, we cannot rule out that it refers to a specific structural element of *šupālītu halluptus* and *nahlaptus*.

**pūtu**, ‘front-part’.569 This element, which is indicated in the texts with the logogram ZAG, occurs...
in descriptions of the items of clothing called gulēnu, maklılu, maqaṭṭu, naṣbutu, qirmu, rad- didu, ša GIL and urnutu, as well as of the sasuppu-napkin. It is not clear whether the term pūtu indicates the whole surface of the front-part of a garment or a small area of it. In the case of the nīksu-textiles mentioned in a list from Assur, the red pūtu is associated with red sides (braids?)\(^\text{571}\). The pūtu-element of Neo-Assyrian garments is usually red, except for some attestations where it is black.\(^\text{572}\) These references to coloured front-parts of certain garments suggest that the rear parts had a different colour, probably black in the case of red pūtus. On this regard, the literary text of the Marduk Ordeal is very informative. In this composition, there is a passage concerning the goddess Ištar, precisely her manifestation in Babylon, who was called ‘The Lady of Babylon’. The text describes the vestment which covered her statue in the temple and uses the word šīpātu in metonymical function to indicate her garment. What is worth noting here is that her garment (literally, ‘wool’) is said to be black on her back (ina kutallišāni) and red on her front (ina pānišāni).\(^\text{573}\) This description of Ištar’s garment matches the attestations of red pūtus given in the Nineveh administrative textile lists. If so, the use of the term pūtu in textile qualifications may be considered analogous to that of the word pānu. The use of the term pānum in descriptions of Mari textiles is possibly referring to the technique of lining, according to Durand.\(^\text{574}\) It is possible that the mention of coloured ‘front-parts’ in Assyria was analogously used to indicate lined textiles.

sihru. With this term, derived from the verb sahāru, ‘to go around, turn’, the edging or border of garments was probably indicated.\(^\text{575}\) In the Neo-Assyrian texts, it is attested in its logographic form NIGIN in connection with šaddīnu\(^\text{576}\) and urnutu-garments.\(^\text{577}\) It is not clear whether sihru and libītu (see above) were synonyms or whether a certain semantic distinction between the two terms was at work in their use in descriptions of textiles. However, the fact that both terms are used for the same item, namely urnutu, seems to suggest a synonymic relationship between the two. The possibility that the logographic form NIGIN is used in alternative to NIGIN is considered by Fales and Postgate.\(^\text{578}\)

sissiqtu (also zizziqtu), ‘hem, fringe’.\(^\text{579}\) The form with emphatic velar is confirmed by a Middle Assyrian attestation and suggests to normalize the Babylonian and Assyrian form as sissiqtu (from *siq-siqtu), instead of sissiktu.\(^\text{581}\) The phonetical rendering zizziqtu in a letter of the royal correspondence of Esarhaddon\(^\text{582}\) shows that [z] was an allophone for [ʃ].\(^\text{583}\) The kusītu’s hem is only attested in Middle Assyrian texts.\(^\text{584}\) It seems that hems of garments were managed as separate items by the state administration, as shown by an attestation.

\(^{570}\) For the red-coloured front-part of sasuppu-napkins, see SAA 7, 120 ii’ 4-6.

\(^{571}\) StAT 3, 1:10-11.

\(^{572}\) See SAA 7, 95:1; 98:4’; 107:10’; 109 r. iii 11’.

\(^{573}\) SAA 3, 34:42-43 [*he-lit—KÁ.DINGIR].RA.KI ša SĪG.MI ina ku-tal-li-šā-ni SĪG.tab-ri-hu ina pa-ni-[šā-ni 0] / [x x x ina pa-na-šu-as-da-mu ša šur-ri ša tab-ku-u-ni [ši-ne], “The Lady of Babylon who has black wool on her back and red wool on her front […]”, [the red wool] on her [front] is blood of the heart which was shed […]”.

\(^{574}\) Durand 2009, 78.

\(^{575}\) CAD S, 239a.

\(^{576}\) SAA 7, 96 r.2; 97:12’; 102:2’; 109 ii 2’.

\(^{577}\) SAA 7, 109 ii 4’; 5’, 6’, 7’.

\(^{578}\) Fales & Postgate 1992, xxviii.

\(^{579}\) PVA 299; SAA 3, 11 r.14; SAA 16, 36 r.16.

\(^{580}\) MARV III, 8 r.25’ zi-zi-qat-su-si-[u].

\(^{581}\) See Postgate 2014, 425-426 for discussion and references.

\(^{582}\) SAA 16, 36 r.16 TŪG.zi-zi-ik-tū. For the form with <š>, see, e.g., SAA 10, 298:17 TŪG.ši-ši-ik-ti-su.

\(^{583}\) Hämeen-Anttila 2000, 10.

\(^{584}\) MARV III, 5 r.38’-39’.
in a document from the palace administrator’s archive in Assur.\textsuperscript{585} The hem of a garment played an important role in Mesopotamian legal transactions. Interestingly, the practice of sealing legal documents with the garment’s \textit{sissiqtu}\textsuperscript{586} seems to be attested also in the Neo-Assyrian period, as witnessed by a clay tablet from Til Barsip, where impressions of two cords ending in a fringe of tiny threads are still visible.\textsuperscript{587}

\textit{sûnu}. This term designates a part of a garment. In Mari texts it refers to a textile end product and a type of wool.\textsuperscript{588} When related to a textile, Durand translates the word as ‘gigot, galon, outlet’.\textsuperscript{589} Also in Nuzi and Kassite Babylonia the \textit{sûnu} was a component of a garment. In Middle Assyrian times, \textit{išhanabe}- and \textit{ašiannu}-garments, as well as \textit{tusahhuri}-wrappings, are mentioned with their own \textit{sûnu}.\textsuperscript{590} This cloth-piece could be of \textit{takiltu}-wool, according to Bābu-aha-iddina’s archive.\textsuperscript{591} In 1st-millennium BC Assyria this textile was associated with other garments. In a document from Kalhu it occurs with a garment called \textit{ša IŠ} (see above).\textsuperscript{592} In that case, Postgate translates the term as ‘breast-piece’.\textsuperscript{593} In an administrative text from Nineveh \textit{sûnu} denotes a part of an \textit{urnatu}-garment.\textsuperscript{594} Dalley’s interpretation of the \textit{sûnu} as a ‘trimming’\textsuperscript{595} seems to accord with the Middle Assyrian attestations.\textsuperscript{596} In contrast, in a Neo-Babylonian letter of the royal correspondence \textit{sûnu} is used as a commodity of its own; in fact, the sender of the letter states to have sent one \textit{sûnu} of very good quality,\textsuperscript{597} which was probably destined to the gods’ statues.\textsuperscript{598} In this case, the item in question is understood by Dietrich as a ‘sash’.\textsuperscript{599} In Neo-Babylonian sources the \textit{sûnu} occurs among the items of dress used to cover the statues of gods Dumuzi, \textit{īGIL.DU}, and ‘the Goddesses’.\textsuperscript{600}

\textit{uṣurtu}. The term indicates the design or pattern of garments. The cloth with designs or patterned fabric, called \textit{ša parāki(?)} (reading uncertain, written as \textit{ša GIL}), occurs as a separate textile item in administrative records;\textsuperscript{601} it was probably added to various areas of garments, especially on the chest, the sleeves and the border.\textsuperscript{602} We also know that the \textit{nahlaptus} could be enriched by decorative designs.\textsuperscript{603} Different elements of the decorative design characterising Assyrian luxury garments are explicitly mentioned in an administrative text from Nineveh: unfortunately, the name of the garment decorated with pomegranates (\textit{nurmû})

\begin{footnotesize}
\begin{enumerate}
\item[585.] MARV X, 54:10 (STAT 5, 54) PAB 5 TŪG.\textit{zi-ziq-qa-[te]}. But note that Prechel and Freydank transliterate the occurrence as TŪG.\textit{zi-sik-k[a]'-tu}.
\item[586.] CAD S, 323a s.v. \textit{sissiktu} b.
\item[587.] Bunnens 2012, 79 and fig. 13.
\item[588.] Durand 2008, 93-95, 149.
\item[589.] Durand 2009, 94.
\item[590.] Donbaz 1991, 77, A 70:1-2 1 TŪG.\textit{iš-ha-na-be} / ša ÚR BABBAR. See also Postgate 1979, 7.
\item[592.] CTN 2, 153:2. In the same text, \textit{ša IŠ} garments without breast-piece occur. See \textit{ibidem} 3.
\item[593.] Postgate 1973, 166.
\item[594.] SAA 7, 109 ii 5’. The term is not translated by Fales and Postgate.
\item[595.] Dalley 1980, 72-73.
\item[596.] Postgate 2014, 422-423.
\item[597.] SAA 17, 77 r.14’ 1’en’ TŪG.ÚR bab-ba-nu-ú.
\item[598.] See SAA 17, 77 r.18e TŪG.ÚR \textit{ša} [x] DINGIR.\textit{MEŠ}.
\item[599.] Dietrich 2003, 71.
\item[600.] Beaulieu 2003, 15.
\item[601.] SAA 7, 108 r. ii’ 6’ [x x š]a—\textit{GIL.\textit{GIŠ.HUR.\textit{MEŠ}}} “[…] cloth (with) designs.” See also SAA 7, 117 s.1 1 TŪG.\textit{ša}—\textit{GIL.\textit{GIŠ}.H[UR.\textit{MEŠ}]} (Reconstruction of the occurrence by the author). The \textit{ša parākī(?)} also occurs in SAA 7, 63 iii 20’ [x x] \textit{ša}—\textit{GIL.\textit{MEŠ}} [x x x]; SAA 7, 96 r.4 9 TŪG.\textit{ša}—\textit{GIL.\textit{ZAG}} [x x (x x)]
\item[602.] See Guralnick 2004, 231 for the hypothesis that some borders of patterned fabric were separately woven and attached.
\item[603.] See PVA 225 TŪG : \textit{ša} ‘\textit{GIŠ.HUR.\textit{MEŠ}}.
\end{enumerate}
\end{footnotesize}
is not preserved in the document,\textsuperscript{604} while a bull (\emph{alpu})\textsuperscript{605} and a goat (\emph{sibtu})\textsuperscript{606} are mentioned as decorative elements of \textit{urnutus}. These decorative elements may be identified, for instance, with the bulls, goats and pomegranates represented on Assurnasirpal II’s garments.\footnote{See Layard 1849-53, I, pl. 5 and pls. 8 and 9 for details. See also \textit{ibidem} pls. 43-50 for other attestations of bulls and goats as decorative elements of dresses. For pomegranates, see \textit{ibid.} pl. 48 no. 3.} It seems that fabrics decorated with mythological beings and religious scenes were limited to the reign periods of Assurnasirpal II (883-859 BC) and Assurbanipal (668-631? BC).\footnote{Guralnick 2004, 231.} As regards vegetal motifs, petals and leaves have been detected on the tiny fragments of patterned textiles found in the Tomb 1 at Nimrud.\footnote{Crowfoot 1995, 114, 117.} \textit{Zibbutu}, ‘tail, tail-end’. This term, logographically written as KUN,\footnote{SAA 7, 106:2; 107:2’.} is interpreted as referring to the rear part of garments.\footnote{SAA 7, 106:2, 4; 107:2’; 108 i’ 5’; 109 r. iv 2’.} From the extant attestations in the Nineveh administrative text corpus, it seems that the \textit{zibbutu}-element characterised red garments.\footnote{See CAD Z, 102a s.v. \textit{zibbutu} 2; Fales & Postgate 1992, 114 and passim.} In one case, both the front-part (\emph{pūtu}) and the rear part of a garment are mentioned.\footnote{SAA 7, 107:2’.} We also know that garments with a \textit{zibbutu}-element also had fringes.\footnote{SAA 7, 108 i’ 5’.} It is also possible that this designation indicated the lower part of garments ending in a sort of ‘pointed tail’. The lower part of a variety of male garment of the 7th century BC seems to be the best candidate of the \textit{zibbutu} mentioned in texts. Assurbanipal is depicted in his reliefs from Nineveh\footnote{SAA 7, 108 i’ 5’.} as wearing an asymmetrical skirt; in other words, a skirt which is short in front and long in back and ending with a ‘pointed tail’ in the rear part.

### Textile techniques from garment designations

If we consider the Neo-Assyrian vocabulary of genuine Assyrian descent, apart from the general idea of covering, which inspired the designations of many Assyrian garments (\textit{lubuštu}, \textit{kusītu}, \textit{nahlaptu}, \textit{girmu}, and \textit{ša hili}) or of binding, girdling, or tying (\textit{kirbīnu}?, \textit{nēbētu}, \textit{nēbhu}, and \textit{sunābu}), which confirm the idea that most items of clothing wereuntailored and in form of wrap cloths, a number of terms are based on the idea of holding, seizing (see \textit{nasbutu}, but \textit{subātu} is problematic\footnote{A derivation from the verb \textit{ṣabātu} is rejected in Kaufman 1974, 95, where the scholar underlines the connection with the Neo-Babylonian garment name \textit{sibhu}.}). Others, however, refer to the position of the textile on the body and/or are in association with other items of clothing (\textit{elītu}, \textit{ša mūhi}, \textit{ša qabli}, and \textit{šupāītu}). Others may possibly be connected to their workmanship (\textit{maklulu}, ‘the light one?’). Some visual characteristics of the end product, such as the \textit{ša taluk širi}, probably indicate the use of a finely-woven fabric, which generated an undulating movement when its wearer walked.

Some Neo-Assyrian terms for garments may be connected to specific textile techniques (see also Table 1), such as rubbing down (\textit{muṣiptu}, if this word derives from \textit{ṣuppu} II, ‘to decorate, overlay, rub down’). See also \textit{gammīdu}, ‘smooth cloak’); washing or rinsing (\textit{šuhattu}); reinforcing or strengthening (\textit{halluptu}, perhaps also \textit{huzūnu}?); trimming (\textit{ṣipirtu}?), and cutting (\textit{maqaṭṭu}, \textit{nīksu}). Perhaps, the operation of rubbing down (\textit{muṣiptu}) can be identified with the action of smoothing, which was executed on a textile’s surface to make it shining and smooth, especially in
case of linen. Washing, also an integral part of the textile production cycle, was done after the fabrics were woven. Other names for garments are based on the concept of reinforcing or strengthening. Here, different explanations may be proposed. A dense and coarse weave, namely a weave with closely packed threads, was probably the main characteristic of clothing items used as outer garments for different functions. Coarse garments could be used as protection during the cold season but also as working clothes for menial activities or, just as importantly, as the standard dress for soldiers of the royal army. It is also possible that the reinforcing of fabric could be achieved through a fulling or smoothing process. Fulling the textile made it denser, and kneading and stomping the fabric in wet and warm conditions thickened the fabric and closed its gaps. In this way, textiles were made more waterproof and thus more suitable for indoor and/or working use. Cutting and trimming actions could refer to operations executed after the cloth came off the loom, namely in the phase of manufacturing the item of clothing through the tailor’s work. There are also words possibly related to the quality of the fabric (qatattu, harīru?) and others based on qualifications of wool varieties (see, e.g., šer ‘ītu), as suggested above. Lower quality fabrics were probably referred to by those qualifications of garments based on the word bētu, ‘house’. House-garments were probably made of coarse fabric, more suitable for everyday domestic activities. The opposite of the indoor or house-garment was the ceremonial vestment, made of fine fabric and for use on important public occasions outside the domestic milieu. In the case of garments explicitly related to women (ša issi), it is possible that their sizes differed from their male counterparts. As regards internal differences within the same category of garment, it is unclear whether feminine forms of the same garment name were used to designate specific items of clothing (a small-sized variant of the same garment?) or whether both masculine and feminine forms were used to indicate the same vestment. We cannot rule out that these forms reflect local differences within the Neo-Assyrian textile vocabulary.

620. On fulling, see Barber 1991, 216; Völling 2008, 149-150.
622. See Durand 2009, 12 for analogous observations on male and female clothes in Mari.
More specific structural elements of Neo-Assyrian garments cannot be detected on the basis of the designations analysed in this study, but the archaeological evidence grants us a clearer idea of some material characteristics of the Neo-Assyrian clothes. As regards the weave of Neo-Assyrian garments used by urban social elites, for example, the few textile remains found in Assur and Nimrud demonstrate that rep weave and tabby weave characterised the dresses fabricated in Assyria during the 9th and 7th centuries BC respectively.623

Conclusions

This study has shown that the Assyrian textile lexicon is characterised by a substantial continuity from the Middle Assyrian to the Neo-Assyrian dialects for a number of designations of garments. Other terms belong to the common 1st-millennium BC textile vocabulary, characterised by compound names with ša and West Semitic loanwords. A peculiar trait of the Neo-Assyrian vocabulary is vowel harmony, inherited from earlier stages of the dialect (e.g., Neo-Assyrian nēbu hu vs. Neo-Babylonian nēbe hu; NA naśbutu vs. NB naśbatu; NA gammīdutu vs. NB gammīdatu). The mutual influence between Assyrian and Babylonian textile terminologies, which disseminated the same designations across both dialects, was probably due both to the Babylonian language’s role in various sectors of imperial Assyrian society, especially as a scholarly and official language, and to the displacement of Assyrian-speaking groups (e.g., members of the royal army, merchants, and palace envoys) to various regions of the imperial territory, including Babylonia. The spread of Babylonian in the Assyrian state sector probably determined the reduction in the number of Hurrian terms in the written form of the Neo-Assyrian dialect. This may be surmised in light of the greater number of Hurrianisms in the Middle Assyrian dialect. Moreover, both Assyrian and Babylonian were affected by Aramaic influence in the 1st millennium, as illustrated by the various loanswords present in these late dialects of Akkadian. The limits of the extant written evidence from Neo-Assyrian archives prevent us from reaching a full understanding of the impact of Aramaic in the Assyrian textile terminology, but it is possible that loanwords were also present in those sectors of the Neo-Assyrian textile vocabulary reflecting textile activities predominantly performed by Aramaic-speaking workers. These West Semitic immigrants probably brought their textile know-how and terminology into the Assyrian imperial culture.

The ‘new entries’ in the Akkadian textile terminology of the 1st millennium are not limited to the nomenclature of end products but also concern the materials used to fabricate garments, such as the precious material called būṣu. In addition, toponymic cloth designations continued to be used also in the Neo-Assyrian terminology and reflect the interests of the Assyrian ruling elite towards specific areas touched by the Empire’s military and commercial expansion. References to kuzippus from Hamath, urnutus from Byblos, and Phrygian reinforced undergarments attest to the increased demand for special varieties of clothes for the needs of the palace sector and the royal army in 1st-millennium Assyria, two important factors for the development of the textile trade and production in the Empire’s economy. Renowned textiles from the Levant were imported in Assyria and, thanks to the vast trade network of the Empire, became an important part of the urban elites’ wardrobes. Perhaps, these exotic textiles also contributed to the spread of ‘royal fashions’ in various Near Eastern areas. The strengthening of trade contacts with Anatolia in the Sargonid Age in the field of imported textiles is also confirmed by a Sennacherib’s letter mentioning wool from the land of Kummuh, corresponding to Classical Commagene.625

Another important point concerns the legacy of the textile terminology of the language (or languages) spoken in the Assyrian Empire. After the collapse of the first world empire (612 BC), the Akkadian dialect

624. The import of linen and multi-coloured garments from the Levant, a well-known topos in descriptions of booty of Neo-Assyrian royal inscriptions, is also present in the Old Testament. See, e.g., Ezekiel’s description of choice fabrics, textiles with multi-coloured trim and fine linen as characteristic goods produced in Tyre and Aram and exchanged with foreign merchants. See Ezek. 27:16, 22, 23.
625. SAA 1, 33:19-r.3.
used by the Assyrians disappeared from the written documentation. However, it is reasonable to assume that Neo-Assyrian textile terms continued to be used by the Assyro-Aramaic population under the Chaldean dominion of Mesopotamia as well even though Aramaic progressively became the most diffused spoken language for large social strata of Assyrian society in post-Assyrian times. In addition, many 1st-millennium terms, some of which are of Aramaic origin, continued to be used in the Neo- and Late Babylonian dialects, as evidenced by the use of γαμμίδατος, γυληνὸς, and qirmu in Babylonia even during the Hellenistic period.\footnote{As far as the nomenclature of garments is concerned, we may observe that borrowings from the Assyrian dialect in Babylonian are very rare.} A typical Neo-Assyrian term entering the Neo-Babylonian textile vocabulary is the word σιπίρτου, which appears in the domestic textile terminology of Babylonia in the Hellenistic period as a qualification limited to furniture.\footnote{Former and recent Neo-Assyrian studies have elucidated a number of grammatical and lexical elements of the language spoken by the Assyrians in the 1st millennium BC. Various sectors of the Assyrian vocabulary of material culture remain unexplored however. It is hoped that this study, as well as contributions by other colleagues concerning Middle and Neo-Assyrian textiles that have appeared in recent years, mark another step toward understanding the Assyrian realia. Further studies on the Neo- and Late Babylonian textile vocabulary will certainly complete our knowledge of 1st-millennium Akkadian terminology of garments and their parts, thereby contributing to a more in-depth understanding of the Assyrian legacy (or its absence) in the textile vocabulary of the late centuries of the cuneiform world in the Land of the Two Rivers. The memory of the luxury clothes that characterised the imperial dolce vita of the Assyrian elite and of the importance of textile production for court life in Nineveh seems in any case to have reached the Classical world. This may be recognised, for instance, in Diodorus’ disparaging depiction of King Sardanapalus, who is described as wearing a female robe and as being primarily occupied in dealing with purple garments and wool.\footnote{Diodorus of Sicily, \textit{Library of History}, II.23, 1. The Greek author also mentions the rich wardrobe of this king, see \textit{ibidem} II.27, 2.}}

\subsection*{Acknowledgments}

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3. The Neo-Assyrian Textile Lexicon in the 1st-Millennium BC Context


ND = siglum of the texts from Nimrud (Kalhu).


SAA = State Archives of Assyria, 1-19. Helsinki 1987-.


VAT = siglum of the texts in the collections of the Vorderasiatisches Museum in Berlin.

ZTT I = siglum of the texts nos. 1-28 from Ziyaret Tepe (Tušhan), for which see MacGinnis & Willis 2008.

ZTT II = siglum of the texts nos. 29-36 from Ziyaret Tepe (Tušhan), for which see MacGinnis & Willis 2013-2014.

Bibliography


3. The Neo-Assyrian Textile Lexicon in the 1st-Millennium BC Context


Tools and Crafts, the Terminology of Textile Manufacturing in 1st-Millennium BC Babylonia

Louise Quillien

Tools and Crafts, the Terminology of Textile Manufacturing in 1st-Millennium BC Babylonia

Louise Quillien

What did sheep shears in the 1st millennium BC Babylonia look like? We are not sure. Many cuneiform texts were written about textile work in Babylonia, but it was largely about administration or accounting. There were hardly any descriptions of the actual tools and processes. In this article we go back over the words, the iconography, and the archaeology in an attempt to find these missing descriptions. This study is limited to Babylonia during the 1st millennium BC, and this period correspond to a state of the Akkadian language, called Neo-Babylonian. At these times, major evolution took place. Mesopotamia entered in the Iron Age at the end of the 2nd millennium BC. Empires were built (Neo-Assyrian 911-610 BC, Neo-Babylonian 610-539 BC BC, Achaemenid 539-330 and Hellenistic 330-64 BC). Most of the cuneiform documentation of that period discovered by the archaeological excavations is dated from the “long 6th century BC”. At these times, Babylonia enjoyed an economic growth, long-distance trade developed, and the temples has an important economic weight. All these factors induce changes in the textile craft that are visible through an analysis of the vocabulary.

Textile tools were objects of everyday life, they were handled manually to transform the raw materials into finished woven products. They included all the implements used at different stages of fibre preparation, spinning, and weaving, as well as dyeing, washing, decorating and the repair of fabrics. An approach that combines the study of vocabulary of tools with the study of action verbs related to textile manufacturing can bring information about the techniques known in 1st millennium BC.

In Babylonia, during the 1st millennium BC, the textile craft was well-developed. Textiles were widely used in transportation, in home furnishing as well as for clothing. Common domestic production and luxury production both existed with the former being much less documented than the latter. Luxury production was organized by the temples, and probably also by the palaces. Wool was the most commonly used raw material. Flax was rare but present, and cotton appeared at these times in Babylonia. Special

1. I deeply thank Elizabeth Payne and Michael Jursa for sharing with me transliterations of unpublished texts from the Yale Babylonian Collection, and Walter Farber for providing permission to reproduce the image of the amulets of the Lamaštu. I also warmly thank Marie-Louise Nosch, Cécile Michel, Salvatore Gaspa, Ariel Rosenblum and Arch Naylor for their help in improving my paper. Responsibility for any errors lies with me.
3. See Jursa 2010 for the evolution of the economy of Mesopotamia in 1st millennium BC.
4. About the use of textiles in the temples during the Neo-Babylonian period see Zawadzki 2006 and 2013; Beaulieu 2003. The Neo-Babylonian and Achaemenid textile production in the palaces is poorly documented, but if we compare with the situation in Mari or in the Neo-Assyrian period, one can hypothesis that the Babylonian palaces were important centres of a luxury textile production.
5. The volume of Breniquet & Michel 2014 has demonstrated the importance of wool in Mesopotamia’s economy since the 4th millennium BC.
products like Egyptian flax, purple wool or special dyes, especially destined for luxury production, were imported through long distance trade. Manufacturing techniques were complex: the luxury textiles were adorned with metal appliqué, tassels, and embroidery. The vocabulary of tools and action verbs dealing with textile production gives some information about the different tasks accomplished by the textile craftsmen, and about the techniques they mastered.

Important works about textile tools in Mesopotamia include the book by Catherine Breniquet *Essai sur le tissage en Mesopotamie* and the articles by Eva Andersson Strand, Agnete Wisti Lassen, and Caroline Sauvage. Using the context of these previous works supported by the Neo-Babylonian documentation, the question is how studying tool terminology and action verbs can improve our understanding of the function of the textile production in 1st-millennium BC Mesopotamia. Does textile terminology reveal evolutions at this late period of Mesopotamian history?

**The sources**

The cuneiform sources from Babylonia dealing with textiles and dated from the 1st millennium BC mostly comes from the temples of Uruk and Sippar. They are administrative documents, written by scribes whose purpose was to organize and control the production of the textiles made especially for the clothing of gods’ statues and for the cult. In the temples, the garments of deities were regularly renewed, and the statues’ attires were changed several times a year during ceremonies called *lubuštu* (dressing). This regular need for clean or new items was an important factor for the growing production of luxury textiles in the Neo-Babylonian temples.

The texts from Babylonian temple archives dealing with textile production mostly date to the “long 6th century BC”. They record materials given to craftsmen by the temple’s administration to perform specific tasks (to spin, to weave, to decorate, to dye, to wash, to repair) and finished products delivered to the temples by craftsmen. These texts were written by temple scribes to control the quality and quantity of textiles made by the craftsmen and to managed their work. However, these texts do not describe specifics of workers tasks, and most of the time craftsmen used their own tools. What was common was not written down, for instance the clay tools like loom weights were not recorded in the texts. Therefore, with the exception of some metal objects, the descriptive vocabulary of textile tools themselves remains scarce throughout these cuneiform tablets. The action verbs of textile work are more frequent because texts sometimes mention which task has to be performed by the craftsmen with the material given to them. These verbs reveal some of the stages of the chaîne opératoire and show the specialisation of the craftsmen in one or several tasks. This temple administrative documentation is complemented by some ritual texts and lexical lists where the terminology of textile tools is mentioned. Private archives of rich urban families sometimes mention textile work, for instance in letters. They come from a greater number of cities: Uruk, Sippar, Babylon, Ur, Nippur, Borsippa. Although the textual records are the primary sources that elucidate the meaning of this vocabulary, sometimes it is possible to compare these terms with the iconographical representations and with the archaeological remains.

**From fibre to thread**

**The collection of the fibres**

Cuneiform texts do not describe the processes of preparing fibres for spinning. Indeed, these steps were very commonly performed and there was no need to put them down in writing. Only shearing is well documented in texts dealing with the managing of the

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8. These different techniques can be seen, for the Neo-Assyrian period, on the palaces’ bas-reliefs and the paintings. We will see that they were also known by Neo-Babylonian craftsmen.
11. Zawadzski 2006 explains in detail this organization for the temple of Sippar.
4. Tools and Crafts in 1st-Millennium BC Babylonia

12. About sheep breeding in 1st millennium BC Babylonia, see van Driel 1993 and Kozuh 2014; on the wool economy in Mesopotamian society, see Breniquet & Michel 2014.

13. CAD S, 316; also AHw III, 1037, serpu, serapu ‘Schermesser’.

14. For instance, the comprehensive inventory of bronze tools in Mesopotamia compiled by Deshayes 1960 does not mention such scissors. Margueron 1995, 134 refers to the discovery of ‘scissors’ at Emar, a Syrian archaeological site of the 14th century BC, but he does not describe the object. According to Barber 1991, 29 the most ancient scissors were discovered in France (Iron Age), in Roman Egypt, and in Parthian Iran. According to Ryder 1993, 15, bronze knifes can also be used for the sheep shearing, even if there is no evidence of it in Mesopotamia.

15. Nbn 867: “(1) ½ talent 8 minas of iron had been given to Sūqaia, blacksmith, to make iron scissors for the shearing. Of that amount, Sūqaia delivered to the Ebabbar 4 minas 15 shekels, weight of 13 shears, (and) 15 shekels, weight of three iron sickles, a total of 4.5 minas in full, month Dūzu, 18th day, 15th year, Nabonidus, king of Babylon.”

16. The specialists of the shearing were called gāzizu, CAD G, 60 (GCCI 1, 93, GCCI 1, 139 and GCCI 1, 183).

17. In the texts Nbn 867, Nbn 960, CT 55, 252 the use of iron shears “for the shearing” is mentioned. In the last text, the temple gives to a man 40 iron shears in the 3rd month of the year, beginning of the shearing season. The workers had to give back the tools after the completion of their tasks, probably at the end of the season. Sometimes, the Ebabbar temple of Sippar did not have enough sirpu and had to borrow equipment from its dependant sanctuaries, for instance from the Bēl-ṣarbi temple at Bāṣ. The sirpu are also found in private archives, without indication of their use within a household. However, the terminology is ambiguous because the sirpu were also used by carpenters. The sirpu found in the three texts Nbn 258, Camb 330 and Camb 331 which contain inventories of houses where beer was brewed.

It is interesting that the word sirpu seems to appear in cuneiform documentation during the 1st millennium BC. This “new entry” in the Akkadian vocabulary of the 1st millennium BC supports the hypothesis that sheep were mostly sheared, and no longer plucked in this period. Indeed, the genetic evolution of the continuous growth of sheep hair occurred around 1200 BC in Europe, whereas previously, the sheep moulted there every year. If one supposes the same evolution in Mesopotamia, the shearing would be the most used technique at the end of the 2nd millennium BC. Furthermore, one can suppose that the development of iron technology in the end of the 2nd millennium BC results in the appearance of new, more efficient tools, like iron shears.

12. About sheep breeding in 1st millennium BC Babylonia, see van Driel 1993 and Kozuh 2014; on the wool economy in Mesopotamian society, see Breniquet & Michel 2014.
13. CAD S, 316; also AHw III, 1037, serpu, serapu ‘Schermesser’.
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18. CT 55, 252.
19. CT 55, 445. In this context the word probably meant ‘chisel’.
20. Nbn 258, a dowry text; Camb 330 and Camb 331, two inventories of a cabaret from the Egibi archive, edited by Joannès 1992. The sirpu might have been used during the process of beer preparation. The three texts indeed mention containers for the brewing.
22. See Rast-Eicher 2012, 14-15. The data about this evolution are lacking for Middle East.
Evidence of this change in wool collection methods is supported by the textual sources. The verb ‘to shear’, gazāzu, becomes progressively very frequent in comparison to the verb ‘to pluck’, baqāmu. Although the word gazāzu is attested from the 3rd millennium BC onwards, it was scarcely employed before the Nuzi period of the 15th–14th century BC, and the two methods were both used at Ugarit in the 14th–13th century BC. In the available 1st millennium documentation from Babylonia, the verb baqāmu (to pluck) is mentioned at least once, in the text CT 22, 214, a letter dated to the Neo-Babylonian period, “sheep ša baqānu ‘u guzzu”, “the sheep have been plucked and shorn.” As the word gazāzu ‘to shear’ is preferred in the administrative document, this letter shows that in everyday life, outside the institutions, the plucking may have still continued to be in use, and that maybe not everybody had shears at their disposal.

In comparison to wool, the vocabulary for the collection and preparation of flax is not well attested in cuneiform texts. However, we know of its existence in earlier periods. Archaeological excavations have shown tools such as sickles and combs used for the preparation of flax fibres for spinning in Mesopotamia, but they are older than our present period of study.

**The preparation of fibres for spinning**

All the steps of the preparation of wool for the spinning are not mentioned in the cuneiform texts. It is possible to identify some terms dealing with this work in the Neo-Babylonian corpus. The Akkadian term for the comb is muštu. The term muštu, in Akkadian, is not mentioned in the Neo-Babylonian texts from the temples’ archive dealing with textile manufacturing, probably because it was a common object of low value. But the word does appear in 1st millennium rituals against the Lamaštu, a demon responsible for the death of new-born babies. To keep this evil female creature away from the house, the ritual issues instructions that she must be given, among other things, objects associated with textile work and/or toiletry: comb, distaff, spindle, oil, pin, needle.

“You give her a comb, a d[is]taff/spindle?, (and) a half-sūtu fla[sk] of oil” *Lamaštu Series I*: 50.

“Accept from the woodworker a comb, a distaff/spindle?, and a needle for your sewing needs” *The Incantation Thureau-Dangin RA 18, 163*: rev. 21.

From this text the comb (muštu) seems to be related to textile fibre preparation rather than to women’s toiletry. The oil can also be used for spinning, as well as for toiletry. The word for distaff/spindle will be discuss later. These objects are found together in images of the Lamaštu presented below. One also learns from the second text that these tools were made of wood, even the needles. The combing of the wool is

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23. The verb gazāzu is translated “to shear (sheep and goats)” according to CAD G, 59 and “scheren” according to the AHw II, 284. CAD B, 97 translates baqāmu (baqānu) as “to pluck”, and the AHw I, 104 “ausraufen, scheren”. The word is attested since the 3rd millennium BC. In Hebrew two different words are also used for shearing and plucking, and the verb for shearing, Hebrew gazaz, has the same root as the Akkadian gazāzu, according to Delcor 1955, 384-385.

24. At Nuzi, Abrahami 2014, 286, at Ugarit Vita 2016, 139-147. They may have used bronze tools.

25. CT 22, 214: 16–18 “āmar-utu-re-man-ni i-ta-mar-ru-šū-nu-ut ša baqa-nu-‘u u go-zu-‘u”; “Marduk-rēmanni has inspected them (the sheep) which have been plucked or sheared”. Ebeling 1930 n°214.


28. In the same way, Salvatore Gaspa has studied the Neo-Assyrian terminology of wool processing. See Gaspa 2013, 225–226.

29. The word muštu, equivalent of the Sumerian giš-ga-ríg and is translated, according to the CAD M/II, 290, ‘comb’. See also AHw III, 687, ‘Kamm’.


31. “muštu ša naggāri muštu pil[a]qqu u kirissu šīmāt gēkī”, Translation by Farber 2014, 298-299. As for the comb, the needle kirissu can be related to textile work (needle) but also to toiletry (hair clasp, pin) according to CAD K, 407. But here the term is specifically linked to spinning.

32. If the wool is dry one can add oil to make the fibres stick together during the spinning. (I thank Eva Andersson-Strand for this information). In the wool industry in 19th century Europe, the wool, before being carded or combed, and after being washed to remove impurities and fat, was soaked with some oil, to facilitate the spinning of a fine thread. See also Blanqui 1839, 159.

mentioned in cuneiform texts since the Ur III period. The ideogram had the shape of a comb. Combs have been found in the archaeological remains in Mesopotamia but it is difficult to know the functions of these objects and to identify which ones were employed for textile work. The verbs napāšu and mašādum, translated ‘to comb wool’ by the Chicago Assyrian Dictionary, do not appear in the Neo-Babylonian texts. It is not clear if carding, being the action of homogenizing fibres by brushing them loosely, was known in Mesopotamia, or if only combing was used. Combing sorts the long fibres from the short ones and makes the fibres lie parallel. The two techniques do not produce the same quality of thread.

Several terms mean raw fibres at different stages of the preparation for spinning, in Neo-Babylonian. In the texts issued from temple archives, one finds the term ‘combed flax’ gada ḫalṣu. The CAD gives the following translation for ḫalṣu: “(1) obtained by ḫalāṣu (said of oil, etc.) (2) pressed out (said of sesame seeds) (3) combed (said of flax).” The linen ḫalṣu is given by the temple administration to the linen weavers or bleachers to make fabrics. The wool also can be ḫalṣi, even if this word is more rare. Another term, ḫilṣu appears once in a text from Sippar to qualify wool. Even though it is translated “combed wool” by the CAD, it may refer, instead, to the ḫilṣu ceremony.

The word puṣikkū is another term translated as “combed wool” by the CAD. It appears, for instance, in the following text:

“Wool issued, 8 talents (for) the female weavers, for puṣikkū-wool, the month Abu, 20th day, 7th year, king Nabû-nāṣir”, BRM 1, 7.

But in another text where puṣikkū-wool is issued to a high official, Mac Ewan proposes the translation...
“wool ration.” In a third text the *puṣikku*-wool is used in a ritual with other precious raw materials including purple wool and red wool, two precious materials. One can deduce from these two last texts that it was a high quality wool, probably carefully selected, by combing, or other process.

The word *suppu* is translated “strip of carded wool,” in the CAD, thanks to linguistic arguments. This translation is problematic, because the existence of the carding at these times is not proved, and because *suppu* applies not only to wool, but also to flax. The word *suppu* appears in several documents from the Neo-Babylonian temples’ archives, always in the plural form without quantification (*suppātu*), which indicates that it is a kind of raw material rather than a fabric. The *suppu* can be counted or weighted whereas raw is just weighted.

In the texts from the temples’ archive, *suppu* are never given to craftsmen to spin thread, they are sometimes dyed or even used directly made into belts, as in the following text.

“Nine minas 25 shekels, weight of sashes — *sipīrītu* (made) of skeins of combed fibres (*suppātu*), had been delivered by Rēhētu. The skeins of combed fibres (*suppātu*) on the account of Bunenešimānni […] the month Simānu, 25th day, 4th year, Cambyses king of Babylon, king of Lands”, Camb 235.

If the *suppātu* are strips of combed or carded wool, as the proximity of the word with the Aramaic *suppā* (carded wool) suggests, they are not destined to the spinning but used directly for the manufacturing of pieces of clothing or decoration. They were delivered by the craftsmen in important quantities (8.5 kg in the text Bertin 1884) and sometimes with the *išhunnu* which are woollen decorations. Nevertheless, at Uruk the term *suppu* was preceded by the determinative gada and Paul-Alain Beaulieu proposes the meaning ‘braided curtain’. Indeed, the text PTS 2492 mentions 2 *suppātu* for the door of a cella, as if they were curtains and not a raw material. So the material and use of the *suppu/ suppātu* may have differed within Babylonia according to the city considered.

The spinning

As with fibre preparation, spinning is poorly documented in cuneiform documentation, even if it was a routine task for textile workers. However, at least one spinning tool is well attested in the cuneiform texts dated from the 1st millennium Babylonia: the spindle. The word for spindle, *pilaqqu* or *pilaqqu*, is attested in Akkadian texts since the Old Babylonian period. In Antiquity, spindles were made of various materials including wood, stone, and bone. Assyrian...
texts indicate that they were in wood. Only one text from the Neo-Babylonian temple archives mentions this tool. These finds are rare in the documentation because the spindle was a very common object, and the temple archives listed primarily precious or rare materials, belonging to the temple, that the administration wanted to track. In the text CT 56, 454, silver was given by the temple’s administration to a craftsman for making or buying a spindle, but the amount of money spent is lost in a break of the tablet. But most of the time the craftsmen probably used their own spindle, and it is possible that this text may refer to religious objects rather than to real tools.

The word for spindle whorl, literally the head of the spindle qaqqad pilakki is not attested in the Neo-Babylonian texts. The distaff, a tool in spinning to hold the unspun fibres, was not distinguished from the spindle in the vocabulary, according to the CAD, which occasionally translates pilakku by ‘distaff’. We know that spinning tasks were accomplished for the temples, because the craftsmen working for the sanctuaries received raw flax and wool and delivered threads and fabrics. But the verbs to spin, ĭamīm and to ply, ěṣēpum are not attested in the Neo-Babylonian documentation. The absence of this vocabulary does not mean that these words were not employed; rather it indicates the purpose of the cuneiform documentation, which did not aim to describe in detail the technical work of craftsmen. Outside the temples, many people were surely spinning at home, but the domestic work was usually not recorded by writing.

The spindle has symbolic uses in Mesopotamia.

Archaeological remains from the 1st millennium BC provide an example of a distaff, made in onyx, a semi-precious stone, discovered in the palace of Babylon. The spindle object is present in omen texts and rituals linked to femininity, to assist delivery, to avoid the death of a new-born baby. Representations of

58. CT 54, 219: 5 "zi-pi-laq-qa ta-na-aš-ši-i-ma", “you are carrying a wooden spindle”, in a broken text.
59. CT 56, 454 rev. 8. “[...]gin kū-babbar sā a-na pi-la-gu a-na biutu-sig, iq si-’nu’ [...] 40’ 1/2 gin kū-babbar ina pi-la-ki”, “[...] shekels of silver that were given for a spindle, to Šamaš-udammiq [...] 40’ 1/2 shekels of silver in the spindles?”, in a broken list of transactions from Sippar.
60. The CAD translates pilakku by distaff in the texts dealing with Lamaštu’s objects (examples quoted above), for instance CAD D, 170, col. 1, probably following the usual translations of these texts. But pilakku could mean the spindle in this context. Maybe the Akkadian word for the distaff is simply unknown to us. It is not necessary to use a distaff to spin.
61. For example, the administration gives to a team of craftsmen raw flax and asks in exchange thread and fabrics, Nbn 163; Nbn 164.
63. This object was also identified as a sceptre. Völling 1998, 102-104, has shown the parallel with the shape the distaff. See also Sauvage 2014.
64. Opp. Dream-book 332; SAA 10, 92; Lamaštu ritual, see Farber 2014. “The symbol of womanhood were the spindle and a specific pin (or thimble)”, according to Stol 1995, 124 quoting Sjöberg 1975, 224. In the hymn to the goddess Inanna edited by Sjöberg, the spindle and comb are part of the feminine paraphernalia “she may dress them in a clothing of a woman, she may place the speech of a woman in their mouth and give them a spindle and a hair clasp”. See also Cassin 1964, 293 for the meaning of the spindle in Mesopotamia and Baccelli et al. 2014, 117 about the spindle and femininity in Anatolia and neighbouring areas.
these tools can be found on the amulets against the Lamaštu-demon, as mentioned above.\textsuperscript{65} In one iconographic representation, we can see a spindle, a comb and a third object in the form of a stick with double crochet, probably a distaff.

Another term, suppinnu, is translated as “a tool for spinning.”\textsuperscript{66} But this word has several meanings, as it also describes a tool to make bricks. The Neo-Babylonian texts mentioning the suppinnu list others tools related with the manufacture of bricks, agriculture and woodworking. The use of this term in the textile manufacture is not attested in the Neo-Babylonian texts. Indeed, the word appears on lists of utensils that are not related to textile work.\textsuperscript{67}

From thread to fabric

The terminology of the loom

The terminology of weaving tools is also obscure. Several types of loom existed in the Ancient Near East. The Mesopotamian people used the horizontal loom, the warp weighted loom and the vertical loom with two beams. They also wove with small belt looms and tablet looms.\textsuperscript{68} These looms were made of wood. An Akkadian fable make this point. In it the tamarisk and the palm tree both claim to be weavers, the former says: “I am a weaver and beat-up the threads.” and the later “I am superior to you in every craft (...) I am a weaver and beat-up the threads.”\textsuperscript{69} The Akkadian vocabulary for the loom is known thanks to the lexical list Ḫar-ra = ḫubullu, dated to the 2\textsuperscript{nd} half of the 2\textsuperscript{nd} millennium BC.\textsuperscript{70} When one looks for these terms in the Neo-Babylonian documentation of the 1\textsuperscript{st} millennium BC, only a few of them can be identified. This is not only because the lexical list is older, but also because this text records all the terms in the Sumerian and Akkadian literature, even rare occurrences. Many of the words in this list are not found elsewhere. It does not reflect the real spoken or written language\textsuperscript{71}. Only two words of the lexical list related to the loom appear in the Neo-Babylonian texts: nanšu and muṣabbitu. The word nanšu, included as a part of the loom in the lexical lists, means a lever according to the CAD.\textsuperscript{72} It comes from the verb naššu, ‘to rise’.\textsuperscript{73} This word appears only in a list of utensils for a ritual.\textsuperscript{74} We know that the nanšu was made in wood, because the word is preceded by the Sumerian determinative giš. If this word still meant a wooden part of the loom in the Neo-Babylonian texts, and according to its root, the verb ‘to rise’, we can propose the hypothesis that it refers to the wooden beam where the heddles are attached. The heddles are the set of parallel cords in a loom used to separate warp threads and make a path for the shuttle.

The word muṣabbittu is mentioned again as a part of the loom the lexical list, Ḫar-ra = ḫubullu.\textsuperscript{75} The word muṣabbittu or muṣabbittu is the participle of the verb ṣabāṭum, ‘to seize’ (in G-stem): “the one who envelop, knot, attach the threads” according to the CAD.\textsuperscript{76} Following this definition, it might be the upper beam, where the warp threads were attached. The
word *mušabbitu* is attested in two Neo-Babylonian texts from Uruk’s archives.⁷⁷ One, the text NCBT 616, lists several iron tools delivered to the temple by a blacksmith.⁷⁸ Among these tools are the iron *mušabbitu* and the iron *ṣiṣītu*, which could be a part of the loom, maybe the heddle according to the CAD and which means the loom itself according to the Ḫar-ra = *ḫubullu* lexical list.⁷⁹ The following objects listed in this text are an iron knife (*quppû*), an iron bowl (*nalpattu*), and an iron needle (*natkapu*).⁸⁰ These words may be linked with weaving work, but iron is not typical for a loom. If these objects are destined to a ritual it would explain their unusual material. The text comes from Uruk temple archive. The tools listed in NCBT 791 where the *mušabbitu* also appears are not related to textile work.⁸¹ It is possible that the meaning of the terms recorded in the lexical lists Ḫar-ra = *ḫubullu*, dated from the 2nd millennium BC have changed in the 1st millennium texts from Babylonia.

Another weaving word documented in Neo-Babylonian texts is not a tool but a part of the loom: the *šutû*, ‘warp’.⁸² This word is well attested in Old Babylonian texts but has been found in only one document of the 1st millennium BC Babylonia. According to this tablet from Sippur, some quantities of red and green dyed wool were delivered to a craftsman, with 14 shekels (117 grams) of warp thread (*šutû*).⁸³ The dyed threads were probably for the weft. It would suggest that the coloured patterns were made in the weft, as no colour is mentioned for the warp. But the beginning of the text is obscure, so hypothesis needs further support.

Why loom terminology is not often found in the Neo-Babylonian texts? One has to suppose that the looms were property of the craftsmen working for the temples because they were not mentioned in the texts listing the materials that the institution supplied to them. The horizontal loom, for instance, did not have many parts and could be disassembled easily. It was made with ordinary materials (palm or tamarisk wood). As a common object, the loom was not considered significant either to be recorded in dowries texts, recording all the precious belongings brought by the bride to the house of her husband.

### The verbs for the weaving

A verb ‘to weave’ in Neo-Babylonian Akkadian is *mahāṣu*.⁸⁴ Its most common meaning is ‘to beat’. It is not surprising that the verb for beating meant, by metonymy, the action of weaving because the main gesture of the weaver is the beating of the threads to create a uniform fabric.⁸⁵ This verb is present in texts dealing with the fabrication of domestic textile, like for instance, in the following text:

> “Arrabi will deliver yearly a *gulēnu*-garment to Ṭābia. Ṭābia has given to him 5 minas of wool, for the weaving of a *gulēnu*.” VS 5, 24: 14-17.⁸⁶

According to this text from Babylon, coming from the Sîn-ilī private archive; Ṭābia rented his palm grove for 10 years to his slave Arrabi, with the gardening equipment. He also gives him wool. In exchange the

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⁷⁷ NCBT 616: 2; NCBT 791: 2.
⁷⁸ This text is mentioned by courtesy of Elizabeth Payne.
⁷⁹ CAD §, 214: “a part of the loom”, “probably the harness of the loom or simply the heddle”. AHw III, 1105: “Qaste, Troddel”
⁸⁰ CAD *Quippi*: CAD Q, 311, AHw III, 928: “Stilett, Messer”; *nalpattu*: CAD N/I, 202, AHw III, 724 meaning 2: “eine Schale, Tiegel”; and *natkapu*: hapax, see below.
⁸¹ This text is mentioned by courtesy of Elizabeth Payne.
⁸³ ZA 4, 145 n. 18: 1-5 “1/3 2-me 60? *šu-tu-ú ina igi 11u-gur-din-it *uš-<bar> bir-mu”, “... red wool and green wool, 14 shekels, the warp, at the disposal of Nergal-uballît, weaver of coloured clothes”.
⁸⁴ CAD M/I, 71-84, meaning 3 “to weave”; AHw III, 580: “schlagen, weben”.
⁸⁵ Cassin 1964, 974-975.
⁸⁶ VS 5, 24: 14-17 “*ina mu-an-na* [iseg] *gu* `-le-e-ni’ *ur-rab-hi a-na* [du₅₇]-ga-īa [i]-nam-din 5 ma-na sigḫa₄ a-na ma-ḫa-šu [šaq₄]-ga-le-e-ni 1du₅₇-ga-īa i1-da-āī-*šu*”, Babylon, Nabonidus’ reign. Michigan Coll. 47: 1-3 also deals with the weaving of the *gulēnu*: a woman is supposed to weave (*ta-ma-ah-su*) one *gulēnu* yearly. The text NBC 6189: 6 mentions the verb *maḥāṣu* in the expression “*ana ma-ḥa-as* *qu*”, literally “for the beating of the thread”. I thank M. Jursa his transliteration of this text.
slave own him a part of the harvest and a garment.

The verb šatū, which also means ‘to weave’, was no longer used in the 1st millennium BC.87

Ornamentation and care of the garments

The dyeing

While the vocabulary of the loom and weaving is not often used in written documentation dealing with textile fabrication, the terminology for the preparation of garments (decoration, washing, etc.) is found more frequently. Garments and fabrics offered to the gods in order to dress their cultic statues were richly decorated with golden appliqués and coloured wool. The texts coming from 1st millennium BC temple archives and dealing with the manufacturing of garments for the gods’ statues indicate which materials were used for dyeing, but they rarely mention tools. Only the vocabulary for the containers for dyes is mentioned. The word nasraptu is translated “dyeing vat” by the CAD.88 But in some Neo-Babylonian texts, for instance TCL 12, 84, the word means linen textile.89 The cauldron used for dyeing the wool is named ruqqu in the Neo-Babylonian texts.90 It appears only in the context of the blue dyes, in the expression “ša pî ruqqi” which mean (wool) from the cauldron. This expression is only applied to blue and blue-purple dye.91 It could express the process of the vat dye, especially used for dyes containing indigotine.92

The verb meaning the action of dyeing comes from the verb “to soak”, šabar/sapu.93 It is used in the Neo-Babylonian texts in the form of the noun šipu.94 It is often mentioned in temple archives dealing with the textile industry. Materials were given to the craftsmen ana sapē “for dyeing”. These craftsmen were specialised in the work of coloured wool, including the dyeing and the manufacturing of small coloured woollen items. At Sippar, they were named “the weavers of coloured wool,” išpar birmu.95

The decoration

According to the temple archive of Sippar and Uruk, many cultic garments were decorated with coloured wool. Techniques for embroidery, tapestry or carpet, and tassels were known in Mesopotamia.96 The Neo-Assyrian bas-reliefs show that royal garments were decorated with tassels and with complex scenes, for instance of hunting or mythology, probably embroidered.97 A Babylonian ritual written in the Hellenistic period, maybe a copy of an older text, describes the garments of the king. They were adorned with complex embroideries depicting gods symbols or astral motives.98 The Babylonian craftsmen would have used needles for these embroideries or for sewing the

87. šatū CAD Ș/II, 217 šatū B, “to weave, to spin, to entwine, interface, to join battle”; AHw III, 1203 šatū III: “(Fäden) knüpfen”.
88. CAD N/II, 51, AHw III, 757: “Färbbottich”.
90. CAD R, 416 “1. kettle, cauldron”; AHw III, 995 “(Metall-)Kessel, Schale”.
92. This process requires to soak the wool in hot alkaline water with the blue dye (for instance wool) in a closed vat. The blue dye then became soluble and fix into the wool. Then the wool is exposed to air and become blue by oxidation.
93. CAD S, 45. AHw III, 1104: “Durchfeuchtung, 3. Färbung”
94. CAD S, 205, AHw III, 1104 meaning 3: “Färbung”.
95. This profession also existed during the Neo-Assyrian period, according to Gaspa 2013, 232.
96. Several texts indicate that a same garment could be made of linen and wool at the same time. Usually, a big quantity of linen is used with a small quantity of coloured wool. For example, in the text GCCI 2 381, Amēl-Nanāia, a bleacher, receives 250 grams of purple wool and 2,7 kilograms of flax to made a šiddu-curtain. We can suppose that the fabric was in white linen and the decoration in coloured wool.
97. Lion forthcoming.
98. UVB 15 40, Falkenstein 1959, 40-41 and Joannès 2014, 447. The garments “embroidered” are said “šapu”. On this verb, see below.
golden attachés that adorned the god’s garments. The word ṣillû, meaning needle in the Old Babylonian period, seems to have changed its meaning in the 1st millennium. Indeed, according to the texts GCCI 1, 130 and GCCI 1, 75 the ṣillû is an iron object weighing more than one kilogram, too heavy for a sewing needle. It refers to a tool for working wood. It is probable that the same word, ṣillû, was used for several pointed objects, from small to large.

Lastly, the term natkapu is mentioned once in a Neo-Babylonian text from Uruk, NCBT 616, and could mean an iron needle, because it comes from the verb takāpu, “to pierce, to puncture, to stitch.”

The words dalû and katātu, which also mean needle, are not attested in the 1st millennium documentation from Babylonia. The action of sewing may have been expressed by the two verbs: takāpu “to pierce” and rakāsum “to attach.” It is expressed in the Neo-Babylonian letter BIN 1 6:

“Tablet of Šillaia, to Kalbaia(7) his sister, may Bēl and Nabû ordain well-being of my sister. Sew (and) seal a šabatu-garment, (taken) in the clean garments. Send it to me through the messenger of Nādin.”

To understand more about the techniques of ornamenting textiles, one has to examine the verbs. The verb kubbû or ḥubbû means “to patch, to sew” or “to burnish, to attach” according to the CAD. In the text GCCI 2, 69 from Uruk, concerning the manufacturing of the god’s garments, one reads “172 rosettes and tenšu-sequins have been taken off the mušiptu-garment to be kúbû (written ḥubbû). Here this verb may also mean “polish, repair.” It refers to the sewing and repairs of the little golden decorations sewn on the garments adorning the gods’ statues. The verb may also have mean the sewing of simple textiles with no mention of golden decorations, as in the following text from Uruk temple archive:

“One lubāru garment, one linen salḫu-tunic, at the disposal of Ḥipaiia for the sewing.”

The verb ḥatû also refers to the action of sewing golden appliqués onto a garment according to the CAD, and appear in that sense in two Neo-Babylonian texts. For the application of woollen decorations, another verb is employed, šapû. It is translated “to wrap, to fasten with laces, thongs” by the CAD. This word is employed in the texts in the form of a substantive in the expression ana šapê. According to the texts coming from temples’ archive of Uruk and Sippar, the verb means an action of applying small quantities of coloured wool on the garments.

99. CAD §, 193-194 ṣillû A; AHw III, 1101-1102 ṣillû II, 3: “Nadel”.
100. The texts GCCI 1, 130, GCCI 1, 75 and GCCI 1, 187 give clues about the weight of the ṣillû. It weighs less than 1.25 kilograms.
101. CAD T, 68; AHw III, 1305: “durch Stiche punktieren, sticheln, tüpfeln”. NCBT 616 is a list of iron tools including several terms, which can be linked to textile work.
102. CAD D, 56 dalû A: “a spear or needle”; CAD K, 304 katâtu: “needle”.
104. “To patch, to sew”, according to the CAD K, 482, and “to burnish” or “to attach” according to the CAD H, 213; AHw I, 497: “benäht”.
105. Furthermore, the term appears as an adjective in a text to praise the gods “a god whose glory was ḥubbû (radiant)” Hinke Kudurru I, 13. In the same way, a Neo-Assyrian document describes the bed of a deity in these terms: “the lower mattress with golden decorations (in form of) water ḥubbû (radiant)”; Streck Asb. 296: 22.
106. About these golden ornaments, see Gaspa 2014 for the Neo-Assyrian period, and Beaulieu 2003, 21-25 for the Neo-Babylonian period.
108. CAD H, 152 “ḥatû B: (1) to attach (gold ornaments)”, AHw II, 336 ḥatû I: “verziert”. The two texts mentioned in the CAD can also relates with the weighing of the golden appliquée (verb ḫatûnu) (GCCI 1, 59: 7-8 [ina] ugu ḫa-te-e [ša] a-a-ri u te-en-še-e”) and VS 6, 1: 4 “a-na [ḥa]-ti ša a-a-ri ša “a-a”.”
109. CAD S/I, 490 šapû B.
for the gods.\textsuperscript{110} The garments concerned are specified, the headbands \textit{lubār mēṭu} and \textit{lubār kulūlu}, and the \textit{kusītu} dress. The latter was a feminine divine garment adorned with coloured wool and qualified \textit{birmu} (adorned with coloured woolen embroideries or trimmings).\textsuperscript{111} For the verb \textit{šapû} in this context, we can suggest the translation “to embroider” or “to decorate (with trimmings)”. The verb \textit{nasāḫu} in the context of textile work meant the action of removing a part of a garment.\textsuperscript{112} At Sippar, we find the same formulae in several texts: “250 grams of blue-purple wool coming from the garments of Šamaš, 100 grams of blue-purple wool coming from the garments of Bunene, from these garments (the wool) was removed.”\textsuperscript{113} It seems that what was removed was not the wool of the fabric, thread by thread, but tassels or woollen braids, because their removal does not destroy the garment \textit{lubāru} on which the wool was taken.

\textit{The care of the garments}

The maintenance of the garments is well documented in temple archives dealing with the luxury textile craft. Professional craftsmen called \textit{ašlāku}, ‘washermen’, regularly washed the woollen and linen textiles.\textsuperscript{114} These craftsmen received tens of items of clothing for various deities at the same time, and were in charge of the \textit{zikûtu}, the cleaning of the garments.\textsuperscript{115} For example, in CT 55, 814, 27 new linen fabrics are given to Šamaš-zēr-ušabši, the washer, for washing.\textsuperscript{116} The linen fabrics were never dyed, they were bleached to further whiten them by the \textit{pūšaia}.\textsuperscript{117} The tools used for washing and bleaching are not mentioned, but the texts do indicate which materials were needed. For instance, the bleaching of linen, involves intensive washing with soap made from a special oil and a soda, plus sunlight exposure. In the text BM 80454, the craftsman Bunene-šimanni received tamarisk wood, alkali (soda) and an oil plant for the washing of linen door curtains.\textsuperscript{118} The mixing of soda and oil gives soap, and the wood was used as a fuel.

The garments were also often entrusted to the menders \textit{mukabbû} to be ‘repaired’, \textit{ana batqa}.\textsuperscript{119} They received a small number of garments, usually less than a tens, and they can be new or worn\textsuperscript{120}. In a legal text, Bēl-ittannu, a linen weaver of the Ebabbar temple of Sippar described his work. He declared before the temple’s authorities the disappearance of a linen fabric belonging to the god Šamaš while he was working on it, in those terms:

“\textit{(Concerning) A threadbare linen fabric that was at my disposal for repair, I was tearing it in strips for making the bed-cover of Šarrat-Sippar’s bed, and there were no strips left}”.\textsuperscript{121}

The verb used is \textit{šarātu}, meaning here “to tear
into strips, to shred”. Perhaps the craftsman is using these strips of linen fabrics to make the padding of the coverlet. The tools of the menders are not described in the documentation.

### Conclusion

Thanks to an analysis of the terminology, with the help of iconography and archaeology, it is possible to find some of the techniques known by the Babylonian textile craftsmen in the first millennium BC. The study of the Akkadian vocabulary in the Neo-Babylonian texts reveals evolutions. New words appeared in this period, like the term *ṣuppu*, as well as new techniques, such as the shearing of sheep with iron shears. Another characteristic of textile making in Babylonia during the 1st millennium BC is the growing specialization of craftsmen, at least in Neo-Babylonian temples. The tasks of the craftsmen were not limited to the weaving of textiles. The importance of the decoration of the garments, with coloured wool or golden appliqués, is obvious in the luxury textile production of the temples. In the domestic context, visible in the private archive, the textiles were also, not only woven but also sewn and prepared in specific ways. Textiles were valuable goods and their care was important. Even the precious textiles destined to the cult were re-used and cleaned repeatedly. When the garments of the gods were worn, they were recycled in other textiles like bed-covers. The study of tool terminology and action verbs confirms that the textile craft of 1st millennium BC Babylonia had reached a high level of specialization and technical knowledge, especially in luxury production of the temples.

### Abbreviations

- **AFO** = Archiv für Orientforschung
- **AOAT** = Alter Orient und Altes Testament.
- **ASJ** = Acta Sumerologica.
- **BAR** = British Archaeological Reports
- **Bertin** = Bertin, G. (1883) *Copies of Babylonian Terra-cotta dated Tablets, principally Contracts, seven volumes*, unpublished, held by the Department of Western Asiatic Antiquities in the British Museum.
- **BM** = Tablets in the British Museum.
- **CAD** = *The Assyrian Dictionary of the University of Chicago*. Chicago 1956-2010.

122. CAD Š/II, 59 “2. šurratu to tear into strips, to shred”.


Hinke Kudurru = Hinke, W. J. (1911) Selected Babylonian Kudurru Inscriptions. Leiden.

ITT 5 = Inventaire des tablettes de Tello


MDOG = Mitteilungen der Deutschen Orient-Gesellschaft.


NBC = Tablets in the Nies Babylonian Collection. Yale University.


NCBT = Newell Collection of Babylonian Tablets. Yale University.

OBO = Orbis Biblicus et Orientalis.

Oppenheim Dream-book


PIHANS = Publications de l’Institut historique-archéologique néerlandais de Stamboul.

PTS = Tablets in the Princeton Theological Seminary.

RA = Revue d’assyriologie et d’archéologie orientale.


SAALT = State Archives of Assyria Literary Texts. Helsinki.


VS = Vorderasiatische Schriftdenkmäler der (Königlichen) Museen zu Berlin.


ZA = Zeitschrift für Assyriologie und vorderasiatische Archäologie.


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Ordinary People’s Garments in Neo- and Late-Babylonian Sources

Luigi Malatacca

The investigation of textiles and clothes in ancient Mesopotamia has been anything but neglected in Assyriological studies. For the Neo- and Late Babylonian periods, in particular, two fundamental monographs have shed light on the clothes worn by the deities worshiped in lower Mesopotamia. Scholars, however, have focused almost exclusively on clothing in the cultic context. This is due to a prevalence of textual sources – mostly economic or administrative documents – recording clothing items worn by divine images during festivals and rituals. Sources on the clothes worn by common people, instead, are close to non-existent. Still, we cannot overlook the fact that Mesopotamian towns were crowded by people rather than by gods. These people were workers, slaves and soldiers, and each one of them – man or woman – wore clothes in his or her everyday life. The objective of the present paper is to examine the three main clothing items worn by common people, using textual sources of the Neo- and Late Babylonian periods. These items were túg-kurra (a blanket of a sort used as garment), muṣiptu (a generic garment), and šir’am (a jerkin).

Methodology

Two essays in the book Textile Terminologies in the Ancient Near East and Mediterranean from the Third to the First Millennia BC (2010) focus on textiles and clothing in the Neo-Babylonian period. In his article, Stefan Zawadzki investigates clothing in non-cultic contexts. As a guideline for the study of non-cultic attire, I list below the different types of documents singled out by Zawadzki as being most likely to include references to clothing items not destined for the statues of gods.

- dowries;
- quittances for rations;
- payments for wet nurses;
- text concerning military uniforms;
- texts concerning workmen’s clothes.

My focus and Zawadzki’s, however, are different. Zawadzki, in his article, deals with clothing in non-cultic contexts, whereas here I discuss clothing for common people. The non-divine clothing items mentioned in text usually belong to the fine apparel
of the privileged classes of Mesopotamian society. These fall outside of the scope of the present study, which concentrates exclusively on inexpensive clothing items worn by the middle-low classes in Babylon. But who exactly were these ‘common people’?

Neo- and Late Babylonian society was roughly divided into two classes. The first was that of the mār banê, the free citizens, while the second gathered individuals legally depending from the central administration (the temple or the palace) or in a condition of slavery. The mār banê enjoyed full rights in front of the law and could own one or more slaves. They included temple officials, merchants, bankers, craftsmen, farmers, and also individuals living in poverty. The second class, instead, included both free individuals deprived of civil rights, such as the ‘royal soldier’ (bēl qaššī), the ‘partially free dependents’ (šusānū), and totally unfree individuals such as the slaves (ardū or qallī) or the servants of the temple (širkū). Evidence, when we speak of common people we are mainly referring to people belonging to this second class, although we cannot overlook the mār banê class, insofar as it also included non-wealthy individuals. To sum up, by ‘common people’ I mean here all the members of Babylonian society, whether free or not, who did not hold prestigious positions, such as dependent workers (workmen, craftsmen, etc.), apprentices, or slaves.

The existence in Babylonian society of a clear-cut distinction between higher and lower social classes can also be deduced from the diversity of the clothing worn by the two classes. Obviously, a rich individual had the means to buy fine clothes, while this possibility was denied to economically disadvantaged persons. It even appears that the lower social classes were forbidden from wearing the garments worn by the elites. Text Camb. 321 is especially illuminating in this regard. In this legal document, Nabû-ēṭir, a rich man of the Ēṭiru family, strikes the slave Madānu-bēl-uṣur, reproaching him for wearing a šibtu dress. Other than this document, there is indeed no evidence of the šibtu dress being worn by slaves, workmen, or soldiers. It was often used, instead, in religious ceremonies, and there is also evidence of its secular use.

Thus, starting from Zawadzki’s list of documents to determine what garments the majority of the population wore, we need to exclude both the fine, expensive clothes worn by the upper classes, which also appear in Neo- and Late Babylonian documents, and the clothes worn by divine statues. We can thus narrow down our examination to the three garments I will be looking at in detail in the following sections.

tūg-kur-ra

The tūg-kur-ra is frequently mentioned in Neo- and Late Babylonian documents. Many scholars have dealt with this garment and the various questions concerning it. The main issue is the actual Akkadian reading of the logograms tūg-kur-ra. We owe one of the first hypotheses about tūg-kur-ra and its Akkadian equivalent to Dougherty. On the basis of the kur-ra = šadû equivalence, this scholar proposed translating the word as ‘mountain garment’. A later reading

7. The text is collated, translated and commented in Wunsch & Magdalene 2012.
8. The name of the garment is written with the signs tug-sal-i-dab. For the Akkadian reading of these logograms as šibtu, see Wunsch & Magdalene 2012, 110.
9. Principally used to cover divine statues, the šibtu was also worn by priests during the lîlîssu-drum ritual; cf. text UVB 15, 40 and Çağirgan & Lambert 1991-1993, 93.
10. CAD §, 162b.
11. Some individuals belonging to the elites can be identified, especially thanks to the prosopographical studies of Kümmel 1979, Bongenaar 1997, and Payne 2007.
12. Luxury garments include the gulēnu (Zawadzki 2010, 419), the guzguzu (Quillien 2013), and the subjattu (Jursa 2006, 206-207).
is found in the *Chicago Assyrian Dictionary* (CAD), where kur-ra is regarded as syllabic rather than logographic writing, and is hence read *sad-ra*\(^{17}\) and translated as ‘ordinary garment’. Later on, the CAD itself, following the indications of R. Borger, no longer accepted the reading of kur-ra as *sad-ra*\(^{18}\). Once the logographic value of kur-ra was firmly established, several Akkadian readings were proposed over the years, viz., *muṣiptu*\(^{19}\), *suḫattu* and *kanzu*.

As regards the reading *suḫattu*, S. Zawadzki leans towards the reading proposed in CAD S, 346,\(^{20}\) on the basis of the parallelism between two texts, UCP 9, 271 and Dar. 253, where the word *suḫattu* is evidently used instead of túg-kur-ra, and *vice versa*. This leads the scholar to tentatively suggest that túg-kur-ra be read as *suḫattu*.\(^{21}\) Evidence from other sources, however, speaks against this hypothesis. In at least two loci, the terms *suḫattu* and túg-kur-ra appear side-by-side, viz., in CTMMA 4, 13\(^{22}\) and TU 44.\(^{23}\) This enables us to rule out their equivalence. Furthermore, in the apprenticeship contract BM 54558,\(^{24}\) from the Hellenistic period, a certain Libluṭ, the son of the woman slave Guzasigu, has to learn how to make a *suḫattu* birmi, ‘a multicolor *suḫattu*’.\(^{25}\) Now, multicolor túg-kur-ra never occurs in the documentation, probably because the túg-kur-ra is not a fancy and, hence, prestigious garment.\(^{26}\) Finally, in CT 4, 29d *suḫattu* occurs as a royal gift,\(^{27}\) whereas, again, túg-kur-ra does not seem to be a luxury commodity.

Basing himself on text CTMMA 4, 38, Michael Jursa has recently proposed the Akkadian reading *kanzu* for túg-kur-ra:

**CTMMA 4, 38**

Obverse
1. 2 gun \(\text{mē} \text{ṣi₃} \text{ka-an-zu} \)
2. šá ṵul-tu ūḥ\(\text{i} \)
3. na-ša₁² m-a \(\text{m} \text{elu-tu-gi} \)
4. ḫi-hi-idd ṭtu.ḫu.kin ud.8.ḫām
5. mu.sag.nam.lugal.e \(\text{m} \text{ag-nig.du-pab} \)

Lower edge
6. lugal tin.tir\(\text{i} \)

Reversed
7. ina gub₂\(\text{m} \text{en-da} \)
8. ū₃ ṣa₃ u₃ mzi₃-kā-ri ṭtu
9. m-a \(\text{m} \text{elu-tu-pab} \)
10. túg-kur-ra ina \(\text{ē} \text{gur₇} \)

“Two talents (of wool?) (and) one packing cloth that where brought from Opis: Apūya and Šamaš-ušallim weighed (it). Month of Ulūlu, day 8 accession year of Nebuchadnezzar, king of Babylon. In the presence of Bēl-lē’i, Erība-Marduk, Zīkaru, Apūya, and Šamaš-nāṣir the blanket (was put) in the storehouse.”\(^{28}\)

In the above-quoted text, it is evident, as Jursa remarked, that the term túg-kur-ra is used as a synonym for *kanzu*.\(^{29}\) As for \(\text{mē} \text{kanzu} \), the term is never attested

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17. CAD §, 225e. *Sad* and *kur* are written with the same sign, so either reading is possible.
19. The clearest proof that túg-kur-ra and *muṣiptu* are not identical is that *muṣiptu* is a feminine noun, while túg-kur-ra is certainly masculine, being regularly followed by masculine adjectives. See Oppenheim 1950, 188-189, and Zawadzki 2010, 413.
21. “The parallelism between both texts is striking, and the probability that túg-kur-ra should be read *suḫattu* or *supātu* is high, though some doubt still exist,” Zawadzki 2010, 413.
22. *suḫattu* in obv. 1.1; túg-kur-ra in rev. 1.18.
23. túg-kur-ra in col. IV 1.14; *suḫattu* in col. IV, 1.28; on this text, see Limssen 2004, 252-262.
25. *ṣuḫattu* (suḫattu ša birmi) also appears in NBC 6164, where it is used as payment for a weaver, Jursa 2006, 207.
26. In the Neo-Babylonian period, the adjective *birmu* often refers to clothing items used in the context of cult, cf. CAD B, 258i.
28. Transliteration and translation by Jursa in the volume CTMMA 4, 66-67; the copy of the tablet is on Plate 33.
29. See commentary in CTMMA 4, 38 l. 10.
in Akkadian documents. It could well be a loanword from the Aramaic root knz ‘to deposit’\textsuperscript{30} or it could be interpreted as a Persian loanword, based on the Old-Persian word kanz ‘treasure’.\textsuperscript{31} The túg-kur-ra = kanzu equivalence is possible for two reasons. The first we have already seen, namely, that in CTMMA 4, 38 kanzu and túg-kur-ra are two different terms used to describe the same object. The second is that the use of túg-kur-ra as packing material is also attested in other documents. In the Uruk letter YOS 3, 11, a given quantity of wool is placed inside some túg-kur-ra. This is an analogous situation to the one we have seen in CTMMA 4, 38.\textsuperscript{32} In ritual text TU 44, of the Hellenistic period, a túg-kur-ra is used to wrap the carcass of a bull.\textsuperscript{33} It is thus clear that, in the present state of the evidence, the term kanzu is the best candidate for the Akkadian reading of túg-kur-ra. Still, some problems remain unsolved, namely:

1) CTMMA 4, 38 is the only occurrence of kanzu where it is qualified as a textile,
2) túg-kur-ra in CTMMA 4, 38 could be a generic term used to qualify the textile kanzu as a ‘blanket’;
3) wrapping objects is not the main use of túg-kur-ra, while the term kanzu seems to refer exclusively to a textile used for that purpose.

Although the correct Akkadian reading of túg-kur-ra is still not defined, the use of this textile is documented by a wide range of evidence.

In the letter YOS 21, 98, from Uruk, the túg-kur-ra is clearly indicated as a garment worn by the workmen: “send 20 túg-kur-ra-garments. Here there are many naked workmen.”\textsuperscript{34}

Another document where túg-kur-ra are given to workers is BM 63343:\textsuperscript{35}

**BM 63343**

**Reverse**

1. 10 gú.un 20 ma.na s[iʃ.ʃi.a]
2. a-na 49 túg-kur-ra\textsuperscript{[en]}[\textsuperscript{[a]ch}]
3. šá [h]e-peš dul-lu
4. šá q[i-i-pi] a-na \textsuperscript{m}a-su[\textsuperscript{s}meš-su]

Ten talents and 20 minas of w[ool] for 49 túg-kur-ras of the workers of the qīpu to Šamaš-ah[hē-erība]

In this text, the 49 túg-kur-ras appear to be used as a medium for payment. The use of these textiles as rations of sorts is well attested in Neo- and Late Babylonian sources.\textsuperscript{36} Thanks to BM 63343, we know how much wool was required to buy a túg-kur-ra at Sippar (during the reign of Nabonidus – 556-539 BC). A túg-kur-ra costs 12.65 mine of wool, about six kilograms.\textsuperscript{37} Other textual sources give different quantities of wool for one túg-kur-ra,\textsuperscript{38} indicating that this price fluctuated. Unfortunately, these texts only tell us how much a túg-kur-ra was worth in wool, not how much wool was needed to make one. This information seems to be found, instead, in CT 55, 783, from Sippar:

**CT 55, 783**

**Obverse**

1. \[12' ma.na sig.]h.i.a a-na 2
túg-kur-ra\textsuperscript{mes}

30. CAD K, 148 s.v. kanāzu. Kunzu also repeatedly occurs as a leather bag in CAD K, 549 s.v. kunzu. See, again, the commentary in CTMMA 4, 38 l. 1.
31. See CDA, 145. I am grateful to C. Michel for this suggestion.
32. 10 gú sig.ʃi.a ina túg-kur-ramaš-sū-nu ṣi-ma (YOS 3, 11: 13-15); see commentary in CTMMA 4, 38 l. 10.
33. ad₇ gₜ-a-ṣu ina 1ˢₜ túg-kur-ra saₗₜ qa-bₜ-bir “you will bury the carcass of that bull in a red túg-kur-ra” (TU 44, col. II, l. 19);
34. 20 túg-kur-raₗₜ šuₗₜ-bi-la erinₜₑ-rē-siₗₜ-a kan-na maₗₜ-[tu] (YOS 21, 98 l. 34-35).
35. Published in Zawadzki 2002, 156-157.
36. See Jursa 2010, 619-623. In particular, see the table of prices on pp. 620-622, showing all the prices of túg-kur-ra attested between the reign of Assurbanipal (668-628 BC) and that of Darius (521-486 BC). The average price of a túg-kur-ra was thus roughly 5 shekels of silver in Uruk, roughly 6 shekels of silver in Sippar.
37. One shekel = 8.3 grams; one mina = 500 grams; one talent = 30 kilograms. One mina = 60 shekels; one talent = 60 minas.
38. GC 1, 161, from Uruk (Nabucodonosor II – 605-559 BC) has eight minas for one túg-kur-ra (four kilograms); NCBT 641 (Uruk – Nabucodonosor II) has eight minas and ten shekels for one túg-kur-ra (3.5 kilograms); PTS 2370 (Uruk - Nabonedus) has ten minas for one túg-kur-ra (five kilograms).
In this text, each woman is given a standard quantity of wool (six minas) to make tūg-kur-ra. In all likelihood, these women are weavers in the service of an išparu (chief weaver). Woman weavers are not uncommon in Near Eastern sources, whether epigraphic or iconographic. It is likely that in this geographical area, as well as elsewhere, weaving was an exclusively female occupation. Other women, probably engaged in spinning, are recorded on some clay dockets dated to the reign of Merodach-baldan II (722-703 BC). Each docket gives the name of the spinner and her supervisor, and was presumably tied with a string to the wool to be spun. Another textual source, Camb. 398, adds some useful information about the characteristics of tūg-kur-ra:

Camb. 398

1. 2 tūg-kur-ra mes eš-šu-tu šá 8 kūš
2. gid.da-’8’ [kūš dagal]-tu
3. 12 ma.na ki.lá-šu-nu

“Two new tūg-kur-ra, 8 cubits long each, 8’ [cubits wide] each and their weight (being together) 12 minas”. According to Camb 398, a regular tūg-kur-ra weighing 6 minas (like the tūg-kur-ra mentioned in CT 55, 783) should be 8 cubits (about four meters) long, and probably 7 or 8 cubits wide. This is the only Neo-Babylonian record of the measurements of this kind of garment, although in the text TC 3, 17, of the Old Assyrian period (2000-1740 BC), the measurements of a finished cloth roughly coincide with those of the tūg-kur-ra of Camb. 398, and the same is true of ITT V, 1921, pl. 63, no. 9996, (Ur III period – 2112-2004 BC), where a cloth measures 8 by 7 cubits.

The large size of the tūg-kur-ra induced A. L. Oppenheim to proposed translating the term generically as ‘blanket’. His intuition seems to have hit the mark, having been adopted in many later studies. The final test – as Oppenheim himself regards it to be – of whether tūg-kur-ra was a blanket is possibly found in text Nbn. 662, where two individuals each receive one half (mišil) of the same tūg-kur-ra. Tūg-kur-ra could be, therefore, a blanket wrapped around the body as a garment, and it was not used only by workers. The garment is also mentioned as being worn by priests (during particular ritual acts?), slaves, wet nurses, travelers, and soldiers.

Concerning priests, clearly these must be regarded as part of the elite, which, as I specified above, I will not be dealing with in the present study. However, I think it is important to mention, if only in passing, the role of the tūg-kur-ra worn by a galamahṣu-priest in a ritual of the Hellenistic period:

UVB 15, 40

13. ĩgalamahu tāšlu-bar kitī ḫa-lip u tugšūna šā šapal réši qaqqad-su rakis
14. [ina l[i]-i][s siparri ina a-ša-bi-šu tuglu-bar dušma]
15. [tāx x x] u tūg-kur-ra il-lab-biš

“The galamahṣu-priest will wear a linen lubāru-garment and he will tie a sūnu-hat for the lower head, but if he wants to
sit near the bronze kettledrum, he will di-
vest the lubāru and he will wear [...] and
a túg-kur-ra”

In this text, it is evident that túg-kur-ra is somehow
distinct from the other prestige clothing items men-
tioned in the text, as it is used by the priest in replace-
ment of a lubāru-dress made of linen, a garment fre-
quently used to clothe divine images. This change of
clothes occurs at a specific point in the ritual, that is,
when the priest is about to sit on the lilissu-tympa-
um. It is not clear why it is required, since the tym-
panum is usually not viewed negatively or regarded
as impure.48 Linen was not regarded as an impure fi-
er either; the opposite, if anything, is true. Probably
some actions the priest was called upon to perform
were regarded as being somehow impure, and this is
why he needed to change his dress into an ordinary
garment.49 Túg-kur-ra are rarely mentioned as being
worn by slaves or servants. The text GC 1, 161 re-
records the giving of the garment to a slave, more spe-
cifically to a širku:

GC 1, 161

1. 1 túg-kur-ra
2. šá a-na 8 ma.na síg.ḫi.a
3. ana-šá-’
4. a-na mde-en-e-ṭè-ru
5. šim-ki na-din

“One túg-kur-ra, which for 8 minas of
wool is brought, to Bēl-ēṭeru, the oblate,
is given”.

The širku or ‘oblate’ is a particular kind of slave
enjoying a rather privileged position, as he is con-
secrated to the temple and a specific deity. As
for mere slaves (qallū or ardū), instead, they are
more frequently mentioned as wearing šir ’am or
muṣiptu.50

I mentioned above that the túg-kur-ra was part of
the attire of travelers and soldiers. When clothes are
mentioned in connection with travelers or soldiers,
these are almost certain to be túg-kur-ra and šir ’am;
in most cases, the two clothes are recorded together
as the constituent elements of a uniform of sorts.51
Finally, BM 3397852 shows that the túg-kur-ra could
be one of the items that wet nurses were paid with:

BM 33978

Obverse
1. ’nu-up-ta-a dumu.sal šá mde-ag-šeš-يتها [tan-nu
…]
2. a-na um.me.ga.lá-ú-tu ’a-’di 2-’ta mu.an.
na
3. dumu.sal šá ’gemé-ia dumu.sal šá mkit-
’ag’-tin dumu mde-en-e-ṭè-ru
4. tu-še-šab ina mu.an.na 1st túg-kur-ra
5. 3 gin ƙù.babbar iti 1 qa ’mun’.ḫi.a 1 qa
sah-le-e
6. 1st ‘su-um-mu-nu šá ’i.ḡiš“ u₂-mu 2 qa
gi-me
7. ’4’ ninda.ḫi.a 1 qa kaš.sag ’gemé-ia
8. [a-na] ’nu-up-ta-a ta-nam-din
9. [...] ’x x’ [...] [witnesses and date]

Reverse
10. [1st] kur.ra ’gemé-ia a-na ’nu-up-ia-a-
11. [ta-n] am-din

“Nūptāya, daughter of Nabû-aḫa-it[tan...], receives the daughter of Amtiya, the
daughter of Itti-Nabû-balāṭu, of the Egi-
ibi family, for a breastfeeding lasting two
years. Amtiya will give [to] Nūptāya: an
-ually 1 túg-kur-ra (and) 3 shekels of sil-
er; monthly 1 litre of salt, 1 litre of cress,
1 summunu-vessel (full) of oil; daily 2 li-
tres of flour, 4 loaves (and) 1 litre of first

49. See Zawadzki 2006, 91.
50. For these garments, see below.
51. I will discuss túg-kur-ra and šir ’am for travelers and soldiers below, in my section on šir ‘am.
quality beer […] Amtiya [will] give [the túg].kur.ra to Nūptāya […]"

The text, written in Babylon and dated to the reign of Xerxes (485-465 BC), is a contract for the payment of the wet nurse Nūptāya. She is charged with breastfeeding Amtiya’s daughter, in exchange for which she will be paid with silver, staple foods, and a túg-kur-ra.53

Interestingly, in at least two such wet-nurse contracts the term túg-kur-ra is replaced by the term kabru. For example, in BM 74330 a wet nurse is paid four silver shekels and a kabru-garment.55 This does not enable us to conclude that kabru is the Akkadian reading of túg-kur-ra. However, if the kabru-garment is actually made of heavy cloth, the very fact that it takes the place of túg-kur-ra in the same type of document suggests that the túg-kur-ra was also made of heavy cloth, at least in this case.

muṣiptu

In 1953, in the like-titled entry in his Glossar zu den neubabylonischen Briefe, Erich Ebeling explains the word muṣēptu as follows: “muṣēptu (D Part. von ṣēpu) “Hülle”, eine Art Burnus, Idgr. túg-kur.ra.”56 Although Ebeling’s work remains to this day one of the most important studies ever carried out on Neo-Babylonian correspondence, since then some progress has been made in the understanding of the term. In 1950, A.L. Oppenheim had already solved the problem of the incorrect identification of túg-kur-ra with muṣiptu by proving that the latter has no ideographic equivalent.57 The name muṣiptu is very likely to derive from suppu ‘to rub,’ attested in the Middle Assyrian period (1350-1100 BC) in the context of horse husbandry with the specific meaning ‘to groom’.58 Its nominal form muṣiptu possibly designates the dressing of wool.59 According to the authors of the Concise Dictionary of Akkadian (CDA), the verb suppu may also have the meaning of ‘decorating,’ which however is not applicable to muṣiptu, because evidence for decorated muṣiptu is just about nonexistent.60 In Neo-Babylonian documents, the term muṣiptu often occurs with the generic meaning of ‘garment.’61 The Akkadisches Handwörterbuch (AHw) and the CDA hence translate it, respectively, as ‘Gewand’ and ‘garment,’62 while the Assyrian Dictionary of Chicago (CAD) attempts a more detailed translation ‘(standard size) piece of cloth.’63 By placing ‘standard size’ between parentheses, the authors admit to doubts regarding the actual standardization of the measurements of a muṣiptu garment, and indeed no text indicating these measurements is known so far. Some sources provide other kinds of information:

**YOS 6, 91**

1. 5 gin kū.babbar š[ām] 4 mu-ṣip-ti

“5 shekels of silver, the price of 4 muṣiptus”
YOS 3, 104

10. 5 musica-šip-tu₄
11. šu-bi-lam
12. udu.nita
13. lu-bu-uk-kam-ma
14. lu-uš-pur-ka

“Send me 5 musica and I will take and send you a ram.”

Evetts Lab. 6

1. i-na maš ma-na 3 gín kù.babbar
2. ša a-na mu-šip-tu₄ sum₄

“Out of a half mina (of silver), 3 shekels of silver were given for a musica”

VAS 6, 58

5. ’2” gín 4-ut ša mu-šip-e-tu₄

“2 shekels (and) ¼ for a musica”

According to the indications of these four texts, a musica was not especially valuable. YOS 6, 91 indicates a price of 1.25 shekels of silver, and the Uruk letter YOS 3, 104 clearly states that five musica were worth the same price as a sheep. Assuming the average price of a sheep to be around three shekels of silver, this musica would be worth about half a shekel. These are of course approximate figures, but they clearly suggest that the musica was an inexpensive clothing item. The other two documents record, respectively 3, and 2.25 shekels per item. These prices match those attested for a túg-kur-ra.

Not only is the cost of a musica about the same, in some cases, as that of a túg-kur-ra, but the two garments are also used in the same ways. GC 2, 349, where some workers are given large quantities of clothing items, is the best evidence of the fact that the musica was not only inexpensive, but also used by common people.

64. CAD M2, 243, has this differently: ina 33 gin kaspi ša ana musica nadin. According to this reading, the cost of a musica is of 33 silver shekels.

GC 2, 349:

Obverse
1. ’40 musica-šip-ti md₁₅-mu-mu a-šú šá mdag-x
2. 30 mdag-na-din-mu a-šú šá mri-mu-ag-gu-la
3. 10-ta mdarg.mu a-šú šá md₄-d₁₅
4. 10-ta md₄-šu šá md₄tu-mu
5. 10-ta md₄-d₁₅ a-šú šá md₄-ag-šu-ú
6. 10-ta mdinnin-na-mu-šeš a-šú šá md₄mu-ag
7. 10-ta mdinnin-na-numun-be a-šú šá md₄gin-numun
8. 10-ta mdinnin-na-numun-giš a-šú šá md₄en-mu-gar-on
9. 5-ta md₄x x-du-uš a-šú šá md₄en-din

Lower edge
10. pap 135-ta meš-mu-šip-ti

Reverse
11. ina ú-il-tim šá č.an.na ina ugu
12. hīgal₄₅ 5₀meš a-di qi-it
13. ša iti.kin a-na č.an.na i-nam-di-nu

“40 musica (for) Ištar-šum-iddin son of Nabû-x-x
30 (for) Nabû-nadin-šumi son of Rimūt-Gula
10 (for) Šakin-šumi son of Ibni-Ištar
10 (for) Bēl-ušallim son of Šamaš-iddin
10 (for) Ibni-Ištar son of Ša-Nabû-šu-ú
10 (for) Innina-Šum-ušur son of Iddin-Nabû
10 (for) Innina-zēr-ušabši son of Mukīn-zēri
10 (for) Innina-zēr-lišir son of Bēl-šum-iškun
5 (for) x-x-epuš son of Bēl-uballit
Total 135 musica
the debit of the Eanna temple over the rab ḫanše. Up to the end of the month of Elūlu they will give (back) to Eanna temple.”
Actually, the text records a total of 135 clothing items to be distributed, in lots of 40, 30, 10, 5, among nine supervisors of working units of 40, 30, 10, and 5 workers. In the final part of the text, these supervisors are identified as rab ḫanšû. One of the tasks of these supervisors was to return some of the muṣiptu within the month of Elūlu, probably the date established for completion of the work. The returning of the clothes to the temple – in this particular case, the Eanna – is undisputable proof that institutions possessed clothes, presumably kept in their storerooms, which they would distribute among dependents when work was to be done.

A particular feature of muṣiptu, probably shared with the guzuuzu clothing item, was that they could be rolled up. In the text Nbk. 369, we read: 1en _DUMP_ ki-ir-ka₂ _DUMP_ guzuuzu _DUMP_ muṣiptu “a bed (with) rolled up guzuuzu and muṣiptu.” Dar. 530 reads: _DUMP_ a-ra-an-mu _DUMP_ muṣiptu “ki-iš-ki, where it is evident that rolled up (kišku) muṣiptu were gathered in a basket (arannu).

As to how muṣiptu were used, the information found in letter BIN 1, 6 is particularly surprising:

**BIN 1, 6**

**Obverse**

1. im 𒈪šil-la-a a-na
2. SUMER ur-a nin-šú
3. SUMER 𒈪en 𒉃ag šu-šum šá
4. nin-šú liq-du-ú
5. 1en 𒈨šab-bat
6. bab-ba-ní-tí
7. ina 𒈪mu-šip-tí
8. eb-bé-tí

67. The rab ḫanšû (CAD H, 81) is the head of a team of 50 workmen or soldiers. A typical team was composed of ten men under the supervision of a rab eširti; cf. CAD E, 365.
68. As was the case for túg-kur-ra, cf. Nbn. 290: 9 túg-kur-ra ta šu “nine túg-kur-ra in the storeroom (bīt qāti)”. For bīt qāti, see CAD Q, 199 and Joannès 2010, 401.
69. Quillien 2013, 22.
71. The garment called šabbatu, mentioned in earlier periods as a luxury clothing item, is never mentioned in Neo-Babylonian documents, except in this case: cf. CAD Š1, 8 s.v. šabattu.
72. In the Neo-Babylonian period, the verb for “sewing” is kubbû; cf. CAD K, 482-483.
73. CAD T, 68.
74. Veenhof 1972, 41-44.
75. šir-a-am raš-su-ú u ka-an-gu-ú “a šir’am packaged and sealed” (YOS 21, 31:1.10).
on the evidence of BIN 1, 6 and on the basis of other considerations, it is reasonable to affirm that μυσίπτυ is a length of an inexpensive textile used as a garment, but also to wrap things up (possibly by sewing it) and protect fine clothes during transportation.

The term μυσίπτυ also occurs as a designation for garments worn by various members of Babylonian society. In several textual sources we learn of μυσίπτυσ used as female garments. For example, in Dar. 575, a slave woman called Mušezibtum receives a μυσίπτυ,76 and the legal text BM 10345277 refers to the stealing of a μυσίπτυ belonging to a woman named Rišāya, possibly a widow:

BM 103452

6. m₃ki₄-tutu-tin a-šú ml-ba-ši a-na da-na-na a-na č
7. a-na muh-ḫi-ia ki-i i-ru-ub
   it-ṭi-ra-an-ni
8. u m₄ṣip-ti⁻ia it-ta-šī

“Ifitti-Šamaš-balāṭu, the son of Lābāši had broken into my house by force, he beat me, took away my μυσίπτυ.”

A garment of the μυσίπτυ type is mentioned in connection with animal husbandry in BE 8, 106. Here a slave, charged with pasturing cows, receives food rations and a μυσίπτυ from the rē’û (herdsman) Nabû-mukīn-zēri for carrying out the task.

Finally, μυσίπτυ are prominently featured in apprenticeship contracts, for example Cyr. 64:

Cyr. 64

1. ūnu-up-ta⁻a dumu.sal-su šá m₄mu⁻da₄mar. utu a m₄zálag⁻30
2. m₄at-kal-a-na₄da₄mar.utu lu₄qal-la šá m₄ki⁻da₄mar.utu-tin
3. a-šú šá m₄ag-šeš⁻mex₄mu a m₄e-gri⁻bi a-na
   lu₄iš⁻pa-ru⁻tu
4. a-di 5 mu.an.na₄mes₄a-na m₄e⁻kar₄šú₄
5. šá m₄ap-la⁻a a m₄en-e⁻ṭe⁻ru-ta-ad-di⁻in
6. iš⁻pa-ru⁻tu gab-bi u⁻lam⁻mad-su
7. ṭu₄p.pi ṭu₄p⁻pi u₄₄ma 1 qa pad.hi.a ū
8. m₄ṣip-tu₄ ūnu⁻up-ta⁻a a na m₄at-kal-a-na₄da₄mar.utu
9. ta-nam-din ...

“Nūptāya, daughter of Iddin-Marduk, son of Nūr-Sīn, has given Atkal-ana-Marduk, the slave of Itti-Marduk-balāṭu, son of Nabû-ahhē-iddin of the Egibi family, to Bēl-ēṭer son of Aplāya son of Bēl-ēṭeru, for learning the weaver’s craft for a period of 5 years. For the entire period of his training, Nūptāya will give daily one qū of bread and a μυσίπτυ to Atkal-ana-Marduk […]”

Apprenticeship contracts are typical of the Late Babylonian period.78 They consist of a contract between a free citizen and a master craftsman. The citizen entrusts his or her son, daughter or slave to the master for a given period of time for training in a specific craft. Once taken in charge, the practitioner’s keep is paid for by the parent or owner, not the tutor, who in some cases also receives additional payment. The μυσίπτυ-garment is one of the most frequently mentioned items among the provisions given to the apprentice, whereas túg-kur-ra or uzāru-garments79 are mentioned, albeit rarely, among the goods given to the teacher in payment, but never μυσίπτυ.

šīr‘am

The šīr‘am-garment occurs quite frequently in Mesopotamian documents. It originally was exclusively an item of military apparel, a cuirass of sorts. It is mentioned as such, for example, in EA 22, a text from the El-Amarna period (ca. 1350 BC):

EA 22, col. III

37. 1 šú sa-ri⁻am zarab 1 gur⁻si⁻ib zarab ša lu

76. m₄ṣip-tu₄ m₄gi⁻ir⁻ki a-na m₄mu⁻se⁻zib⁻tum ū-kār⁻[tam] (Dar. 575 ll. 10-11)
78. J. Hackl has dealt extensively with this theme in Jursa 2010, 700-725.
79. uzāru appears in apprenticeship contract BOR 1, 83, túg-kur-ra in Cyr. 313.
5. Ordinary People’s Garments in Neo- and Late-Babylonian Sources

38. 1 šu sa-ri-am ša kuš 1 gur-si-ib zabar 39. ša là za-ar-gu-ti …

“1 bronze cuirass set, 1 bronze helmet for a man, 1 leather cuirass set, 1 bronze helmet for the sarku-soldiers”

In the Neo-Babylonian period, the šir’am is still part of the military uniform, but also occurs among the garments worn by civilians. Neo-Babylonian cuneiform sources quite commonly mention šir’am as military apparel:

Dar. 253


“12 túg-kur-ras, 12 šir’am, 12 karballatās, 12 nūṭus, 24 šenu”

Dar. 253 enumerates the items making up the equipment of 12 soldiers, and is thus a valuable example of the composition of a military uniform. The specific function of each item is well known, not only thanks to abundant data in epigraphic sources, both coeval and from other periods, but also and especially thanks to the availability of iconographic sources that one can compare with textual ones. The persistent depiction of fully armed and clad soldiers in Neo-Assyrian palace reliefs is certainly the most informative source for a comparison between the Akkadian term and the actual garment it designated.

In military uniforms, the túg-kur-ra is a used as underwear and placed under the šir’am. The best translation for šir’am seems to be the one proposed by J. MacGinnis, who renders the Akkadian term as ‘jerkin.’ Soldiers wore it either as a simple wool garment or as a cuirass reinforced with pieces of metal. As regards the šir’am as a cuirass, one text more than any other, UCP 9, 271, adds important information, as it mentions a sir’anni (= šir’am) reinforced with iron (parzillu). A šir’am of cloth could be a jerkin, but also a tunic of sorts. This is borne out by Neo-Assyrian reliefs where archers, in particular, wear a long dress reinforced with plates. The karballatu, made of wool or linen, is the most frequently mentioned headwear in Neo- and Late Babylonian documents. The above-cited text UCP 9, 271 mentions a karballatu ša sir’anni. This suggests that there was a connection between karballatu and the iron šir’am. It is possible that the headwear was somehow connected to the jerkin, or that the expression karballatu ša sir’anni alludes to the fact that the karballatu is of metal, just like the šir’am. The two remaining elements – which were made of leather, since the term is preceded by the determinative kuš – are nūṭu and šenu. The former term designates a bag used to carry goods, while the latter was normally employed for footwear.

Túg-kur-ra and šir’am (often mentioned together with karballatu, nūṭu and šenu) were not merely elements of military apparel; they were also worn by individuals undertaking long journeys (šidītu) at the behest of the temple or the palace. A good example of this is BM 78828, where some carpenters (naggāru) receive túg-kur-ra and šir’am garments that they may travel to a military camp (madāktu). As F. Joannës had already noted, there existed a broad range of šir’am: for men (šir’am ša zikāri in Evetts Ner. 28) and for women (šir’am ša kitī amīlī in Evett’s Ner. 28); of linen (šir’am ša kitī in TCL 9, 117); red-dyed (šir’am ša tabāri in Nbn. 661), blue-dyed (šir’am ša inzahrēti in YOS 7, 7), or of purple-dyed wool (šir’am ša šiḫṭē me.da in GC 1, 299); fine šir’am worn as undergarments (šir’am šupālītu ešētu babbanītu in Nbk. 12); and luxury šir’am.

81. The same translation is used by Zawadzki 2010, 414.
82. Janković 2008, 453, gives the same translation.
83. See for example Paterson 1915, Plate 14.
84. CAD K, 215.
86. MacGinnis 2012, no. 35.
87. The carpenters were probably headed to a military camp to repair wooden objects, such as boats; cf. Zawadzki 2008, 334-335.
worn as outer garments (šīr’am elēnītu murrūgītu babbanītu in AJSL 16, 73 no. 16). This piece of evidence enables us to conclude that the šīr’am was used in Babylonian society both as an ordinary garment — there are quite a few testimonies of šīr’am worn by slave men or women — and as a fine one. Šīr’am may have had different values depending on how they were manufactured. This is suggested by some documents indicating their prices:

**YOS 19, 242**

1. 1/3 1/2 gín kū babbar 4 tūg-kur-ra
2. ā 1 tūg šīr-‘a-am a-na 10 gín kū babbar
3. pap 1/2 ma-na 1/2 gín kū babbar šām ē

“1/3 (mina) half shekel, 4 tūg-kur-ras and 1 šīr’am for 10 shekels. The house price is in total half 1/2 and 1/2 a shekel”

In YOS 19, 242, the price of the šīr’am can be interpreted in two different ways: the ten silver shekels may be the price of the šīr’am alone, or the overall price of the šīr’am and the tūg-kur-ra. Both interpretations pose problems, of a different order. If we assume the ten shekels to be the price of the two items together, we are unable to determine the exact price of either. If, instead, we assume the ten shekels to be the price of the šīr’am alone, it appears to be too high compared to the other recorded prices for a šīr’am.

### Conclusions

The aim of this article was to investigate a field fraught with insurmountable hurdles. The main difficulty besetting a study of clothing worn by ordinary people is that epigraphic documents provide little information about the lives of those who do not belong to the upper echelons of Babylonian society. In the rare cases when Babylonian common people are mentioned, their role is merely accessory, their actions only being noted down because they are correlated to individuals or events worthy of being recorded.

Another extremely complicated question is that of terminology. The clothes of common people are often generically described as ‘dress’ or ‘garment.’ Tūg-kur-ra and muṣiptu, in particular, are used in this generic way. It is thus hard to understand, in the lack of a clear textual context, whether a muṣiptu in a given document is just any clothing item or the clothing item thus designated.

The best sources on the wearing of tūg-kur-ra, muṣiptu and šīr’am by common people are texts recording their donation to groups of people, such as workmen or soldiers. In exceptional cases, some particular categories of workers to whom specific clothing items were assigned can be discerned. As we have seen, tūg-kur-ra, besides being a garment donned by workmen and soldiers was also donated to wet nurses as part of their sustenance. The muṣiptu was worn by workmen, but above I have indicated one case where it was used in an animal husbandry
context. More importantly, as we have seen, *muṣiptu* are regularly featured in apprenticeship contracts. Finally, *šir’am*, like *túg-kur-ra*, were worn by workmen and soldiers, and it appears it was not unusual for them to be worn by slaves, on the evidence of a number of textual sources.

The present essay, following in the wake of S. Zawadzki’s study on clothes in non-cultic contexts, is a first attempt to investigate clothes worn by common people in Babylonian society. I hope it will provide a stimulus for further research, confirming or contradicting what I have stated in the previous pages.

**Abbreviations**

ADOG Abhandlungen der Deutschen Orient-Gesellschaft


AJSL *American Journal of Semitic Languages and Literatures*

AO tablets in the collections of the Musée du Louvre, Paris

AfO *Archiv für Orientforschung*

AOAT Alter Orient und Altes Testament. Neukirchen-Vluyn

BE Babylonian Expedition of the University of Pennsylvania, Series A: Cuneiform Texts

BIN Babylonian Inscriptions in the Collection of James Buchanan Nies


BM Tablets in the collections of the British Museum

BRM Babylonian Records in the Library of J. Pierpont Morgan

CAD The Assyrian Dictionary of the Oriental Institute of the University of Chicago. Chicago 1956-2010


CM Cuneiform Monographs

CT Cuneiform Texts from Babylonian Tablets in the British Museum

CTMMA Cuneiform Texts in the Metropolitan Museum of Art


GC 1 R. P. Dougherty, *Archives from Erech*, *Time of Nebuchadnezzar and Nabonidus*. Goucher College Cuneiform Inscriptions 1. New Haven 1923


ITT Inventaire des tablettes de Tello

JCS *Journal of Cuneiform Studies*

JSS *Journal of Semitic Studies*

KASKAL Rivista di storia, ambienti e culture del Vicino Oriente Antico

N.A.B.U. *Nouvelles assyrilogiques brèves et utilitaires*

NBC Tablets in the Nies Babylonian Collection, Yale University Library

NCBT Tablets in the Newell Collection of Babylonian Tablets, Yale University Library


OIP Oriental Institute Publications

the Oriental Institute Collection. Chicago 2003

PIHANS  Publications de l’Institut historique et archéologique néerlandais de Stamboul

RA  Revue d’assyriologie et archéologie orientale

TC  Textes cappadiennes du Louvre (Paris)

TCL  Textes cunéiformes du Louvre


UCP  University of California Publications in Semitic Philology


YOS  Yale Oriental Series – Babylonian Texts


UVB  Vorläufige Bericht über ... Ausgrabungen in Uruk-Warka

Bibliography


Flax and Linen Terminology in Talmudic Literature

Nahum Ben-Yehuda

Material culture data is mentioned in Talmudic (or ‘rabbinical’) literature when a relevant legal (‘halakhic’) or homiletic (‘midrashic’) context arises. Therefore, certain details may be lacking or ambiguously stated. This however is not presented in a systematic and detailed manner, such as in ‘Pliny’s Natural History’. Additional classical authors mention flax and linen. First and foremost: Diocletian in his edict of maximum prices. And in less scope and detail: Xenophon, Virgil, Strabo, Columella, Pausanias, and Theodosius II – in his codex. In some instances, these sources may be useful for comparison, contrast and clarification – to Talmudic sources.

It is difficult to gauge the exact societal extent of the phenomena mentioned in this literature, however it may be assumed that they can be viewed as a representative sampling, or reliable cross-section of the material culture found in contemporaneous society in those periods (c. 2nd - 5th centuries AD) and regions (Land of Israel and Babylonia). This premise is unaffected by the academic disagreement which exists regarding the extent to which Talmudic laws were actually practiced by the general populace outside of the sphere of the Sages themselves. There is, however, academic consensus regarding those aspects of material culture which are described in this literature as reflecting Sitz im Leben.

Historiography based upon Talmudic literature source material is a complex and challenging science. It will encompass aspects such as the use of various Aramaic dialects, the identities, backgrounds, times and locales of tradents and the legal and homiletic contexts in which the material culture data is presented. Nevertheless, these are outside of the scope of the current paper, which will focus strictly on material culture itself.

The principal rabbinic works from which data is

1. This research was assisted by grants from the Memorial Foundation for Jewish Culture and “Targum Shlishi” Foundation – for which I am grateful. I offer my thanks to Professor Steven Fassberg, Professor Leib Moskowitz, Dr. Yitzhak Shlesinger, Professor Michael Sokoloff, and Dr. John Peter Wild for their respective good advice and patience with my numerous queries.
3. (244-311 AD)
4. (430-354 BC)
5. (70-19 BC)
6. (64 BC-24 AD)
7. (4-70 AD)
8. (110-180 AD)
9. (401-450 AD)
10. One who is responsible for preserving and handing on the oral tradition, in this case the Rabbis or “Sages”. Oxford Bible Studies Online.
gleaned include: Mishna, Tosefta, Mekhilta, Sifra, Sifre,\textsuperscript{11} Jerusalem Talmud,\textsuperscript{12} Babylonian Talmud,\textsuperscript{13} Midrash Bereshit Rabba, Midrash Tan\textsuperscript{j}uma,\textsuperscript{14} and Aramaic ‘Targums’\textsuperscript{15} of the Pentateuch and Hebrew Bible. Each of these works embodies content originating in various periods, some of them long before the date of their respective final redactions.

Pioneers in this field of Talmudic material culture research in general, and textiles specifically, were Gustav Dalman,\textsuperscript{16} R.J. Forbes,\textsuperscript{17} Abraham Herszberg,\textsuperscript{18} Samuel Krauss,\textsuperscript{19} and Saul Lieberman.\textsuperscript{20} Since then, our knowledge of Roman-era textiles has been greatly enhanced, due to research advances\textsuperscript{21} in the fields of archaeology, botany, iconography and philology. Notable among those whom have contributed to this field are Yehuda Feliks,\textsuperscript{22} John Peter Wild,\textsuperscript{23} Daniel Sperber,\textsuperscript{24} Ze’ev Safrai,\textsuperscript{25} and Michael Sokoloff.\textsuperscript{26} All of the above will be accounted for in the current paper.

Flax-linen\textsuperscript{27} production: \textit{longue durée}

Reconstruction of the complete flax-linen \textit{chaîne opératoire} may be performed by comparison and cross-checking flax-linen production in the Land of Israel\textsuperscript{28} with that in various other regions and periods, such as Ancient Egypt,\textsuperscript{29} Roman-era Europe, Asia Minor and Egypt, Roman,\textsuperscript{30} and Medieval Iberia,\textsuperscript{31} and modern-day Northern Ireland and Great Britain,\textsuperscript{32} Croatia,\textsuperscript{33} Lithuania\textsuperscript{34} and Flanders.\textsuperscript{35} In light of parallel descriptions, we can deduce that the processes of flax-linen production are \textit{a longue durée} phenomenon with quite similar \textit{chaîne opératoire}, notwithstanding some minor variations. This basis corroborates the Talmudic information, enables filling of any gaps and enhances clarification of ambiguities which may exist therein.

An additional benefit of this deduction is that the implements historically used in the various stages of

\begin{itemize}
\item\textsuperscript{11} Final redactions of these five works: \textsuperscript{3}\textsuperscript{rd} century AD, Land of Israel.
\item\textsuperscript{12} (Also known as the Palestinian Talmud, or Talmud of the Land of Israel) Final redaction: \textsuperscript{c}. 4\textsuperscript{th} century AD, Land of Israel.
\item\textsuperscript{13} Final redaction: \textsuperscript{c}. 6\textsuperscript{th} century AD, Babylonia.
\item\textsuperscript{14} Final redactions: \textsuperscript{c}. 5\textsuperscript{th} century AD, Land of Israel.
\item\textsuperscript{15} ‘Translations’. Final redactions: \textsuperscript{c}. 3\textsuperscript{rd}-5\textsuperscript{th} centuries AD.
\item\textsuperscript{16} Published 1937.
\item\textsuperscript{17} Published 1956.
\item\textsuperscript{18} Published 1924.
\item\textsuperscript{19} Published 1945.
\item\textsuperscript{20} Publications 1939 - 1968.
\item\textsuperscript{21} Research in textile history and archaeology has advanced in recent years, partly thanks to research consortia such as CTR, NESAT, Purpurreae Vestes, DressID, TRC, CIETA, and the Archaeological Textile Review (ATR).
\item\textsuperscript{22} Publications 1963 - 2005.
\item\textsuperscript{23} Publications 1963 - present. Several additional publications relevant to this paper are listed in the bibliography.
\item\textsuperscript{24} Publications 1974 - present.
\item\textsuperscript{25} Publications 1977- present.
\item\textsuperscript{26} Publications 1974 - present.
\item\textsuperscript{27} The term “flax” in this paper indicates the plant \textit{Linum usitatissimum} and its derived fiber. “Linen” in turn indicates yarn and cloth derived from that fiber. This is in accordance with ASTM Designation: D 6798-02 Standard Terminology Relating to Flax and Linen.
\item\textsuperscript{28} Amar 2002 (160, 331, 336, and 340) tracks the cultivation and use of flax in the Land of Israel from the Byzantine Period (330 AD) through the Muslim conquest (640 AD and onwards) and up to the Middle Ages.
\item\textsuperscript{29} Vogelsang-Eastwood 1992.
\item\textsuperscript{30} Alfaro 1984, 49-58
\item\textsuperscript{31} Córdoba De La Llave 1990, 85-93. Veiga de Oliveira 1978, 8-23. In addition, presented there is a detailed essay on modern flax-linen production in Portugal.
\item\textsuperscript{32} Warden 1967, 248-680.
\item\textsuperscript{33} Cruickshank 2011.
\item\textsuperscript{34} Meek 2000.
\item\textsuperscript{35} DeWilde 1999.
\end{itemize}
manufacture, which have indeed become more sophisticated or mechanized with time, but their respective basic functions remain essentially the same. One may choose, therefore, to illustrate Talmudic era production processes with implements from other periods and regions when contemporaneous and local illustrations are not available.

A noticeable exception to the above rule is modern field or dew retting\(^{36}\) as opposed to historical pool retting. The hot dry climates of Egypt and the Land of Israel\(^{37}\) proximate to the flax-pulling season do not enable the growth of fungi essential for to this process, in contrast to the respective damp temperate climates of Western and Eastern Europe. Therefore, field retting apparently did not and does not exist in the regions generally relevant to Talmudic literature.\(^{38}\)

**Detailed chaîne opératoire** (with respective occupational names)

\{1\} \(^{39}\) Soil preparation  
\{2\} Sowing (Sower)  
\{3\} Weeding (Weeder)  
\{4\} Commerce – of plants currently growing in the field.\(^{42}\)(Trader, Merchant) This procedure is optional, for the flax may be further processed by the farmer (and his family) himself.\(^{44}\)  
\{5\} Pulling, uprooting (Puller)  
\{6\} Drying, stooking (Stooker)\(^{46}\) This procedure is optional, for sometimes the flax straw is already

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37. Pausanias, Elis I, v. 2-5: “The fine flax of Ellis (Approximately 38° N. latitude, 70 M elevation) is as fine as that of the Hebrews, but it is not so yellow.” Assumedly he is referring to the flax fiber. Pool-retted flax in the hot climate of the Land of Israel (Beth Shean is 32.5° N. latitude, 121M below sea level elevation) produces blond-colored fibers. Dew-retted fibers range in color from ecru through dark gray. (NBY) See Carter 1920, 32: Different colors of flax under various water-retting conditions.

38. Freckman 1979, 91-102: Retting could be undertaken in ponds or tanks – or simply by long exposure in the fields. Dew retting in the climatic conditions of modern and historical Mesopotamia is a topic which has not yet been researched (NBY).

39. For the significance of the various types of parentheses and brackets used in this paper, see “Symbols” *infra*.

40. Pliny, Book 19, chapter 2: “Flax is chiefly grown in sandy soils, and with a single ploughing. No other plant grows more quickly: it is sown in spring and plucked in summer, and owing to this also it does damage to the land.” Bradbury 1920, 39-41. Carter 1920, 19. DeWilde 1999, 19-22.

41. Columella Book II. x.17: “Flax-seed should not be sown unless it yields a heavy crop and brings a good price in the region where you farm; for it is particularly hurtful to land. For this reason it requires a soil which is very rich and moderately moist. It is sown from the first of October to the rising of Aquila, which falls on the seventh day before the Ides of December 6. An *iugerum* of land is sown with eight modii of it. Some hold that it should be sown in poor land, and very thickly, so that the flax may grow with a more slender stem. The same people also say that if it is sown in rich ground in February, ten modii should be broadcast to the *iugerum.*” Vogelsang-Eastwood 1992, 5 mentions that flax is sown in Egypt in mid-November. That is nearly identical to the sowing date in the Land of Israel, in contrast to Spring sowing in many other regions. DeWilde 1999, 32-29. Feliks 1963, 149 examines the dates for sowing flax in the Land of Israel. On p. 156 he discusses the proper density of seeds necessary to obtain the desired non-branching plants.

42. Columella Book II. xii.5: “Eight or ten *modii* of flax seed are sown with four days ploughing, harrowed with three days’ work, weeded with one, and pulled with three, the total amounting to eleven days’ work.”


44. Safrai 1994, 229; “A number of sources also indicate that the wife of a farmer, who raised sheep or cultivated flax, would sell clothes woven from either wool or linen.” Presumably, she herself either performed the labors herself or supervised them being performed on site.

45. Pliny, Book 19, chapter 3: “With us the ripeness of flax is ascertained by two indications, the swelling of the seed or its assuming a yellowish color. It is then plucked up and tied together in little bundles each about the size of a handful, hung up in the sun to dry for one day with the roots turned upward…” Vogelsang-Eastwood 1992, 45 provides an illustration of Ancient Egyptian flax pulling. DeWilde 1999, 49-64. Feliks 1963, 197-198 examines the dates for pulling flax in the Land of Israel. On p. 219 emphasis is placed on the method of harvesting – by pulling, not cut with a sickle as grain crops.

dry when pulled and suitable for retting, or is retted while still moist.

(7) Binding, stacking, storing (with seed bolls still attached to their stems).\(^{47}\) This procedure is optional, for the flax straw may be deseeded and retted immediately after pulling.

(8) Transport of the flax straw to site of deseeding.\(^{48}\) Transport in antiquity was executed by porter, donkey or camel.\(^{49}\) This procedure is possible, not mandatory, as deseeding may be performed on-site, without need for transport at this stage. (Porter, Cameleer, Donkey driver)\(^{50}\)

(9) Commerce – in pulled and dried flax straw. This procedure is possible, not mandatory, as further stages of production may be performed by the farmer himself. (Trader, Merchant)

[10a] Crushing seed bolls [with a mallet] – to deseed before retting (the retting process would ruin the seeds, rendering them unusable for sowing the next year).\(^{51}\) (Crusher)

[10b] Rippling [with a “ripple”- a comb with widely spaced tines] seed bolls from the remainder of the flax plant, to deseed before retting.\(^{52}\) Sometimes flax straw is retted without deseeding, either when the seeds are immature due to early pulling (in order to obtain very fine fibers), or when new seeds are purchased to sow each year, rendering deseeding extraneous.\(^{53}\) Only one of the above two procedures is performed.\(^{54}\) (Rippler)

{11} Rebinding – in preparation for subsequent pool retting.\(^{55}\)

[12a] Pond (or: pool, pit) retting (or: steeping, watering)\(^{56}\). In this process, bacteria such as Clostridium butyricum and/or Clostridium pectinovorum\(^{57}\) which are naturally present in the environment multiply and create a culture, in turn producing the enzyme pectinase which dissolves the naturally-occurring pectin present in the flax stalks and has glued the fibers together. Only after this procedure, can the further processing of the flax...
be done. Removal of the flax straw from the retting liquor must be done at the proper time, by an expert. Early removal, while the flax is still under-retted, will render fiber separation impossible. Second-retting can rectify this situation, but is obviously time and money-consuming. Late removal from retting will cause the fibers themselves to be damaged (a state which is irreversible) by the enzyme and unfit for further use. The retting process is malodorous, and the acidic effluent may leach into adjacent soil thus causing damage to crops. (Retter)

[12b] Drawing (or pulling out) of the retting pond, and transport to the drying area.

[12b'] Ringing out the excess retting fluid, to expedite drying.

[12c] Dew (or field) retting. In this process, fungi such as Alternaria alternate or Alternaria linicola reproduce in warm and moist conditions, and disintegrate the pectin of the flax straw, enabling subsequent fiber separation. This method is suitable in some European and Russian climates and in widely used in modern production, in place of pond-retting. Egypt and the Land of Israel are both unsuitable for this manner of retting, due to their respective hot and arid climates, which deter fungus growth, adjacent to the season of flax pulling.

[13] Drying (or: grassing, spreading) and gaiting (erecting ‘chapels’, and subsequent rebinding). Drying is essential after pool retting, before subsequent processes of fiber separation.

[14] Transport – to (and from) the scutching mill. In antiquity, this was executed by porter, camel or donkey. This procedure is possible, not mandatory, for scutching may have been done adjacent to the retting pool. (Porter, Cameleer, Donkey driver)

[15] Commerce – of retted and dried flax straw. Again, this procedure is possible, not mandatory, as subsequent fiber processing may be done by the retter himself. (Trader, Merchant)

[16] Breaking (or ‘braking’) – preliminary separating of the flax fibers by breaking up the woody parts of the stalks, using a mallet or similar implement. (Braker)

[17a] Roughing – combing or hackling by hand to remove woody impurities and short fibers and to square them on the root end thereby producing a piece of flax which could be gripped by the hacklers with improved yields as result. Apparently, this terminology and separate procedure were traditionally used only in Northern Ireland, and in other regions would be included in scutching. (Rougher)

[17b] Scutching – scraping, batting, shaking and/or flailing the flax fibers to begin their alignment and remove remaining woody impurities and short fibers. The product of this procedure is “scutched line” (long fibers) and the by-products produced are “scutched (coarse) tow” and coarse shives. (Scutcher)

[18] Hackling – combing the scutched flax fibers in series of ‘hackles’ (combs) with increasingly compact tines, to remove the remaining short fibers and shives, and to straighten them in preparation for spinning. The product of this procedure is ‘hackled line’ (long fibers), and the by-products are ‘hackled (fine) tow’, and fine shives. In modern industry, the hackled line is converted into continuous ribbons – ‘sliver’, and subsequently given a slight twist – ‘roving’, in preparation for spinning. (Hackler)

[19] Transport – to the spinning mill. (Porter, Cameleer, Donkey driver) An optional procedure. In antiquity, it is possible that most or all of the intermediate stages of production were done in the same vicinity, by the farmer and his laborers.
6. Flax and Linen Terminology in Talmudic Literature

(20) Commerce – line, tow, and shives. Commerce at this stage is optional, as above. (Trader, Merchant)

(21) Spinning. In antiquity, as today, flax was often wet-spun, utilizing water or saliva to soften the fibers. This will produce a finer quality yarn, and in turn finer cloth. In modern industry; ‘line’ (long fiber) is spun wet, dry or semi-wet; and ‘tow’ (short fiber) is usually spun dry. Plying (or: ‘doubling’) may also be done wet for certain applications. (Spinner)

(22) Transport – as above, to the weaver. (Porter, Cameleer, Donkey driver)

(23) Commerce – in spun yarn. (Trader, Merchant)

(24) Weaving (Weaver)

(25) Boiling (and bleaching) – may be done at different stages of production: hackled fiber (in modern industry – sliver or roving), spun yarn, or as a post-loom process to woven cloth. Boiling, which is an integral part of some historical and modern production processes - and is often integrated with bleaching, softens the fiber and further dissolves remaining impurities such as pectin and wax, and thus enables a finer yarn to be spun, When performed after weaving, this improves the handle of the woven cloth. (Bleacher, Boiler)

(25a) Beetling woven cloth may be (wetted and subsequently) beaten with a mallet or similar implement, in order to provide it with a smoother tactile surface and visual sheen. Pliny the Elder mentions that, in antiquity, this was also done to yarn. In the modern era, this is considered a procedure characteristic to Northern Ireland. (Beetler)

(25b) Polishing – rubbing with a glass, stone or bone implement to give smoothness and sheen to the cloth. Initially this may be performed after weaving and subsequently after each laundering. In the medieval period this was practiced in Western Europe, and in the early-modern era, is considered a characteristically Scandinavian procedure.

(26) Transport of woven cloth. (Porter, Cameleer, Donkey driver)

(27) Commerce of woven cloth. (Trader, Merchant)

(28) Rope, cord and twine manufacture – by two possible different methods: ‘laying’ (or: ‘twisting’) or ‘plaiting’ (or: ‘braiding’).

(29) Production of other end products – nets, garments, and various textile applications.

(30) Laundering and post-laundry treatment of linen textiles.

Linguistic and etymological fundamentals

This paper focuses on the Hebrew and Aramaic language flax production terminology in Talmudic literature. Nevertheless, the language of the Hebrew Bible is a predecessor dialect, and will be presented herein. Standard Biblical Hebrew (SBH) is the stratum of

67. Curchin 1985, 35 quotes Diokletian 32.26 that “raw flax was purchased in bundles”, but this partial text offered by Graser 1959, is omitted by Lauffer 1971. DeWilde 1999, 200-201.

68. Carter 1919, 213-239.

69. Sándor Nagy, managing director, Hungaro-Len spinning mill, personal correspondence. In addition, fine linen spun threads may be cold-water polished. Plied linen twines may be hot-water polished with added starch.


71. Wild 1967, 656 mentions “linyphi” – the linen-weavers of Scythopolis, as liable to the state levy (publico canoni obnoxii).


76. Pliny book 19, Chapter 3: “...Then it (the fiber) is polished in the thread a second time, after being soaked in water and repeatedly beaten out against a stone, and it is woven into a fabric and then again beaten with clubs, as it is always better for rough treatment.”


79. Theodosian Code 8.5.48: “(Coarse) linen and cloaks... shall no longer be dispatched by carriages but by (express) postwagons or boats... But the other delicate garments and the (fine) linen for cloaks... shall be sent by (express) carriages... The additions in parentheses are after Wild 1967, 662. Forbes 1956, 43 mentions that in Ancient Egypt flax was transported in bundles or bales.

language used in the relatively early books of the Hebrew Bible, prior to the Babylonian exile, and often embodies Egyptian loanwords. Late Biblical Hebrew (LBH) is used in relatively late books of the Hebrew Bible, during and after the Babylonian exile, and is increasingly influenced by Aramaic.\textsuperscript{81} In these two linguistic strata, there are several different terms referring to flax-linen.

**SBH terminology of flax-linen**

*Aḏ*\textsuperscript{82}

**Etym:** Of unknown etymology.\textsuperscript{83}

Selected HB pericopes:

He shall be dressed in a sacral *aḏ*\textsuperscript{84} tunic, with *aḏ* breeches next to his flesh, and be girt with a *aḏ* sash, and he shall wear a *aḏ* turban….\textsuperscript{85} (Leviticus 16:4)

Samuel was engaged in the service of the Lord as an attendant, girded with a *aḏ* ephod. (I Samuel 2:18)

One said to the man clothed in *aḏām*,\textsuperscript{86} who was above the water of the river… (Daniel 12:6)

It is currently impossible to discern the textile differentiation between this and the term *šős*, both of which have the identical LBH (and Targumic) parallel – *būṣ* (infra).

**Kūtōneṯ > Kūtōnōṯ.** Construct state: \textit{Ktōneṯ > Kōtnōt}

**Etym:** This term originates from the Akkadian *kītu*, *kītū*, *kītinton* – linen, flax, or linen garment; and the Aramaic *kītan*.\textsuperscript{87} It subsequently became the Greek *χιτών*, and later the Latin *tunic* – after metathesis.\textsuperscript{88} It is the name of a garment, originally made of linen, but later on became a generic name for a shirt-like tunic made of any textile material.\textsuperscript{89} Sometimes a modifier is used\textsuperscript{90} to specifically indicate a linen garment.\textsuperscript{91}

Selected HB pericopes:

And the Lord God made skin *kōtnōt* for Adam and his wife, and clothed them. (Genesis 3:21)

You shall make the fringed \textit{ktōneṭ šeš}… (Exodus 28:39)

He shall be dressed in a sacral \textit{ktōneṭ} *aḏ*… (Leviticus 16:4)

\textit{Nōōret}\textsuperscript{92} – flax tow. Short fibers, often with remnants of shives, usually of lesser value.\textsuperscript{93}

\textsuperscript{81} Hurvitz 2014, 3-4.

\textsuperscript{82} *Aḏ* is a homonym in HB with four meanings: 1) linen cloth, 2) a branch or pole, 3) a part or portion, 4) a lie, boasting. Apparently there is no connection between them. Nevertheless, Murtonen 1990, 105 suggests that all shades of meaning are derived from the basic notion of separation, and the word for fine linen fits that pattern on the assumption that it originally referred to a piece of linen.


\textsuperscript{84} TO (Pentateuch), TY (Prophets) both consistently translate *aḏ* as *būṣ*, or the determined *būṣā*. The term *aḏ* is not used independently in Talmudic literature, excluding Biblical quotes and their respective Talmudic discussions.

\textsuperscript{85} LXX, VUL, KJV, NIV: linen. RVR: lino. LUT: leinenen.

\textsuperscript{86} Masculine plural form


\textsuperscript{88} Kutscher 1961, 98.

\textsuperscript{89} HALOT Vol. 2, 505

\textsuperscript{90} Presumably, all of the Kūtōnōṯ mentioned in priestly vestments’ context (Exodus, Leviticus, Ezra, and Nehemiah) are made of linen. Additionally Kūtōnōṯ, mentioned in Genesis, Exodus, and II Samuel may not be linen. Ezekiel Ch. 44 describes these priestly vestments using the term ḥīḏī ṭîfîm, and does not use the term “kūtōneṭ”. Ezekiel also uses the alternative terms: Šeš (16:10, 16:13, 27:7) and Būṣ (27:16) albeit in other contexts.

\textsuperscript{91} The Aramaic Targums - Onqelos, Neofiti and Pseudo-Yonatan - of the Pentateuch consistently translate this term using the respective parallel Aramaic forms e.g. Kîtûnîn, Kîtûnūn, Kōtnûn, etc.

\textsuperscript{92} TY consistently translates this term kītānā. *Nōōret* (and its Aramaic parallel dāqṭā) appear in Talmudic literature in several contexts (infra).

\textsuperscript{93} The production of hemp and jute fibers also creates tow. These textile materials are not present in HB Sitz im Leben. The contexts of hemp in Talmudic literature infer to its production process being similar to that of flax.
6. Flax and Linen Terminology in Talmudic Literature

Etym:94 Something which is shaken out or shaken off, as is done in scutching and hackling.95

HB pericopes:

… Whereat he pulled the tendons apart, as a strand of n*ōref comes apart at the touch of fire…96 (Judges 16:9)

Stored wealth shall become as n*ōref, and he who amassed it a spark; and the two shall burn together, with none to quench. (Isaiah 1:31)

Pištā

Eytym: This is the basic consonantal form of a Semitic term, a primary noun.97 It is found in the non-vocalized Gezer Calendar from 10th century BCE.98 Its vocalized variants are as follows:

a) Pešēt – “flax”. In HB, found only in Hosea. This is a dialectic variation, possibly of Phoenician influence.99

… I will go after my lovers, who supply my bread and my water, my wool and pištā,100 my oil and my drink. (Hosea 2:7)

b) Pištā

1) A collective, comprehensive designation – “all of the flax”, or “flax in the field”.101

Now the pištā and the barley were ruined, for the barley was in the ear and the pištā was in bud.102 (Exodus 9:31)

2) Nomen unitatus – i.e. a single example of a class – “a flax fiber”, “a flax plant”.103

… they lay down to rise no more, they were extinguished, quenched like pištā.104 (Isaiah 42:17)

c) Pištīm – linen. This morphological plural-like form indicates a natural/raw product when represented in a manufactured condition.105

Selected HB pericopes:

The cloth, whether warp or woof, in wool or pištīm, or any article of leather in which the affection is found, shall be burned…106 (Leviticus 13:52)

… Go buy yourself a loincloth of pištīm, and put it around your loins…107 (Jeremiah 13:1)

They shall have pištīm turbans on their heads and pištīm breeches on their loins…108 (Ezekiel 44:18)


95. A probable BT synonym, and certain Syriac synonym – “sᵊrāqtˀā” – indicates “something which has been combed out”. DJBA 833, ASR 1051.

96. Cf. Judges 15:14 for similar phrasing, albeit the text uses the term pištīm and TY translates kitānā.

97. HALOT, 983.


100. “… my flax”. With suffixed possessive pronoun – first person. Also Ibid. verse 11. TY translates both as būṣ.


102. TO translates kitānā.

103. Kautsch ibid. HALOT ibid.

104. JPS translates “a wick”. Also Ibid. 42:3. TY translates both occurrences būṣīn (plural form).


106. TO consistently translates pištīm as kitān or the determined kitānā.

107. TY translates pištīm as kitān (or the determined kitānā) or būṣ. In contrast to TO’s translation consistency, i.e. pištīm = kitān.

We have not found the key to resolve which translation was chosen by TY for each specific context.

108. LXX, VUL, KJV, NIV: linen. RVR: lino. LUT: leinenen. Examination of the Aramaic Targums to the HB indicates that šes, bāḏ, būṣ, and pištīm (and kitān) are interchangeable terms, thus casting doubt upon English translations of “fine linen” or “white linen’ vs. (plain) “linen” in various contexts. The Aramaic Targums’ collective advantage over other translations is their continuous diachronic tradition of Biblical Hebrew.
Šeš

Etym: An Egyptian loanword – šš with the clothing determinative.

Selected HB pericopes:

… Pharaoh put it on Joseph’s hand; and he had him dressed in robes of Šeš... (Genesis 41:42)

You shall make the fringed tunic of Šeš. You shall make the headdress of Šeš. (Exodus 28:39)

… Her clothing is Šeš and royal-purple. (Proverbs 31:22)

L BH terminology

Būṣ – The LBH parallel to Šeš and Bāḏ.

Etym: “The distribution pattern of the Akkadian busu indicates that it is a newcomer on the Akkadian linguistic scene ... Although its ultimate origin has not yet been definitely established, its geographical diffusion points to a northern milieu.”

Or, a Kulturwort of unknown origin.

Selected HB pericopes:

… with a magnificent crown of gold and a mantle of būṣ and royal-purple. (Esther 8:15)

… and the families of the būṣ factory at Beṣ-ṣašba’ā. (I Chronicles 4:21)

All the Levite singers, Asap, Heman, Yeduṯun, their sons and their brothers, dressed in būṣ. (II Chronicles 5:12)

109. Šeš appears only once independently (not as an explanation of a Biblical text) in Talmudic literature. Tosefta Tractate Mᵊnaḥoṯ 9:17, in context of the raw materials used to produce articles required for use in the Temple. This subchapter states that “šes” (sic) – required for priestly vestments – is pištān (flax), and if they are produced from qanabūs (hemp), they are unfit (and therefore forbidden) for use. I am not aware of an explanation for the use of this term there. Qanabūs is familiar to the Mishnah (Tractates Kīlˀayīm 9:1 and Nᵊgaˁīm 11:2) as a textile fiber similar to flax.

110. Lambdin 1953, 155. Murtonen 1990, 439. Kadari 2006, 1150. Gesenius 1987, 1534. HALOT, 1663 entry III: “Homonymous with the Egyptian loanword for limestone alabaster. Both share the same property in that they are dazzling white.” Loanwords may change from their exact original meaning in transition from the donor language to the recipient language. Therefore, Šeš in HB may not necessarily be “dazzling white”. Actually, the color white is not mentioned in context with garments anywhere in the HB, as it is in other contexts, e.g. “teeth” (Genesis 49:15), “manna” (Exodus 16:31), skin and hair affections (Leviticus 13 passim). Notably, Mishna Yoma chapters 3 and 7, indeed describes the high-priest’s vestments used on the Day of Atonement as being white, in contrast to his daily vestments which are multi-colored. Rabbinic literature does not define the degree of whiteness of these garments, as it does regarding affections of the skin. (Mishna Nᵊgaˁīm Ch. 1, 1.)

111. TO (Pentateuch), TY (Prophets), and the Targum of Proverbs – all consistently translate šeš as būṣ, or the determined būṣa.

112. LXX, VUL, KJV, NIV: fine linen. RVR: lino. LUT: weißer Leinwand.

113. Hurvitz 2014, 50. TO (Pentateuch) and TY (Prophets) – all consistently translate šeš and bāḏ (in their textile contexts) as būṣ, or the determined būṣā.

114. Hurvitz Ibid.


116. This term is used in Talmudic literature rarely, and in only three specific contexts: 1) The white vestments of the High Priest, worn during his parts of his service in the Jerusalem Temple on the Day of Atonement, (Mishna Yoma Chapter 3, subchapters 4 and 6, and parallels in Sīfrā and the Talmuds); 2) The curtain or screen (sāḏīn) used in the Temple on that same day to conceal the High Priest while he is doffing and donning his vestments. (Ibid. Chapter 7, subchapter 1, and 3) A curtain used in the Temple to conceal the procedure in which a women suspect of adultery (“sōṭā”) has her head bared. (Numbers 5:18, Sīfrei BaMīdbār chapter 11) This philological phenomenon may be explained thus, that both the Yoma and Sōṭā respective ceremonies’ descriptions are relatively ancient literary works – from the second Temple period – in relation to most other content in Talmudic literature (Mellowed 1973, 61-62). Therefore, ancient second Temple biblical terminology was selected, instead of the regular Mishnaic pištān. A hapax is the Nomina agentis used in Geonic literature – būṣaʾei infra.

117. Parallel to Genesis 41:42 supra.

118. A guild, factory or workshop. Demsky 1966, 213-214

119. Parallel to Leviticus 16:4 supra. LXX: linen. VUL, NIV: fine linen. KJV: white linen. RVR: lino fino. LUT: feiner Leinwand. We have commented (supra) on this usage.
The evolutionary process of the regular Rabbinical Hebrew term for flax-linen *pištān* – is as follows. The HB term *pištā* was adopted as the basis, and subsequently the final character “nun” was added to close the ultimate open syllable. This is a familiar linguistic-phonetic phenomenon in later Hebrew dialects. Following are several similar examples:

<table>
<thead>
<tr>
<th>Hebrew Term</th>
<th>English Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pīštā (Exodus 9:31)</td>
<td>Flax (RH passim)</td>
</tr>
<tr>
<td>Y’hūgā (Genesis 29:35, passim)</td>
<td>Yūdān (RH passim)</td>
</tr>
<tr>
<td>Kaisāreia (Greek)</td>
<td>Resārī (RH passim)</td>
</tr>
<tr>
<td>Sepphoris (Greek)</td>
<td>Šīpōrī (RH passim)</td>
</tr>
<tr>
<td>M’qiddō (Joshua 12:21, passim)</td>
<td>M’qiddōn (Zekhariah [LBH] 12:11)</td>
</tr>
<tr>
<td>Yᵊhūḏā (Genesis 29:35, passim)</td>
<td>Yūdān (RH passim)</td>
</tr>
<tr>
<td>Kaisāreia (Greek)</td>
<td>Ṣīpōrī (RH passim)</td>
</tr>
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</tr>
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<td>M’qiddō (Joshua 12:21, passim)</td>
<td>Ṣīpōrīn (RH passim)</td>
</tr>
<tr>
<td>Ślōmō (II Samuel 12:24, passim)</td>
<td>Solomon (KJV passim)</td>
</tr>
<tr>
<td>Šlōmō (II Samuel 12:24, passim)</td>
<td>Šlemun (Syriac)</td>
</tr>
<tr>
<td>Ṣīpōrī (RH passim)</td>
<td>Šlemun (Syriac)</td>
</tr>
<tr>
<td>Ṣīpōrīn (RH passim)</td>
<td>Šlemun (Syriac)</td>
</tr>
</tbody>
</table>

Unfortunately, the HB differentiation between flax and linen is lost in Mishnaic Hebrew. *Pištān*, as well as kītān in Aramaic, indicate both flax and linen, and therefore require a suitable interpretation in each context.

Modern languages vary in this same aspect:

- **Some differentiate:**
  - English: Flax – Linen
  - Hungarian: Len – Vászon
  - Swedish: Lin – Linne
  - German: Flachs – Leinen
  - Dutch: Vlas – Linnen

- **Others do not differentiate:**
  - Spanish: Lino
  - Russian: “лён” - in transcription [le’n]

In the continuation of this linguistic process, the noun *pištān* may become adjectival by *nisba* form, i.e. the addition of the suffix “-ī”, hence “*pištānī*” – flaxen, or “related to flax”. By addition of “man”, in Hebrew – “*ትס*, “*תס* *pištānī*” = “a man dealing with flax”. With nominalization, “*TLS*” is omitted, and “*pištānī*” retained, now forming an occupational name (Nomina agentis). The occupational name does not indicate what specific activity is done, e.g. flax-farmer, flax-worker, flax-producer, flax-trader or flax-transporter – only “*flaxman*” or “*flaxist*”, quite similar to the Spanish “linero”. Again, additional information must be gleaned from textual context, and may be translated using periphrasis. The Aramaic parallel to *pištānī* is *kitānāi*. There are additional forms of occupational names in Hebrew, e.g. qāṭṭāl, qaṭlan, qaṭōl, and the use of the participle - *qōṭel*. All have applications in our context.

### Glossary of Talmudic flax-linen terminology

The terms are arranged in accordance with the stages in the chaîne opératoire with which they are affiliated. When a number of possible affiliations are applicable, such will be indicated.

Selected quotes from rabbinic literature will be cited.

**Procedures**

Entries are presented alphabetically, in Semitic triconsonantal verbal root form.
We do not find in Talmudic literature specific occupational names: “linen weaver” (or “wool weaver”) as in Greek λινοπλόκος or λινουργός. Nevertheless, two foreign-originated terms for weavers are fairly common in Talmudic literature: Ṭarsi (a weaver originally from Tarsus?) [DJPA 231] and Gardi (from the Greek γερδιός) [DJPA 135. DJBA 283, 299]. Further research is required to assess if, in Talmudic literature, either term indicates one who weaves linen. See: Blackwell 1974, 359. Rosenfeld & Meidan 1999. Wild 1969.


Here serving as an active participle.

Cf. “There is an art of combing out and separating flax: it is a fair amount for fifteen ... to be carried out from fifty pounds’ weight of bundles; and spinning flax is a respectable occupation even for men. Then it is polished in the thread a second time, after being soaked in water and repeatedly beaten out against a stone, and it is woven into a fabric and then again beaten with clubs, as it is always better for rough treatment.” (Pliny’s Natural History, Book XIX, Chapter III)


Cf. ghṣ infra.

For various types of nets, see: Denton & Daniels 2002, 233. These were probably knotted nets, which are suitable for trapping animals. See: Davidson 2012, 6.

I am uncertain exactly how to explain this technique, literally “braided”. (NBY)

Cf. dqq, nqš and ktš supra.

Rashi BT Kṣübōt 10b (s.v. gihûṣ) identifies this as: “lischier – with a glass stone” (Catane 1996, 92). There is currently no firm evidence that this procedure was actually practiced in the Land of Israel or Babylonia during the Talmudic period.
In the Land of Israel one should purchase – for his wife, as a festival gift – (“mʳʳᵍⁿ’hᵃⁿš”) pressed linen garments.” (BT Pṣᵃ’hᵐ 109a). “Linen garments are not restricted from (“ᵍⁱⁿˢ”) being pressed adjacent to the fast of Aḇ’” (BT Tᵃⁿⁱᵗ 29b).(25b), (28)

**hbl** (Hb). To steam, in order to soften and/or bleach flax. “…It is forbidden to place (“ᵘⁿⁱⁿ”) [moistened and] hackled flax fibers into the oven on Friday, unless they (“ʸᵃʰᵃᵇⁱˡᵘ”) steam before (the entrance of Šᵃᵇᵇᵃṯ in) the evening…” (25)

**kbr** / lbn

**kbš** (Hb, Ar). To press.139 [See: Mᵃᵏᵇᵉš *infra*] “On the Sabbath, it is permitted to open (or “release”) a homeowner’s press, but not to begin (“ᵏᵒᵇᵊˢ”) pressing. A professional fuller’s press may not be touched.” (Mishna Šᵃᵇḇᵃṯ 20:5) DJBA, 551. DJPA, 249.

**kbs** (Hb). To launder.140 “Linen garments are permitted (“ˡᵊᵏᵃᵇˢᵃⁿ”) to be laundered during the intermediate days of the Festival”. (BT Mᵉᵉḏ Qᵃᵗᵃⁿ 18a)(28)

**kss / ḱkṣs**142 (Hb, Ar). To rub or knead (with the fingers) a linen garment after laundering, in order to soften and whiten it. (28) “Is it permitted to (“ˡᵊᵏᵃˢᵏᵒˢᵉⁱ”) rub a (“ᵏᵗᵃⁿⁿᵗⁱ”) linen tunic on the Sabbath? …If one’s intention is to soften it, then it is permitted. But if the intention is to whiten it, then it is prohibited.” (BT Šᵃᵇᵇᵃṯ 140a) DJBA 592.

**ktš ↑ ḷqq**

**lbn** (Hb) ± **kbr** (Ar). To bleach, literally “to whiten (“ᵏʳʳ”) = with sulfur). “Hackled flax fibers (become susceptible to halakhic impurity) after they have been (“ᵐⁱˢᵉʸᵗˡᵃᵇᵇⁿᵘ”) bleached.” (Mishna Nᵍᵃⁿⁱᵗ 11:8) “…dᵉʳᵉᵇʳᵉⁱ ḵᵃʳʳᵒʸᵉⁱ…” They have certainly been (sulfured) bleached. (BT Bᵃ’hᵃ Qᵃᵐᵃ 93b) DJBA 551.143(25)

**mḥy ↑ ṭrg**

**mzr** (Hb, Ar). To spin yarn.146 “One who has had ‘a fit of jealousy and is wrought up’ about his wife, that she has ‘secretly gone astray’ must divorce her and remit the kᵗᵗᵘᵇᵃ only if this has been gossiped about by the women (“ᵐᵒᶻᵊʳᵒᵗ”) whom are spinning by moonlight.”(Mishna Sᵒᵗᵃ 6:1). In JT Sᵒᵗᵃ 20d it is offered that the following are variant readings of this verbal root. DJPA 311, 326, 543. (Cf. “Mᵃᵐᶻᵒʳ” *infra*)

→ **mˢʳ**146 (Hb, Ar). To spin wool yarn. “One who reads “ᵐᵒˢᵊʳᵒᵗ” – understands the text to indicate ‘spinners (f.pl.) (“ᵐᵃˢʳᵃⁿ”) of wool.’” (JT ibid.)

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138. Or spun yarn. See: *ᵗⁿⁱⁿ* *infra*.

139. Further research is required to determine to what extent linen garments were pressed in this fashion, in comparison to wool. Flohr 2013, 116-117, 145-148 describes this process and its respective apparatus in detail. The “homeowner’s press” is not mentioned.

140. Flohr 2013, 63-64 leans toward the position that linen garments were not usually laundered by a professional *fūllo*.

141. This may refer to either the Festival of Unleavened Bread, or the Festival of Booths. Generally speaking, laundering (among other secular and time-consuming activities which should be performed before the festival) is prohibited during this period, in order to both ensure that the entry to the festival will be with an honorable appearance, and to preserve free time to rejoice. Several explanations have been offered regarding this specific permit: 1) Linen garments soil quickly even if they were (as required) laundered immediately before the festival. (Linen garments were as a rule white – in contrast to woolens which were dyed - so that soiling was quite noticeable, and considered dishonorable particularly during a festival – NBY.) 2) Laundering linen garments is relatively easy and not very bothersome. (In contrast with laundering and fulling wool garments, which is both difficult and time-consuming – NBY.)

142. Originally from a biconsonantal root - just two root letters (kˢ), which subsequently became a triconsonantal or quadriconsonantal root by either gonomating the last letter (kˢ) or reduplicating both root letters (kˢkˢ).

143. Sokoloff assigns this to linen, notwithstanding the local context of wool.

144. Translation of Numbers 5:13-24 - after JPS.

145. Marital monetary compensation obligated by rabbinical law.

146. The second radical shifts from “z” to the phonetically similar “ṣ”.
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147. The relationship between the verbal roots √mzr and √šzr may be based upon the Akkadian biconsonantal verb ‘zâru’ – to twist, (CAD z 72) and adjective ‘zēru’ – braided, plaited. (CAD z 89).

148. Perhaps this is also a hapax nomen agentis: nppṣ (Hb) ≈ nāppṣˀā (Ar) (BT Yᵊḇāmōṯ 118b).

149. This is a rare usage of pqˁ (3 or 4 times in Talmudic literature), as opposed to other, more frequent meanings: “to rend (tear), to unravel, to break, to confiscate, etc.” – all destructive. In this instance, the meaning is converse – constructive, i.e. “to build or manufacture (rope)”. This is an example of one verbal root which expresses both a meaning and its opposite meaning. The other sources for this meaning are: JT Sūkkā 55g, Bereshit Raba 68:12. The consonant shift from “p” to “b” is (alternation of voiced and non-voiced counterparts) is common.

150. Cf. ḫeḇel.

151. The only other occurrence is in this same tractate 4:11.

152. Cf. Wipszycka 1965, 23: “The artisans boiled flax (hackled fiber), in large vases of clay or metal in water containing oil and sodium carbonate (Na2Co3) which formed a kind of soapy substance… Finally, they would sponge (wringing out) and wash the flax, wrapping the tangles around poles and exposing them to the sun decomposed coloring and fats.” I have not found any parallel to this description – NBY. See also Liebermann 1939, Part IV, P. 68, footnote 32 at end.

153. This festival falls in March-April, adjacent to the season of flax pulling in the Land of Israel. Retting is done as soon as possible after pulling the dry straw. In addition, the warm temperatures at this time are suitable to support the necessary bacterial culture for retting. The other festival which has intermediate days is the Festival of Booths, which falls in September-October, months after pulling flax, and the temperatures are too cool to support the bacterial culture. Labor is permitted during the intermediate days of a festival, in order to prevent monetary loss. In this case, flax which is not pulled out of the water at the correct time will be over-retted and therefore almost worthless. The exact time of pulling is difficult to plan, as it depends on climatic and other natural conditions.
6. Flax and Linen Terminology in Talmudic Literature

srq (Hb, Ar). To comb, hackle, or ripple flax. “(The wadi) where the calf’s neck has been broken) may not be sown nor tilled, but it is permitted to (‘līsroq’) comb there flax.” [10b], [18] DJPA 339. DJBA 832 2#. See: Sereq infra.

šry156 (Hb) ± try (Ar). To steep (ret) flax in water. “It is prohibited to bring flax straw from outside of the country (Land of Israel) and (‘sōrīn’) ret it in the country.” (Tosefta Śᵊḇīˁīṯ 4:19). “After he saw that they were using it (the water drawn out by a ‘water wheel’ on the Sabbath) for (‘tārū’) retting flax, he forbade it.” (BT Ērūḇīn 104b).[12a] DJPA 591. DJBA 1233 2#.

šzr ↑ mzr

šry↑šdy (Ar). To spin flax (or wool) yarn. “As one (f.) who lifts her left arm to spin flax…” (Mishna Nᵊgāˁīm 2:4). “Flax which was spun by a woman during her menstrual period… if it was (still) damp, one who moves it is rendered halakhically impure.” (Tosefta Tāhōrōṯ 4:11). “He saw Orpah’s mother, and she is (‘āzlā’) spinning flax…” (Midrash Tehilim 18:30). {21} DJPA 102, 496, 849-850. DJPA 322, 401.

žr↑mrz (Hb) ± šdy (Ar). To sow. “One who leases a field from another for only a few years is prohibited to (‘yīzrāˁenā) sow flax…” (Mishna Bāḇā Mᵊṣīˁā 9:9). “I go and (‘šāḏenā’) sow flax and make nets…” (BT Bāḇā Mᵊṣīˁā 84b). “Raḇ saw a man that was (‘šāḏeh’) sowing flax on (the holiday of) Pūrīm…” (BT Mᵊgīllā 5b).{2} DJBA 1111.13.

Workplaces

Bei Kitānā (Ar). An area (where an unspecified activity is performed) of flax. “A bill of divorce

154. After Deuteronomy 21:4, JPS translation: “…and the elders of that town shall bring the calf down to an everflowing wadi (creek), which is not tilled or sown. There, in the wadi, they shall break the calf’s neck.”

155. It may be assumed that the intention is to rippling, before the flax straw is to be retted in the adjacent everflowing wadi (creek). A parallel reading, Midrash Tanaim to Devarim 21:4, mentions also “laying out wool fleece and flax fibers to dry”. Perhaps, according to that version, the flax was also scutched and hackled on site, after being retted in the wadi (creek). And perhaps all three of these combing processes were performed there.

156. See also: Miṣrā infra workplaces.


158. In the Land of Israel, flax ripens during March-April, and may coincide with this festival (whose date is based on the lunar calendar). Not all labors are permitted during the intermediate days, but if the flax is not pulled on time, it will continue to develop thicker and less valuable fibers, which incurs a monetary loss for the farmer.

159. Peshitta (Syriac targum to the Pentateuch) translates plied linen (Exodus 26:1, passim) as “sāzīlā” (passive determined participle, serving as an adjective). ASR 1090. The nomen agentis derived from this root is “āzlāmāyā” – a spinner (m.s.). DJBA 102.

160. Dampened – with her saliva, as historically used for wet-spinning flax. See also Lieberman 1967, 262-263, Ketuβoṭ Ch. 5 - “One shall not compel his wife to spin flax.”

161. After Ruth 1:4 “They married Moabite women, one named Orpah…”

162. After II Samuel 21:16 “…and Ishbi-benob tried to kill David.”
was found in “an area of flax” in Pumbedita…” (BT Gitin 27a, BT Bahan M’shārā 18b). DJBA 199, 208 #1, 6.

→ **Dūkṭā ḫekā d’tarû kītānā** (Ar). A place where flax is steeped. (See: ṭryv supra, Mišrā infra). “…some say that it was an area (“ḫekā ḫtarû kītānā”) in which flax is retted, and convoys (passersby) are not present…” (Ibid.). [12a]

→ **Dūkṭā d’m’zabnei kītānā** (Ar). A place where flax is sold.”…some say that it was an area in which (“d’m’zabnei kītānā”) flax is sold…and convoys (passersby) are present…” (Ibid.). (9), (15), (20), (23), and/or (27).

**Ḥanwāṯā** (Ar f. pl.). Stores, workshops, or guild offices.163 “At the (“ḥanwāṯā”) workshops of (“kītānā’y”) flaxmen there was a meeting…” (JT Pe’ē 16a, Leiden codex). DJPA 208, 460. DJBA 473, 967 #2.164

**Mišrā** (Hb). A rettery165 - place of steeping (retting) flax. “One may draw out his flax from the (“mišrā”) rettery during the intermediate days of the Festival of Unleavened Bread in order to prevent it from being damaged…”166 (Mischna Mō’ē qed Qāṭān 2:3). [12a]

**Tools and implements**

**Ṭōr** (HB). A hide (leather) apron. See: Kāttān infra, and various uses for an apron in flax manufacture.

**Koš ha-ʿArbelī** (Hb). A spindle167 that was probably used in the town Arbel168 for spinning relatively coarse flax. The whorl of this spindle is more firmly attached to the shaft than a regular flax spindle. “Koš ha-ʿArbelī – its parts are considered fastened together for applications of susceptibility to halakhic impurity, and the sprinkling of the ‘water of lustration’…” (Tosefta Pārā 12:16){21}

**Koš šel pīštān** (Hb). A spindle used especially for spinning regular flax (in contrast to one designated to use for rope or for coarse flax). The whorl is relatively loosely attached; therefore each part should be sprayed separately. Nevertheless, if it happened that one part has been sprayed (while the implement is assembled), the entire spindle has still been purified. (Tosefta Pārā supra, Mishna Pārā 12:8 and Maimonides commentary ad. loc.){21}

163. See: I Chronicles 4:21“families of flax/linen-workers” – guild, factory or workshop. After Dernsky 1966, 213-214. See also: Theodosian Code 10-20-6 “… guild of imperial weavers, either a linen weaver or a linen worker …” Ibid. 10-20-8 “Scythopolitan (Hebrew: Beth Shean) linen workers” – are probably a guild. Safrai 1994, 225: “… the store or shop is synonymous with the workshop.” Kashar 1979, 311-313 and 1985, 352-353 describes Jewish textile guilds in the Land of Israel. Retzlaff & Mjely 2004, 40 report that a section of the 3rd century AD odeum of Gerasa Trans-Jordan (50 km east from Beth Shean) was designated by inscription: “The place of the linen-workers”. This was most likely the section in which guild members were seated.

164. From available literary context, it is impossible to determine exactly which activities of the chaîne opératoire usually took place there.


166. Safrai & Lin 1988, 129-162, 171, 178-180. Ancient facilities which have been tentatively identified as a rettery have been discovered in Kibbutz Geva.

167. Koš literally means shaft, spindle or stick. In this context it probably indicates the entire spindle, including whorl, stick and possibly hook.

168. Leibner 2009, 257-258. Cf. Bereshit Rabba 19:1 “Garments (or textile products) of linen made in Arbel – what is their worth? What is their price?” This is in contrast to the linen products produced in Beth Shean (Sicythopolis) – the center of production of fine linen in the Land of Israel, which are “very fine and therefore ignite (or become soiled by ashes) easily”. These products are alluded to in Bereshit Rabba 32:3, Codex Vatican 30. See: ṭkēt and ṭnḵē. Diokletian consistently ranks Sicythopolis-produced linen garments as the highest quality and consequently most expensive. XXVI 13-63, 78-134. XXVII 8-22, 16-30. Lauffer 1971, 168-177. In accordance, “Expositio totius mundi et gentium” (c. 459 AD) ranks Sicythopolis as the source of finest quality linen clothes. Stern 1974-1984, 497. Possible reasons for the production of inferior linen products in Arbel have been presented in Ben-Yehuda N. 2011. “The Mysterious Flax Industry of Arbel” (unpublished, in Hebrew).

169. HB Numbers 19:3 “A man who is clean shall gather up the ashes of the cow and deposit them outside the camp in a clean place, to be kept for water of lustration for the Israelite community. It is for cleansing.”
Māʾārōḵā (Hb ~ Ar). A pestle, or rolling pin used for crushing seed pods or braking flax straw.\textsuperscript{170} “That flaxman … when using a (“māʾārōḵā”) pestle (on the Sabbath), is liable for the labor of grinding…” (JT Šabbāt 10a). DJPA 323.’{16} See: ktš\textsuperscript{v}.

Māḥbeš (Hb). A clothing press.\textsuperscript{171} (See kbš\textsuperscript{supra}) (28)

Māṣreq šel pīštān (Hb). A comb, hackle or ripple for flax (in contrast to that used for wool).\textsuperscript{172} “A (“māṣreq šel pīštān”) comb for flax, if some of its teeth have been broken off, and two remain it is still susceptible to halakhic impurity…” (Mishna Kelīm 13:8). [10b] {18}

Mei Mišrā (Hb). The water (or: “liquor”) of the retting process. See: šry\textsuperscript{v}. “One whom is reciting (“Qᵊrīˀaṯ Šᵊmāˁ”)…shall not do so while he is immersed in foul-smelling water or (“mei mīšrā”) retting liquor,\textsuperscript{174} unless he dilutes them.” (Mishna Bᵊrāḵōṯ 3:5) [12a]

Nāwlā ≃ Nāḥāl dᵊkitān\textsuperscript{174b} (Ar). Loom. “One must not place a loom which being used for wool near a (“nāḥāl dᵊkitān”) loom which is being used for flax,\textsuperscript{175} because of the dangling yarns (that may become attached to one another)”. (JT Kīlˁā'īm 32a) {24} DJPA 344. DJBA 735 #1.

Qāsīyā.\textsuperscript{176} Leather glove(s), worn by a flax worker. See: ūsei pīštān \textit{infra}.

Qōpnā (Ar < κόπανος Gr).\textsuperscript{177} A mallet\textsuperscript{178} used for braking flax straw or crushing seed pods. This context does not infer the use of Qōpnā for beetling, although a similar implement may be used for that purpose. “That flaxman who uses a (“qōfnā”) mallet on the Sabbath is liable for the labor of threshing” (JT Šabbāt 10a). DJPA 483 (hapax). [10a] {15} (25a) See: dwš\textsuperscript{v}, dqq\textsuperscript{v}.

\begin{center}\textbf{Materials and products}\end{center}

\begin{center}\textbf{Raw materials}\end{center}

Pīštān (Hb) ± Kītān ~ Kītānā (Ar). Flax, linen (\textit{Limum usitatissimum}). Passim. DJBA 579. DJPA 257.

Qānābūs (Hb) ± Qīnbā (Ar). Hemp (\textit{Cannabis sativa}). “…also the (“pīštān”) flax-linen and the (“qānābūs”) hemp, when they are blended together\textsuperscript{179}…” (Mishna Nᵊg̱ āˁīm 11:2, Kīlˁāyīm \textit{infra}). DJBA 1014.

Ṣemer (Hb) ± ḍāmar ~ ḍāmrā (Ar). Sheep’s wool (\textit{Ovis aries}). “There is no prohibition of mixed species (in garment context) other than (“ṣemer”) (sheep’s) wool and (“pištīm”) flax-linen…” (Mishna Nᵊg̱ āˁīm 9:1, Nᵊg̱ āˁīm \textit{infra}) DJBA 870. DJPA 411.

Ṣemer Gefe\textit{n} (Hb) ± ḍāmar Gūfnā (Ar). Cotton

\textsuperscript{170} In Mishna Kelim 15:2 this refers to a baker’s rolling pin.

\textsuperscript{171} See: Sperber 2014 and Granger-Taylor 1987 for description of this implement and its use. Additional research is required to examine its specific usage for wool and linen garments.

\textsuperscript{172} See Wild 1968 for a discussion of the roman flax-hacke. Barber 1991, 14 illustrates a possible ancient flax hackle.

\textsuperscript{173} This prayer-like recitation consists of passages from the HB, and therefore is considered holy and must be performed in a clean environment.

\textsuperscript{174} Kozłowski 1992, 252-253. The odor is a result of toxic and acidic gases which are released during water retting.

\textsuperscript{174b} The w/ḇ labial consonant alternation is a familiar phenomenon in Mishnaic Hebrew due to their similar or identical pronunciation (Steve Kaufman, personal correspondence). Sharvit 2016, 288-291

\textsuperscript{175} We do not currently have information regarding the exact construction of these looms themselves, and if it varies from a “wool loom” to a “flax loom”.

\textsuperscript{176} Etymology unknown.

\textsuperscript{177} See Georgacas 1959, 257: λαναροκόπανος – “wooden beater of flax.

\textsuperscript{178} Vogelsang-Eastwood 1992, 12 presents illustrations of possible flax mallets.

\textsuperscript{179} The literal context (and current textile science) indicate that these two fibers are similar in appearance and feel, and therefore compatible to be blended together.
“This proselyte is similar to (‘āmārā ḫūfā) ‘grape wool’ (cotton), whether you want to put it with (‘īmārā) wool – that is permitted, or with (‘ḵūtānā) flax – that is also permitted…” (JT Qidūšin 64c). DJBA 870. DJPA 411.

Arranged according to chaîne opératoire.

Possibly ⚫.

Based upon HB Deuteronomy 24:19 “When you reap the harvest in your field and overlook a sheaf in the field, do not turn back to get it; it shall go to the stranger, the fatherless, and the widow…” Flax is considered a food crop in this context, as the (ground) seeds are edible and edible oil can be extracted from them.

The regulation is that roofing for the festival booth, must be of non-edible vegetable matter, in its natural state. Flax straw is considered natural, whereas flax fiber is considered a manufactured product, and therefore unsuitable.

Rashi ad. loc. offers an additional interpretation: “The son worked with sheaves of flax and therefore neglected his study of Tora.”

The fowl must be ritually slaughtered before consumption.

180. Talmudic terminology related to various silks and other minor fibers is not within the scope of the current paper.

181. Arranged according to chaîne opératoire.

182. Possibly ⚫.

183. Based upon HB Deuteronomy 24:19 “When you reap the harvest in your field and overlook a sheaf in the field, do not turn back to get it; it shall go to the stranger, the fatherless, and the widow…” Flax is considered a food crop in this context, as the (ground) seeds are edible and edible oil can be extracted from them.

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185. Rashi ad. loc. offers an additional interpretation: “The son worked with sheaves of flax and therefore neglected his study of Tora.”

186. Safrai 1994, 194. See also: Lieberman 1967, 290 ad loc. for a different, albeit unlikely, interpretation.

187. The fowl must be ritually slaughtered before consumption.
Flax and Linen Terminology in Talmudic Literature

6. Flax and Linen Terminology in Talmudic Literature

188. Liddell & Scott 1996, 1658: στυππειον – tow, oakum. Appropriate Greek suffixes form nomina agentis: tow-dealer, tow-maker, and tow-worker. These specific occupational names do not exist in Hebrew. Cleland, Davies & Llewellyn-Jones 2008, 113 provide differentiation between fine linen fabrics "amorginon" (made from long fibers – "line"), and coarse ones "stuppinon" (made with short fibers – "tow"). Three grades of tow are mentioned (from fine to coarse) by Diokletian XXVI, 1-3, Lauffer 1971, 169.

→ Gaša (Hb). Coarse (scutched) tow (probably with shives). “It is permissible to cover up food (to keep it warm on the Sabbath) with (‘dāqā’) fine tow. Rabbi Yehuda prohibits (‘gāsā’) fine tow and permits (‘gāsā’) coarse tow.” (Mishna Šabbāṯ 4:1).[17b] 

→ Daqā (Hb). Fine (hackled) tow (probably without shives). See previous entry. {18}

→ Dāqtā (Ar). Fine (scutched) tow (probably without shives). “A live fowl that fell on (‘dāqātā’) fine tow, there is concern that it has been internally injured, and is subsequently unfit for use as (edible) poultry.” (BT Ḥūlīn 51b). DJBA 349. [17b]

→ Daqqāqtā (Ar). Very fine (hackled) tow (without shives). “A live fowl that fell on (‘dāqqāqtā’) very fine tow, there is no concern that it has been internally injured, and is subsequently fit for use as (edible) poultry.” (BT Ḥūlīn 51b). DJBA 348. {18} {22} {24} {29?} 

189. The last three descriptions of different grades of fine tow may overlap.

190. JT Māˁserōṯ 52g quotes this Mishna, but reads: “pīštān sārūq” (hackled flax). “ˀānīṣ” and “sereq” could be of overlapping meaning. In any case, sereq is a mass noun, in contrast to ˀānīṣ, which is a count noun.

191. Perhaps this is a narrow fabric, woven with a belt loom or tablets. The parallel Tosefta (5:22), in place of sereṭ (‘band’ or ‘ribbon’), reads “sereq” (flax sliver). Cf. supra. Perhaps sliver was used as part of a belt (?).


193. After HB Leviticus 13:47 “When an eruptive affection occurs in a cloth of wool or linen fabric…”

194. Nine grades of linen yarn are mentioned (from fine to coarse) by Diokletian XXVI 4-12, Lauffer 1971, 169.

Nōreṯ (Hb) ± Srāqtā (Ar). Flax tow. “How did they ignite the beacons? They brought long poles of cedar-wood, reeds, pine-wood (“oilwood”) and (“nōreṯ šel pīštān”) flax tow, which they wrapped with twine …” (Mishna Rōš Hā-Šānā 2:3). “A fast is effective for dissipating a (bad) dream, just as fire rapidly burns (“nōreṯ”) tow.” (BT Šābbāṯ 11a). DJBA 833 (- corrected according to ASL 1051)

→ Ḥūṭ Pīštān (Hb) > Ḥūṭei ± Ḥūṭa DᵊKītānā ± ˁAzil (Ar). Linen yarn or string. “One who has vowed not to don linen is permitted to cover himself with (‘ˀānīṣei pīštān’) flax fibers.” (Mishna Nᵊdārīm 7:3). “One who has found abandoned (“ˀānīṣei pīštān”) flax fibers – they belong to him…” (Mishna Bāḇā Mᵊṣīˁā 2:1).[17b] {18} See: Sereq infra.

Sereq (Hb). Flax sliver. “One who is suspected that he violates the laws of the Sabbatical Year – it is forbidden to purchase from him flax even (‘sereq’) sliver, but spun or woven material is permitted.” (Mishna B’ḵōrōṯ 4:8). {18} See: ˀānīṣ supra.

Sereṭ (Hb). Band or ribbon. “It is prohibited to tie together a (‘sereṭ’) ribbon of wool and a (‘sereṭ’) ribbon of flax to use as a belt, even if there is a leather strap between them.” (Mishna Kīlˀāyīm 9:9). {18} {24} {29?}

ˀān > ˀūn (Hb). A hank (or: ‘skein’) of spun linen. “…and the (‘ˀūnīn’) after they have been bleached…will be susceptible to the impurity of an eruptive affection”. (Mishna Nōga’im 11:8 and Maimonides commentary ad loc.) “[Utensils which are permitted to be loaned out during the Sabbatical Year, notwithstanding their conventional use for currently forbidden agricultural products, because it is possible that they will be employed for a permitted use, for example]… an oven to conceal therein ˀūnīn of pīštān…” (JT Šᵊḇīˁīṯ 36a). {21} 

ˀānīṣ > ˀānīṣin > ˀānīṣei (construct state) ≈ ˁānīṣ, ˁānūṣ (Hb). Scutched or hackled flax fibers. “One who has vowed not to don linen is permitted to cover himself with (‘ˀānīṣei pīštān’) flax fibers.” (Mishna Nᵈārīm 7:3). “One who has found abandoned (“ˀānīṣei pīštān”) flax fibers – they belong to him…” (Mishna Bāḇā Mᵊṣīˁā 2:1).[17b] 

… See: Sereq infra.

See: Sereq infra.
found a (“ḥūṭ’a d’kītānā”) linen yarn in his woolen cloak and pulled it out. He wasn’t sure if it had been entirely pulled out or not…” (BT Nīḏā 61b). “One who makes a tunic entirely of camel hair or rabbit hair, and wove one strand of woolen yarn on one side and one strand of (“ḥūṭ piśṭān”) linen yarn on the other side – the garment is forbidden.” (Tosefta Kīlāyīm 5:12). “A woman shall not go out on the Sabbath with (“ḥūṭei śemer”) wool yarns or (“ḥūṭei piśṭān”) flax yarns or laces in her hair. (Mishna Šābbāṯ 6:1). DJPA 401. DJBA 436. {21}

Joseph (Hb - RH196). Spun material (thread, yarn, etc.). “One who is suspected of violating the laws of the Sabbatical Year, it is forbidden to purchase from him flax, even it is hacked. But it is permitted to purchase (“ṭwy”’) spun or (“ārīg”) woven material.” (Mishnah B’kōrōṯ 4:8) {21}

०म्न्त्र (Hb). Plied linen yarn. Cf. mzmr↑. “One who makes (or plies) (“māmzōr”) plied yarn (or cord) on the Sabbath is liable for the labor of spinning.” (JT Šābbāṯ 10g). {21}

श्त्रीय (Hb) ± शीतयाई/बीताई (Ar). Flax yarn intended for use as warp. The Hebrew phrases are Biblical quotations (Leviticus 13:48-58), which are quoted in Rabbinic literature (Sifra 5:13, 15) for the purpose of halakhic discussion. The Aramaic phrases are from the targums of the respective Biblical verses. {21/24}

०रेखा लापिस्तम/बापिस्तम (Hb) ± उर्बा लैकिताई/बैकिताई (Ar). Flax yarn intended for use as weft.197 See previous entry, for parallel phrases and sources. {21/24}

प्कात (Hb). Skein, of one of the above two types of yarn. (Mishna N’gā’im 11:8) {21/24}

०री (Hb). Woven material. “…but it is permitted to purchase from him (“ārīg”) woven material (of linen).” (Mishnah B’kōrōṯ 4:8) {24}

नाश् > निष्धेई (Ar) ± रेशेत (Hr). Net.198 “Rabbi Ḥīyyā planted flax and (from it) made (“nīšbei”) nets199 to trap gazelles…” (BT K’tūbōṯ 103b) DJBA 778. {30}

हेबल > खाधालिम/न (Hb, Ar) ± अश्ला ± हश्ला (Ar) ± आउने (Ar) ± मित्ना (Ar). Rope or cord. “There are three materials from which (“ḥāḇālā”) ropes are made… from flax for measuring (or surveying).” (BT ʿerūḇīn 58a). “Ropes (“ḥāḇālā”) of flax are forbidden to use as the roofing for the festival booth.” (JT Sūkkā 52b). “Rabbi Ḥīyyā

195. The reason for this prohibition is that the woman might take the yarns out of her hair and carry them in her hands in the public domain, which is forbidden on the Sabbath.

196. BH = Māṭweh (Exodus 35:25). This is a Biblical hapax legomonemon.

197. The difference between warp and weft yarns is not mentioned in these sources. There are a number of possibilities: 1) The yarns may be of different twist directions (‘S’ or ‘Z’) to enhance interlock, or of different counts (thicknesses). Cf. BT ʿāhōḏā zārāh 17b. 2) The warp yarn may be of a tighter twist than the weft. 3) The warp yarn may be sized (treated with starch or the likes) or boiled to make it more durable. Cf. Rashi to BT M’ilā s.v. ‘mai lāḥīḥāzā’. “…he smooths (or: ‘polishes’) the yarn for weaving with bran or anything else…” 4) Different qualities of fibers may be used, e.g. (stronger) long fiber flax for the warp and short fiber for the weft. (After John Peter Wild, personal correspondence.)

198. Pliny Book 19, chapter 2: “From the same province of Spain Zoëla flax has recently been imported into Italy, a flax especially useful for hunting-nets; Zoëla is a city of Gallaecia near the Atlantic coast. The flax of Comae in Campania also has a reputation of its own for nets for fishing and fowling, and it is also used as a material for making hunting-nets.” Xenophon, On Hunting, Chapter 2, Section 7: “The net-keeper should be a man with a keen interest in the business, one who speaks Greek, about twenty years old, agile and strong, and resolute, that, being well qualified to overcome his tasks, he may take pleasure in the business. The purse-nets should be made of fine Phasian (Colchian) or Cartagogian flax, and the road-nets and hayes (meaning unclear – NBY) of the same material.” Ibid., Chapter 10, Section 2: “The nets must be made of the same flax as those used for hares, of forty-five threads woven in three strands, each strand containing fifteen threads.”

199. Cf. JT Mgillā 74d that he made ropes for this purpose.
bought flax seeds, planted them, harvested them, and made (‘ḥāḇālīn’) ropes…” (JT Mṣgillā 74d). “…a diver descended, and tied (‘āṭūnei’) ropes of flax to a reef, and to the ship.” (BT Rosh HaShana 23b). “…one who tied a (‘mīṯnˀa’) cord of wet flax to his loins…” (BT Baḇa Mᵊṣīˁa 113b). DJPA 185. DJBA 173, 427, 721. (28)


Dardas > Dardasin (Ar). Stockings or foot coverings made of linen or wool. “‘Dardasin’ of wool on one foot and ‘dardasim’ of linen on the other foot…” (JT Kilˁayīm 32d). DJPA 154, 155. {29}

Kᵊlei Pīštān ± Bīg̱ dei Pīštān (Hb) ≈ Mānei DᵊKītānā (Ar). Flaxen or linen garments or other textile product. “One may purchase, from a (married) woman, woolen items in Yehuda, and (‘kᵊlei pīštān’) flaxen items in the Galilee.” (Mishnah Bāḇā Qāmā 10:9). “One must delight his wife during the festival, with a gift that is appropriate for her. In Babylonia – dyed (woolen) garments, in the Land of Israel – pressed (‘bīg̱ dei pīštān’) linen garments.” (BT Pṣaḥīm 109a). DJBA 579. {29}

→Kītānā Rōmītā ≈ Rōmˀā’ā (Ar). Very expensive and quickly worn-out linen garments, or very fine flax yarn. “One who inherited a large sum or money and wants to waste it should wear linen garments, specifically ‘kītānā rōmītā’.” (BT Bāḇā Mṣfāʾa 29b). “One shall not compel his wife to (wet-) spin flax yarn (through her mouth), because it causes halitosis and scars the lips. Specifically, ‘kītānā rōmˀā’ā’.” (BT Kʿṭūbōt 61b). {29}

Sāḏīn > Sᵊḏīnīm (Hb) ≈ Sᵊḏīnā > Sᵊḏīnāyā (Ar). One of many simple (flat) textile products, e.g. bed sheet, curtain, veil or awning; possibly made of linen. Also, a specifically linen wrapped-garment.

This is a rare HB term, appearing three times. “I shall give you thirty “sᵊḏīnīm” and thirty sets of clothing.” (Judges 14:12-13). “And the lace gowns, and the “sᵊḏīnīm”, and the kerchiefs and the capes.” (Isaiah 3:23). In these two appearances, the context is garments. The following offers no direct inference as to the identity of the item: “She makes a sāḏīn and sells it…” (Proverbs 31:24). None of the HB texts indicate what material the sāḏīn is made of. {29}

200. Cf. BT Kʿṭūbōt 103b reading, in which he made nets. See “Nāšbā’.

201. Not mentioned as being of flax, but flax rope is recommended for surveying (BT ˁerūḇīn 58a), therefore extrapolation here is probable.

202. An additional nominal form (Ar) of this root – mīšḥā translates: ‘measurement’, ‘dimension’, or ‘size’. DJPA 333, DJBA 712. {28}

203. See also Lieberman 1967, 262-263, Ketubot Ch. 5: “One shall not compel his wife to spin flax”.

204. Etymology: Akkadian sadimmu – item of clothing (HALOT, 743-744). Perhaps a foreign word. (Gesenius 1987, 1381).

205. Nevertheless, this is obviously a textile product, as are additional products, materials and implements mentioned in this chapter: vs. 13: wool and flax, vs. 19: spinning implements, vs. 21: crimson dyed garments, vs. 22: “mārḇādīm” (coverings), Egyptian linen and Tyrian-purple dyed garments.

206. Lacking any modifier which could identify the material being used, and/or the specific use of this object, the term sāḏīn is open to polysemy. Testimony to this can be found in the respective Aramaic Targums of (the identical term) in each of these three verses, in each instance using a different (and often obscure) term. Judges 14:12: TY: pldys (of uncertain origin), PS: ṭqrs (from Greek ἐκσακανον –’striped garment’). Isaiah 3:23: TY: qrτys (a type of head covering??), PS: tklyt (lilacinth blue). Proverbs 31:24: TP: ptg (unknown), PS: ktn (linen).
Talmudic sources may or may not indicate that this product is made of linen:

“...She spread a (‘sāḏīn’) bed sheet of (‘pīštān’) linen on his bed...” (BT B'rāḵōṯ 10b). “(‘Sāḏīn’) with attached (‘ṣīṣīṯ’) fringes (or: ‘tassels’) – what is the law?” (Mishna 'edūyōt 4:10) “(A) (‘sāḏīn’) curtain (or: ‘screen’) of “būṣ” was placed (or: ‘drawn’) between the High Priest and the people…” (Mishna Yōmā 3:4). “(A) s'ḏinā of “kītānā” (linen) and its tatters.” (BT Šᵊḇūˁōṯ 6b). DJBA 788. DJPA 368.

Occupational names (Nomina agentis)

The challenges involved in accurately defining these occupational names emanate from both the ambiguity of context in ancient text and the uncertain organization of the historical labor force. Curchin encounters these very difficulties regarding the definition of two Greek occupational names in this industry. His discussion is quite relevant, if not parallel, to our own deliberations in this paper. Here we will quote selected portions:

_Lintearius_212 is presumably a producer. One can therefore readily understand the translation “linen-weaver”,213 adopted by Lewis and Short... Susan Treggiari suggests that _linteariae_ were basically linen-sellers who may, however, have woven the linen they sold... I (Curchin) would alter the emphasis... and see the _lintearius_ as primarily a linen-weaver who could (and frequently would) sell his own products in his shop... This does not explain the difference between _lintearius_ and _linarius_ or the need for two types of tradesman215 in the same product in the same town... _Linarius_ may be a dealer in _linum_ – flax, and _lintearius_ a dealer in _lineteum_ – linen cloth... In the East we find... flax could be purchased raw in bundles... or to barter the spun skeins... Merchants of linen yarn – _linemporoi_ – are attested selling to professional weavers, and the guilds of such merchants are attested...

In synopsis, linen-merchants themselves may be linen-weavers, or perhaps linen-workers at other previous steps of production. The distinction between merchants and workers is therefore blurred. We shall find similar ambiguities/complexities in Talmudic terminology, as follows:216

Following are the five major nomina agentis for this field in rabbinic literature:217

1) ˁōsei (construct state) Pišṭan (Hb pl.)
2) Būṣˀai > Būṣˀa'ei (Ar)
3) Kāttān (Hb)

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207. Cf. also: būṣ supra and footnote on the curtains (or: ‘screens’) used in the Jerusalem Temple.

208. Numbers Ch. 15:37-38 “The Lord said to Moses as follows: Speak to the Israelite people and instruct them to make for themselves fringes on the corners of their garments throughout the ages; let them attach a cord of blue to the fringe at each corner.” (JPS) NIV

209. The legal discussion here deals with affixing woolen fringes on this linen garment, which may violate the HB prohibition of mixed species. (Maimonides commentary ad loc. Leviticus 19:19 “...a garment from a mixture of two kinds of material shall not come upon you.” Deutoronomy 22:11 “You shall not wear a garment combining wool and linen.”)


211. The Theodosian Code mentions the public tax on “Scythopolitan linen-workers” (10.20.8). “Lintearites and lunfi are apparently synonymous there as elsewhere.” Wild 1967, 656 Identifies these workers as linen-weavers, and the state levy as publico canoni obnoxii.


213. Jerrard 2000 (no pagination) presents evidence for the connection between retailing and manufacture in the Roman textile industry in collegia (craft union) inscriptions. Both retailers and manufacturers were members of the same collegium.

214. Shatzmiller 1994, 121 presents a similar situation of ambiguity in Medieval Arabic flax-related nomina agentis: Kattān = weaver of flax, linen flax manufacturer, seller, flax spinner, or flax comber. Kāṭṭān = cotton spinner and/or seller, cotton manufacturer and/or seller, carder. Kattānī = flax spinner.


216. A second group of temporary and auxiliary flax-linen nomina agentis will follow.
4) Kītānʾāʾī, Kītānyāʾ (definite) > Kītānʾāʾ (Ar)
5) Pištānī (Hb)

The common denominator of this group of occupational names in various forms is the often lack of mention of any specific activity, whether it is commerce or some stage of production. The only fact mentioned is that the occupation deals with flax-linen, which is indeed ambiguous. English does not have a conventional word for accurate translation of these terms without applying circumlocution. The Spanish “linero” is an excellent candidate. Innovative terms, either “flaxman”218 or “flaxist”,219 would serve this purpose well. We will attempt to extrapolate each name’s more definite application from its contexts, but that does not eliminate the possibility that the same occupational name included additional applications.

1) ʿōsei pištān (Hb pl.). Flax makers or producers.220

Qasiya (leather gloves) of zorʾe gᵊranoṯ (winnowers of granaries), of holʾkei ḍᵊraḵim (wayfarers), of ʿōsei pištān (flax makers or producers) – are susceptible to (halakhic) impurity. But those of šabbaʾim (dyers) and of nappahim (blacksmiths) are insusceptible…” ( Mishna Kelim 16:6)

This occupational name embodies both the material used and the procedure performed, at least in general. Therefore we have translated “flax producers” – in accordance with the participle’s meaning. In order to determine in what specific activity these “flax producers” are engaged, we must identify the purpose of this leather glove. Perhaps it is worn while pulling flax in the field, both to enable a good grip on the plants and to prevent wounding the hands – thus they are “flax pullers”.221 Or it is worn during the subsequent braking, scutching and hackling processes – again enabling a good grip on the stalks and fibers while working – they are “flax brakers”, “flax scutchers” or “flax hackers”.

Notice should be taken of the two groups of occupational names in this subchapter, arranged by rhyme and prosody: 1) zorʾe gᵊranoṯ, holʾkei ḍᵊraḵim, ʿōsei pištān – all plural participles. 2) šabbaʾim, nappahim – both in the qaṭṭāl pattern, in plural form. We will mention this phenomenon in the kattān entry.

An additional direction of inference to differentiate between the two occupational names – kattān (infra) and the current ʿōsei pištān is by comparison with a similar pair of occupational names – zāggāg and ʿōsei zᵊḵūḵīṯ. Both occupations are glass workers, and appear jointly in the same subchapter of Mishna (Kelim 8:9) and Tosefta (Kelim Baba Mṣḍīʾa 3:10) or separately (zāggāg– Mishna Kelim 24:8, ʿōsei zᵊḵūḵīṯ - Tosefta Kelim Baba Mṣḍīʾa 3:11). The joint appearances indicate that they are two different occupations, not synonyms. Here, as in our own context, zāggāg is in qāṭṭāl form, based on the material being worked with – glass. A literal translation would be “glazier” notwithstanding the current dictionary definition – “one who fits glass into windows”, or a synthetic “glassman” or “glassist”. And just as “ḵtn”, “_ignore” is an Aramaic nominal root, imported into the Mishna. These have become Hebrew words.

218. All of the current nomina agentis appear in masculine gender in rabbinical literature, which is the default option. Other, predominately or exclusively women’s occupations, may appear in feminine gender, cf. mōzʳōṯ (spinners or plyers) mzr√ supra, ṭōwōṯ (spinners) ṭōwōṯ i.e. ṭōwōṯ (workmen). Sārōqōṯ (dyers) and of ṭōwōṯ are susceptible to (halakhic) impurity. But those of šabbaʾim (dyers) and of nappahim (blacksmiths) are insusceptible…” (Mishna Kelim 16:6)

219. English language occupational names, often based upon the material or object involved, may appear with suffixes “-ist” and “-man”.

Due to the intended vagueness of our proposals, it is equally possible that he is a flax craftsman, tradesman, or transporter. Cf. cowman, horseman, iceman, laundryman, milkman, woolman, etc. And florist, colorist, machinst, etc.

220. Cf. Isaiah 19:9 “Flax workers (“ˁōbeṯ pištīm”) too shall be dismayed, both hackers and weavers of white (or: ‘nets’) chagrined.”

221. Moore 1922, 86: “These experts are ever ready to explain the knack which ensures no blistering of hands and no creaking of stooPed backs…” Ibid. 87-88: “Pulling flax calls for skill… A schoolmaster, who presumes himself to be adept, is eager to demonstrate to others the right finesse of the pulling art. Just a few minutes later he has retired… to have oiled silk affixed to his lacerated finger.” DeWilde 1999, 53-54: “Another frequent inconvenience, especially with the young pullers, was the blisters that formed on the hands…”
In contrast, ˁōsei zᵊḵūḵīṯ, are literally “glass producers”. Grossmark\(^{222}\) identifies “ˁōsei zᵊḵūḵīṯ” as the producers of slabs or chunks of glass – the raw material, and “ẓāggāg” as the artisan who manufactures (and often sells them himself) glass utensils – the end product. Perhaps the redactors of the Mishnah were consistent in this formula, and we may deduce that “ˁōsei pištan” is one who works in early stages of production (\(e.g.\) pulling – with gloves), and “kāttān” in later stages of production (\(e.g.\) hackling – with an apron).

\[\text{2) Būṣˀai > Būṣˀa’ei (Ar). A flaxman or flaxist.}\]

\begin{quote}
“When the Sanhedrin ceased to exist, song ceased from the places of feasting; as it is said, they shall not drink wine with a song...” (Mishna Soṭa, 9:11)
\end{quote}

The authority of the Sanhedrin (‘Synedrion’ – the supreme court of Israel) was terminated by Roman General Gabinius in the middle of the first century BCE.\(^{223}\) That was considered a national disaster, and as a result appropriately solemn behavior was enacted. Among the restrictions, certain types of song were prohibited. This concept is based upon the HB verse: “They drink their wine without song...” (Isaiah 24:9).

\begin{quote}
The Talmud discusses the above Mishnaic law. “Rav Huna said: The singing of boat-draggers and herdsmen is permitted, but that of weavers is prohibited.” (BT Soṭa 48a)
\end{quote}

Here, the Talmud discerns between different types of song, for the purpose of defining their respective legal standing in this context. Apparently, singing only assists the boat-draggers and herdsmen in their work and is considered solemn, and therefore permissible. In contrast, the singing of weavers it is joyful and therefore forbidden, because it contradicts the appropriately solemn national mood.\(^{224}\) These historical work songs are not currently identifiable.

\[\text{Šᵊ’eltōṯ of Aḥai Gaon}\(^{225}\) (a post-Talmudic work) adds (or: ‘reads’): “…but that of weavers and būṣˀa’ei is forbidden.”\(^{226}\)

Būṣˀa’ei are “flaxists”, as no specific activity is inferred, only the material dealt with.\(^{226b}\) From this source, we cannot correctly extrapolate which activity in the production process is performed by them. We have chosen “flaxist” (\(cf. supra\)), an occupational name consisting of the material used with an added noun suffix, as an attempt to accurately and elegantly reflect the original terminology.

This agent noun is a \textit{hapax legomenon} in Talmudic and post-Talmudic literature. It is parallel in form to the Hebrew pištani/pištanim and Aramaic kitanˀai/kitanˀa’ei.

\[\text{3) Kāttān (Hb). A flaxman or flaxist.}\]

\begin{quote}
“These hides are susceptible to “mīdrās” (a specific class of halakhic impurity)... the hide of the ḥāmmār (donkey driver), the hide of the kāttān (flaxman), the hide of the kāttāp (porter)…” (Mishna Kelīm 26:5)
\end{quote}

This occupational name requires some linguistic explanation. Despite the Mishnah being a primarily Hebrew language work, an imported Aramaic nominal root √ktn is employed here,\(^{228}\) in the Hebrew qāṭṭāl pattern of \textit{nomina agentis}, thus resulting in a Mishnaic \textit{hapax legemenon}. Perhaps this relatively uncommon stylistic choice was deemed necessary by the editors of the Mishna (and Tosefta - \textit{infra}) which was intended primarily for oral rote learning - in order to avoid the aural ambiguity of the possible Hebrew “pāššāṯ” (flaxman, extracted from “pešet”) and “pāššāḥ” (flax
(animal skinner) - both of which could well use an apron while working. During the Mishnaic period, the differentiation in pronunciation between emphatic consonants and their respective contrasting non-emphatic ('t' vs. 't') had been weakened, and as a result these became homophones (albeit not homograms). The use of the Aramaic root in qāṭṭāl form here, and not the more expected Hebrew “ʾōsei pištān” - flax producers (Mishna Kelim 16:6), is also necessitated by the poetic character of Mishnah, which incorporates rhyming and prosodic passages. This particular subchapter lists leather products related to various uses and occupations, which are in turn grouped for rhyme and prosody: 1) “hide of sēcorīa” (table-cover), 2) hide of qatabolīa (bed-cover) – both Greek loanwords; 3) hide of the ḥāmmār (donkey-driver), 4) hide of the kāttān (flaxman), 5) hide of the kāttāp̱ (porter) – all qāṭṭāl pattern agent nouns. A pertinent parallel to this prosodic phenomenon may be offered from the same tractate (16:6) in context with “ʾōsei pištān”, and has been discussed supra.

The specific activity of the kattān is unclear; as a result we prefer to translate “flaxman”, as the most faithful representation of the original term which does not allude to any specific activity, only to the material being dealt with.

Maimonides, in his commentary to the Mishnah ad loc. identifies these particular hides as aprons. He explains that the worker is engaged in scutching or hackling and that the leather apron protects his garments from tow, shives and dust – a “flax scutcher”. Other possibilities are that the apron is worn while pulling the flax straw from the retting water hence a “flax retter” and subsequently while “gaiting” or “stooking” for drying – a “flax stooker”. In that case, the leather apron protects the worker’s clothes (at least partially) from becoming wet and malodorous. We also find that in modern Flanders, a leather apron was worn by “flax pullers”, to protect their garments from dew. In modern industrial wet-spinning, waterproof bibs and aprons were donned by workers.

The parallel Tosefta (Kelim Bāḇā Bāṯrā 4:8) repeats this term. In one variant (Zukermandel edition) “pāttān” replaces kāttān. Perhaps this is a visual-mistake (graphic) scribal error, or “permutation”, for these two Hebrew letters “k” and “p” are similarly shaped. In addition, kāttān is a hapax and unfamiliar to the scribe. Another possibility may be suggested, that this variant represents an attempt (or a textual tradition) in which this qāṭṭāl patterned nomen agentis is based on the Mishnaic Hebrew pštn (deleting the “š” from the quadruple form), instead of the Aramaic “kītān”.

4) Kītānˀā, Kītānyā (definite) > Kītānˀā’ei (Ar). A flaxman or flaxist – flax worker, flax merchant. See supra: Ḥanwāṯā, Ḥōṣen (JT Peʾa 16a), Qōfnā (JT Šābbāṯ 10a), dwš√, npṣ√. DJPA 257.

5) Pīštānī (Hb). A flaxman or flaxist. There are three examples:

“Once a young girl entered to obtain flax from the (“pīštānī”) flaxman, and he said to her: ‘this is for your engagement’ and he said to her: ‘this is for your engagement’”. (JT Yḇāmōṯ 13g). It is difficult to identify the specific procedure performed by this pištānī, other than being a merchant of flax or linen.

230. DeWilde 1999,128. This was originally a leather apron.
233. See however: Lieberman 1939, Part 3, 83 who rejects this reading.
234. The middle consonant of this qāṭṭāl pattern is not actually doubled in Hebrew, it is emphasized by a dot in its center (in this case: ʾ), called ‘dagēs characteristicum’. Nevertheless, scientific transliteration requires doubling the English consonant. Also worthy of mention, the parallel Phoenician root is ʾppt. Nevertheless, this is certainly unknown to the Mishna.
235. An unpublished 5th century AD plaster inscription from the Rḥōḥ ᵉ synagogue in the Beth Shean Valley mentions ʾknh (Nomina agentis). Dr. Hagai Misgav, personal correspondence.
236. The attempt to engage her was later deemed invalid.
“This (‘piṣṭānī’) flaxman, at the time he knows that his flax is strong, the more he beats it – the finer and shinier it gets, and when he knows that it is weak he doesn’t even beat it more than once and it breaks up…” (BR 32:3 Vatican codex 30). See: kīṭānāʾ. This piṣṭānī is a flax beater (or: “beetler”).

“[This (‘piṣṭānī’)] flaxman, his camels entered loaded with flax. The collier wondered: ‘How where can all that flax fit in?’ There was an ingenious person on hand who remarked: ‘One spark from your bellows and the flax will burn up!’” (Rashi to Genesis 37:1237). In this case, the piṣṭānī is probably either a merchant or transporter of flax straw.238

**Temporary and auxiliary professions**

**Commerce**

6) Hāwāʿāseq (ʿāṣiq)239 ≈ ʿāsāq bāhādā kīṭānāʾ240 (Ar). “(He) was engaged in, or was dealing with flax”. This indicates a long term affiliation with the occupation. Further details are gleaned from context. “Rabbi Zerāʾ was engaged in flax. He went to ask Rabbi Aḇhū: ‘Am I permitted to improve the appearance241 of the flax (which may be deceptive to a prospective consumer, and gain a higher price)? Rabbi Aḥhā answered: ‘You may do as you see fit!’” (JT Bāḇā Mᵊṣīˁā 9d). Apparently, Rabbi Zerāʾ is a merchant of flax fibers. “(Rabbi) Šīmʿōn Ben Šeṭāḥ was engaged with that flax. His pupils told him: ‘Rabbi! Release yourself from that, and we will buy you a donkey so that you will not have to exert yourself.’” (JT Bāḇā Mᵊṣīˁā 8g). Perhaps Šīmʿōn Ben Šeṭāḥ was a flax merchant and himself had delivered the merchandise while functioning as a porter.242

7) Hāwāʿlei kīṭān (Ar). “(He) had flax”. This indicates a short term affiliation with this occupation. “Rav (PN) had flax and it was damaged243. He asked Rabbi Ḫīyyā Ṛūbā244 (the elder): ‘Am I permitted to slaughter a fowl and mix its blood into the flax seed?’”.245 (JT Maˁaser Šenī 56d, BT Ḥūlīn 85b246). Presumably, Rav had cultivated flax.

8) Broker “Rav Kahana made a down payment247 on flax,248 later on it became more expensive.249 The owners (or: ‘customers’) of the flax bought the appearance241 of the flax (which may be deceptive to a prospective consumer, and gain a higher price)? Rabbi Aḥhā answered: ‘You may do as you see fit!’” (JT Bāḇā Mᵊṣīˁā 9d). Apparently, Rabbi Zerāʾ is a merchant of flax fibers. “(Rabbi) Šīmʿōn Ben Šeṭāḥ was engaged with that flax. His pupils told him: ‘Rabbi! Release yourself from that, and we will buy you a donkey so that you will not have to exert yourself.’” (JT Bāḇā Mᵊṣīˁā 8g). Perhaps Šīmʿōn Ben Šeṭāḥ was a flax merchant and himself had delivered the merchandise while functioning as a porter.242

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237. Probably quoted from a rabbinical midrash aggada, which is not currently known.


239. The two different possible vocalizations represent either the active or passive forms of the participle. The original text is not vocalized.

240. Perhaps: “Was once dealing with flax.”

241. It is unclear to me exactly how that would be done (NBY).

242. Mishna Bāḇā Qāmā 3:5 describes various encounters between two porters in which an accident and subsequent damage occurs. One encounter involves a collision between a porter of flax (straw) and one carrying a (burning) lamp. Small quantities of flax could be delivered by porter instead of by beast of burden.

243. It is unclear exactly what happened. Perhaps the seed had gone bad (become moldy?) and he knew that it would not properly germinate, or he had made a test plot, or there was still enough time to re-sow his field after germination failure, so he sought a way to cure the malady with fowl blood.

244. Rabbi Ḫīyyā himself had raised flax, at least once. Cf. supra √gdl, Nāšbā.

245. According to Biblical law, (most of) the blood of a slaughtered fowl must be covered with soil, and not otherwise used. After HB Leviticus 17:13 “And if any Israelite or any stranger who resides among them hunts down an animal or a bird that may be eaten, he shall pour out its blood and cover it with earth.”

246. In the BT version, Rabbi Ḫīyyā is he who had the flax and asked Rabi (PN) the question.

247. It is not clear if he did this just once, or was accustomed to doing so. Also unclear if this was for his own purchase, or that he was acting as an intermediary for clients.

248. Perhaps a flax crop growing in the field, or possibly other intermediate stages of production.

249. The reason is not indicated, probably price fluctuations in the marketplace.
it themselves and reimbursed Rav Kahana.” (BT Bāḇā Mṣṣā 49a, Bāḇā Qāmā 103a, JT Bāḇā Mṣṣā 10g). “Ībo (PN) deposited flax at the estate of Bar Ronia (PN). The flax was stolen…” (BT Bāḇā Mṣṣā 93b).

250. Insight into this issue is from Beer 1974, 189-191 - although I have altered it somewhat.

251. Wool “carding”, as opposed to “combing”, did not exist until the Middle Ages. (John Peter Wild, personal correspondence.)

252. Ovadiah ben Abraham of Bartenura (c. 1445, Bertinoro, Italy - c. 1515, Jerusalem), and Shᵊlomo bar Yᵊhoshua Adeni (1567-1625, Ṣanˁa and Aden in southern Arabia).

253. See also: Ayali 1984, 49-50.

254. The well-known legend maintains that there are innumerous terms for camels in Arabic, as a result of the camel’s centrality in Arab society.

255. Qānābūs, Qōp̱ nā, and Qāsīyā are foreign loan-words.

256. After Sperber 1986, with my own deductive conclusion (NBY).

257. Discrepancy between historical literary, iconographic and archaeological sources is a well-known and challenging phenomenon.

258. See: Georgacas 1959.

Conclusions and Future Research

In this paper we have compiled and analyzed the textile terminology of flax and linen in Talmudic (rabbinical) literature. We have found that there is quite an extensive vocabulary for this field. That may well indicate certain ethnographic characteristics, such as the centrality of flax-linen production and use in the Talmudic era Jewish society of the Land of Israel and Babylonia. In addition, virtually all of these terms are linguistically Semitic, i.e. Hebrew or Aramaic. This contrasts to Talmudic nautical terminology, which consists almost entirely of Greek loanwords. The primarily Semitic vocabulary aspect may indicate an indigenous and perhaps ancient industry.

Research is never complete. Future expansion of this topic may proceed in various directions. In addition to flax and linen, wools and silks have a significant place in this literature, and their respective terminologies should be treated in a similar fashion. The etymologies of the terms may be further pursued. Illustrations of the materials mentioned (e.g. textiles and implements) from contemporaneous archaeological finds in the appropriate regions may be furnished and their relation to the texts analyzed. Parallel and geographically adjacent contemporaneous literary sources, such as Latin, Greek, Syriac, Mandaic and Middle Persian (Pahlavi) can be examined and their terminology’s relation to the Talmudic terminology analyzed. And, as mentioned in the introduction to this paper, semantic nuances within Talmudic literature itself, emanating from various tradents, dialects, time periods and locales can be addressed.

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LXX: Septuagint [http://www.ellopos.net/elpenor/greek-texts/septuagint/](http://www.ellopos.net/elpenor/greek-texts/septuagint/)


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Legend

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singular form &gt; plural form</td>
<td>Derived from &lt;</td>
</tr>
<tr>
<td>Indefinite noun ~ definite noun</td>
<td>X ▶ Y ▶ Z – Stages of linguistic evolution</td>
</tr>
<tr>
<td>→ Sub-distinctions, provided within the text</td>
<td>↑ See above entry X</td>
</tr>
<tr>
<td>↓ See below entry X</td>
<td>▼ Weakening of gutturals: ˁ [Ayin] ( ? ) [Aleph], ˀ [Aleph] ( ? ) [no consonant], “ḥ” ( “h” \</td>
</tr>
<tr>
<td>▼ Weakening of emphatic consonants: “q” ( “k” , “ṣ” , “s”, “ṭ” , “t”, “ṭ” \</td>
<td>= Parallel Hebrew/Aramaic terms</td>
</tr>
<tr>
<td>≈ Alternate wordings/spellings (in printed editions and/or codices)</td>
<td>± Synonyms (in parallel texts)</td>
</tr>
<tr>
<td>{} Required production stages</td>
<td>() Optional production stages</td>
</tr>
<tr>
<td>[ ] Alternate production stages</td>
<td></td>
</tr>
</tbody>
</table>

Diacritics

(Scientific transliteration will be employed in quotations from Hebrew and Aramaic texts, albeit not necessarily in the names of the texts themselves or their authors.)

- Aleph (א) – glottal stop.
- Ayin (ע) – voiced pharyngeal approximant.
- ā – As in father, brother (Long and short vowels will not be differentiated in this paper.)
- ‘ – “Mobile shwa”, ultra-short vowel
- ḫ – Voiceless pharyngeal fricative. Pronunciation is similar to the “j” of Juan in Spanish.
- ū – As in rule, youth
- o – As in bone, know
- q – Emphatic “k” – “qop”
- s – Emphatic “s” – “ṣadi”
- š – Hebrew “sin”, also used in Ancient Egyptian
- ṣ – Pronounced as “š” – “šin”
- ŧ – Emphatic “t” – “ṭeṭ”
Fricative (soft) consonants

ḇ – (bh, v)


ḏ – (/ð/dh, voiced th, as in “those”, “feather”)

ḵ – (kh, as in J. S. Bach)

p̱ – (ph, f)

ṯ̱ – (/θ/voiceless th, as in “thin”, “tooth”)

Abbreviations

Ar = Aramaic (The various Aramaic dialects, e.g. Jewish
Babylonian, Jewish Palestinian, Jewish Literary,
Targumic, Late Jewish Literary, etc. will not be in-
dicated in the present paper.)

ASL = A Syriac Lexicon

BASOR = Bulletin of the American Schools of Oriental
Research

BR = Bereshît Raba

BT = Babylonian Talmud

CAD = Chicago Assyrian Dictionary


DJPA¹ = Dictionary of Jewish Palestinian Aramaic (2002)


Gr = Greek

Hb = Hebrew

HB = Hebrew Bible

JPS = Jewish Publication Society translation of HB

JT = Jerusalem Talmud (aka: Talmud of the Land of
Israel, Palestinian Talmud)

JNES = Journal of Near Eastern Studies

KJV = King James Version

LBH = Late Biblical Hebrew

LUT = Luther Bible

LXX = Septuagint

M = Mishna

NIV = New International Version

NT = New Testament

PS = Targum Peshitta to the HB (in Syriac)

RH = Rabbinic Hebrew

RVR = Reina-Valera Bible

SBH = Standard Biblical Hebrew

T = Tosefta

TO = Targum Onkelos (to the Pentateuch)

TP = Targum Proverbs

TY = Targum Yonatan (to the Prophets)

VUL = Vulgate
Jewish Terminologies for Fabrics and Garments in Late Antiquity: A Linguistic Survey Based on the Mishnah and the Talmuds

Christina Katsikadeli

The main texts of the Rabbinic literature, the Mishnah and the Talmuds encompass a wide range of textile and clothing terms embedded in everyday situations as well as in ritual contexts. A great deal of intertextuality shared both by the Mishnah and the Talmuds as well as by other exegetic works like the Tosefta and the early Midrash – not to mention the Bible – makes these texts a valuable source for the investigation of cultural history and language change and contact, even in micro-contexts, in adherence to the traditions and heuristics of historical comparative linguistics, concerning etymology, language change and contact linguistics. The first attempt for a systematic presentation of the terminology according to the semantic fields of clothing, textile production and other relevant topics pertaining to fashion goes back to Rosenzweig’s study from the year 1905. The progress in history, archaeology, comparative philology, linguistics and lexicography provides us with a comprehensive overview of the material.

1. I would like to express my warmest thanks to Susanne Plietzsch, Orit Shamir, Nahum ben Jehuda and Ioannis Fykias for their friendly advice, for sharing their expertise with me and providing me with important material.

2. Onomasiology or “the study of designations” is a branch of semantics. The goal in onomasiology is to identify the linguistic forms, or the words, that can stand for a given concept/idea/object. The establishment of semantic fields contributes to the systematization of the designations and to a clearer understanding of gradual meaning changes.

3. ‘supplement, addition’ (of the Mishnah).
in the Mishnah more frequently than Biblical *simplicia.* As expected, beside words that are common to both Biblical and Rabbinic Hebrew we also find novel vocabulary.

The Palestinian Talmud, also known as the Jerusalem Talmud or the *Yerushalmi,* is usually dated between the late 4th century and the first half of the 5th century. The *Yerushalmi* is organized in accordance to the tractates of the Mishnah. After citing each Mishnah tractate a series of interpretations, called the *gemara,* follows. The language of the Aramaic *gemara* of the Palestinian Talmud is Palestinian Aramaic (JPA), which is also used in the Palestinian Targumim (‘translations’ in Aramaic). The central corpus in Rabbinic Judaism is the Babylonian Talmud, completed at the beginning of the 7th century. It is also known as the *Bavli.* It is based on similar Palestinian traditions like those of the *Yerushalmi,* but it introduces much of its own exegesis. The *Bavli* is also organized according to the Mishnah, consecutively alternating between the Mishnah and the interpretation of the *gemara.* Like the Jerusalem Talmud, the Babylonian Talmud deals only with some of the Mishnah’s divisions. It is composed in Hebrew in the first place, but contains a significant number of passages in Aramaic—more than the *Yerushalmi.* The Aramaic used is an eastern dialect known as Jewish Babylonian Aramaic (JBA). It is a commonplace that the Babylonian Talmud reflects Jewish life in Babylonia, rather than in Palestine. The last of these major texts, the Babylonian Talmud, in turn became the most influential religious text for Medieval Judaism.

### Continuity and innovation

#### Continuity of older (mainly Biblical) terminology

The importance and high esteem of clothing and textile production is evident in Jewish culture and religion through time, as exemplified by the well-known sha'aṭnez “the prohibition of wearing wool and linen fabrics in one garment,” tallit ‘prayer shawl’, tzitzit ‘tassels of the prayer shawl’, but also proverbs involving clothing as a central concept throughout the Rabbinic tradition are frequently attested. Of course, within the Jewish tradition, we have to deal with fine grained semantics of most important lexemes in the field, pertaining to textiles, like *byssos,* *sakkos* or *sadin.* Other words, although rarely attested, still live on in the Jewish tradition, e.g. *karpas,* a Biblical *hāpax legomenon,* which is attested in the Book of Esther, meaning ‘cotton (or wool)’ ḥūr karpās u-tēḵēlēḵ ‘white, wool (or cotton), and blue’ (Est. 1:6). The Septuagint (LXX) translates with *καρπάσινος,* “made of *κάρπασος,* exact fibre type of which is uncertain, probably a kind of fine flax, cotton”, Lat. *carbasinus.* The Greek and Latin connections of the word have led to an interpretation as a Mediterranean term, while other scholars see a connection with Sanskrit *karpāsa-* ‘cotton shrub, cotton’. Within the Jewish tradition the same term is mentioned again in the Medieval *Passover Haggada,* in connection with the benediction over vegetables.
Innovations in Terminology

Innovations involving language change from Biblical to Post Biblical Hebrew or from Hebrew to Aramaic

All languages are dynamic systems that are constantly in the process of changing. Thus, it is not a rare phenomenon that the redactors of the Mishnah changed a Biblical lexeme into a PBH or Aramaic corresponding term, and in that way they managed to actualise the content and “update” it, where necessary, e.g. Aramaic gunḵa in the Targ. 2 Kings 8:15 is replacing the expression of the Hebrew text: maḵbēr/maḵbār ‘something woven, cover or mat’.11 The Aramaic word gunḵa ‘thick cloth’, of Iranian origin, is well attested as a loanword in many languages and dialects of the Mediterranean.14 Its Hebrew correspondence has been somewhat opaque already during the period of the translation of the Septuagint (ca. 250 BC-100 AD), since in the Greek text it is rendered as ἀραγγος, which is actually a transliteration of the Hebrew word, lacking further attestations in the history of Greek. The term might have been familiar among the Greek speaking Jews of that time, but it seems that it became marginal in the subsequent centuries.

Innovations and differences concerning dialectal or geographic distribution

The monumental multi-volume work by Samuel Krauss, Talmudische Archäologie 1910-12, can still serve as the basis for the investigation of this subject, although it is a commonplace that Krauss’ studies suffer from methodological deficits, which are, however, due to the stage of research at his time: the historical-critical paradigm of investigating Rabbinic sources had not yet been established, and archaeology in Israel has since then made immense contributions to the growth of our knowledge. Krauss does mention many types of clothing, referred to in both Palestinian and Babylonian, early and late Rabbinic sources, but he does not provide a comprehensive analysis and discussion of the material.15 Several studies since Krauss’ time have focused on the Jewish clothing and textile production traditions, but the study of possible differences due to regional factors has been played down by generalizing conclusions, stating that Jewish people would more or less share the same ‘basics’ with other inhabitants of the Roman Empire, based on the fact that many Graeco-Roman garment names occur in the texts.16

Let us have a closer look at a representative example from the Rabbinic narrative about clothing vocabulary, namely the passage concerning the 18 garments, which may be carried out of a burning house on the Shabbat.17 Here, we have a special situation, where the Mishnah just mentions 18 garments without explicitly referring to the items involved:

(1) mShab16:4

“Thither a man may take out all his utensils, and he may put on him all the clothes that he can put on and wrap himself with whatsoever he can wrap himself. R. Jose says: [He may put on only] eighteen things, but he may return and put on others

13. Koehler & Baumgartner 2001 s.v.; maḵbēr is attested in Ex. 27,4 with the meaning ‘grid’, the LXX translates with ἀραγγος ‘grating’.
14. According to Schmitt 1971, 102-105, *gaunaka- ‘hairy, coloured’ - following patterns common to Iranian -, and is deeply rooted in the whole Iranian area: Avest. goona-, *gaunaka- ‘hair’; Middle Persian gônak, Armenian (loan-word from Parthian) goyn, Soghd. ywn-, Modern Persian goyn, all denoting ‘colour’; the Greek form γαυνάκης, καυνάκης, attested since Aristophanes, Wasps, 11, 37; 49, as καυνάκη explicitly refers to ‘a woollen Persian mantle’, and is also found in the Egyptian Papyri (in derivations and compounds); Lat. gaunaca since Varro; Babylonian and Aramaic (also Syriac gauniça) have also moved eastwards to (Middle Indoiranian) Pâli and to Chinese: Pâli gonaka ‘woollen blanket’; Chinese hu-na (?).
15. Shlezinger-Katsman 2010, 362-365 summarizes the state of the art since Krauss’ works: despite the important works that have been published since then, almost every author mentions -like Krauss- many of the terms used for clothing in Rabbinic writings, but the lacking distinction between Jews who lived in Babylonia and those in the Roman Empire is evident. At this point, we should take into consideration that very remarkable lexicographical work has been accomplished by Sokoloff (1992, 2002) in the Dictionaries on the Palestinian and Babylonian Aramaic respectively, enabling us to differentiate between the two Talmudic traditions.
16. Cf. a.o. Roussin 1994, reaches the following conclusion pertaining to “… the basic items of clothing worn by Jews: they did not differ significantly from those worn by other inhabitants of the Graeco-Roman world. Indeed, almost all of the Hebrew words for the clothing mentioned here are transliterations of Greek and Latin words” (Roussin 1994, 183).
17. Also discussed by Roussin 1994.
and take them out, and he may return and put on others and take them out, and he may say to others, ‘Come and help me to save them.” (translation: Danby 1933)

(2a) bT Shab 120a
R. Jose said: [Only] eighteen garments. And these are the eighteen garments: a cloak, undertunic, hollow belt, linen [sleeveless] tunic, shirt, felt cap, apron, a pair of trousers, a pair of shoes, a pair of socks, a pair of breeches, the girdle round his loins, the hat on his head and the scarf round his neck. (translation: Epstein 1952)

(2b) jT Shabbat 16:5, 15d(22), “Rebbi Yose says, 18 garments. And these are: The burnus, arm cover, and money belt, and felt cap, and a kafia, and a linen tunic, and a woollen shirt, and two felt stockings, two garters, and two breeches, two shoes, and the hat on his head, and the belt on his hips, and shawls on his arms.” (translation: Guggenheimer 2012)

Both Talmuds, in (2a) and (2b), offer a list of the garments, but as a matter of fact they employ only 14 terms; the number of 18 pieces can be reached by counting pairs as two single items each. Let us compare the same passage as an interlinear version of the Bavli followed by the Yerushalmi in the second line.18 The order varies between the two Talmudim; here, the primary numeration follows the listing of Bavli:

<table>
<thead>
<tr>
<th>(3) bT19</th>
<th>&lt;mqtorn&gt;</th>
<th>&lt;wnqli&gt;</th>
<th>&lt;qlbum&gt;</th>
<th>shel pishtan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. a cloak (−amictorium),</td>
<td>2. an undertunic (andakolos?!)</td>
<td>3. (and) a money belt (funda),</td>
<td>4. linen tunic (colobium)</td>
<td></td>
</tr>
<tr>
<td>jT20</td>
<td>&lt;mqtorn&gt;</td>
<td>&lt;niqli&gt; (angalē?)</td>
<td>3. money belt</td>
<td>6. felt cap</td>
</tr>
<tr>
<td>1. burnus</td>
<td>2. armcover</td>
<td>7. ma’aforet (and an apron/ cloak (~pallium),</td>
<td>8. a pair [lit. two] of trousers (braccae?)</td>
<td></td>
</tr>
<tr>
<td>5. (and a) shirt (haluq)</td>
<td>6. a felt cap (pilion)</td>
<td>9. (and) a shirt (haluk shel-zemer)</td>
<td>10. two garters (empilia)</td>
<td></td>
</tr>
<tr>
<td>jT</td>
<td>7. ma’aforet kafia</td>
<td>4. kolbin shel-pishtan pilim</td>
<td>5. haluk shel-pishtan woollen shirt</td>
<td>11. (and) a pair of felt stockings (empilia)</td>
</tr>
<tr>
<td>8. two garters &lt;sbriqin&gt; (~Gr. sybrikion?)</td>
<td>12. (and) the girdle (gur) round his loins,</td>
<td>10. (and) a pair of felt slippers (impilia)</td>
<td>13. the hat (kov’a) on his head</td>
<td></td>
</tr>
<tr>
<td>jT</td>
<td>12. the belt on his head,</td>
<td>14. and the scarf (sudarium) around his neck</td>
<td>14. and shawl on his arms</td>
<td></td>
</tr>
<tr>
<td>13. (and) the hat on his head,</td>
<td>11. two breeches &lt;abriqin&gt;</td>
<td>9. two shoes (min’alin)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>jT</td>
<td>14. and the scarf (sudarium) around his neck</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(6) bT</td>
<td>14. and shawl on his arms</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18. The phonology of loanwords in Mishnaic Hebrew is very problematic: Unlike the Biblical transmission, Rabbinic literature never obtained a canonical form, and each manuscript reveals different versions. Neither the spelling of the loanwords, nor their vocalisation (where occurring), are consistent, so that many equivalents are possible.


While some terms such as the 3. *punda*, 4. *colobium*, 5. *haluk*, 6. *pilion*, 10. *e/impilia* ‘stockings’ or ‘slippers’, 14. *sudarium*, have been a widely accepted interpretation, others are translated differently. The pair of *spriqin* under 8. has been interpreted as a term which corresponds to a lexeme *sybrikon* (lat. *subricula*) ‘outer veil, cloak’, but since it occurs as a pair, an interpretation as ‘trousers’ or ‘garters’ seems more plausible. Of special interest are the following expressions: the Babylonian Talmud features <prgd> *pargod,* occurring as a pair, a word of Iranian origin, where the Jerusalem Talmud attests *abriqin,* most probably the *braccae* (cf. nr. 11 under (5) in the table above). In this case, the Talmuds seem to employ rather regional terms to designate ‘trousers’, an Oriental garment, not popular among Greeks and Romans. The shift of the etymology to a Greek or Latin counterpart does not make things easier. Some of these words are difficult to interpret in the other languages as well. In both cases we find <mqtorn> /miqtoren/ at the top of our list, the interpretation of which as *amictorium* seems to be a plausible phonetic/phonological solution. The word formation and the semantics of a Lat. word *amictorium* are considered transparent: as a derivation from *amictus* ‘thrown (upon)’, it can plausibly be interpreted as ‘mantle’ or ‘veil’. The interesting fact in this case is that *amictorium* is rarely attested in the late antiquity, actually only as ‘a loose outer garment’ (worn by women) (Code of Theodosius in the late antiquity, actually only as ‘a loose outer garment’). In this case, the Talmudim preserve less popular garment names than the *sudarium* and the *pilion*.

The terms *unkli/ nikli,* which follow the *amictorium,* are also problematic: Krauss interprets as Gr. *anákolos* ‘undertunic’, other scholars as Gr. *angálē* (?). As in the case of the *amictorium,* Gr. *ánákolos,* -ov, is attested in an adjectival usage meaning ‘short, curtailed’ (Diod. 2, 55) and as an attributive adjective to a garment in Plutarch 2, 261 F, describing a χιτόνισκος (of young women), a term which refers to a short tunic.24 Gr. *angálē* ‘bent arm, arm pit’ is also a possible phonological interpretation, which has been followed by other scholars, and would lead to a meaning ‘arm cover’ (cf. the translation in Guggenheimer under (2b). While the etymology and the semantics of this word are sufficiently motivated, it is noteworthy, that a metonymic use of Gr. *angálē* as a garment in the Greek literature – from the Classical up to the Byzantine period – has not been ensured by now, a fact that allows us to assume that in this case we do not deal with a garment name that had been popular throughout the Roman Empire. If the suggested interpretations are correct, then we should keep in mind that they belong to the earliest attestations of these terms or they indicate dialectal usage.

Examples of semantic change and cognitive universals connected with textiles: the colour terms

The number of Hebrew colour words has increased with the passage of time, following the order of increasing number of colour terms as arranged by the non random sequence proposed by Berlin and Kay

21. Cf. Schmitt 1971, 107-110: Against older proposals, which explained the word as a loanword from the Targumic Aramaic without consideration of the chronological details, Schmitt convincingly argues for an Old Persian *pari-gaude*, a compound with the prefix *pari*- ‘around’ + Old Persian root *gaud* = avest. *gaoz* (= Old Indian *gah*) ‘to hide, cover’, Parthian *brywd* = /barayôd/ ‘curtain, veil’ borrowed into Greek in the regular, expected form *paragaudēs*, Ioan. Laurentius Lydus (6th c. AD); also attested as *para-gaudōn,* ‘a garment with purple border’, Edict Diocl. (19.29), on an inscription from Dura-Europos and in the Byzantine *Chronicon Paschale*; *paragaudōn* (POxy., 1026,12, 5th c. AD; Ioan. Malalas, 6th c. AD und Konst. Porphy., 10. c. AD); probably in Hesychius: *paragaudōs* (Codex: -γωδας); χιτόν παρά Πάρθοις; Gr. *paragaudēs* ~ Lat. *paragauda,* Syr. *para-gaudin,* Armenian *paregawt* ‘χιτόν’ (in Bible translations, Coptic *para-kafudion*). We have to keep in mind that the core meaning of the Iranian word ‘wrapped around, covering’ had been subjected to various semantic narrowings and specialised usages in different languages. We find *par-gaud* as a rendering for the *paraket* (sacred) screen, veil’ in the Jewish Aramaic tradition (*Targ. Yer. to Ex.* 26:31, 33, 35) as well.

22. Cod. Theod. 48.5.48. IDEM AAA. CYNEGIO PRAEFFECTO PRAETORIO. Lineae vel amictoria, quibus hactenus onerari rae-dae solebant, nec ulcerius raedis, sed angaris vel navibus dirigantur et si aliqui repertae fuerint huiusmodi species, thensarius eius urbis, in qua deprehensae fuerint, deputentur, per angarias, ubi facultas fuerit, destinandae; reliquae vero delicatae vastes, sed et linteamen amictorum nostrorum usibus necessarium raedis sub mille librarum ponderatione mittantur.


24. It is noteworthy that ancient lexicographers use this term to explain the <zeirai>, <zirai> “tunics worn by the Thracians”, cf. Photius, Z 52.1-3, Hesychius Z. 162.1.
The colour terms for red show the widest differentiation in BH, with ‘اذدوم ‘red, blood coloured, reddish(-brown)’ being the archilexeme in this group. The red-coloured fabrics are denoted by the words šānî ‘crimson’, ‘crimson thread’ (Gen. 38:28,30), tōlā ‘crimson; Kermes worm’ (Isa. 1:18), and ‘ارگامان ‘purple’ (Song 7:6; Ex. 25:4; 26:1), 27 kārmîl ‘crimson’ (2 Chron. 2:7,14; 3:14), LXX: κόκκινος ‘scarlet, crimson’; ḥāmūṣ ‘crimson dyed’ (Isa. 63.1), which very likely originate from metonymical uses of the dyed fabric or the organic elements involved in their dyeing procedure, bus wa-‘argāmān “fine linen and purple” (Est. 1.6); təḵēlεṯ wə-ʾargå̄ må̄ “blue and purple” (Ex. 27:7; LXX: γατίνθον καὶ πορφυρα), 28 and might also represent various hues or different grades of brightness.

A number of new colour words appear in the Rabbinic period, as for instance kahol/kohal ‘blue’ connected with ‘stibium, powder used for painting the eyelids’, bTShab 8:3 (78b) and a novel term milan ‘black’ (cf. Gr. μέλας, μελανός) that denotes the ‘black pigment’, the ‘ink’. The Biblical word šāhōr ‘black’ occurs in PBH in connection with tar, olives, grapes and pots, while in other cases it has been replaced by novel Aramaic terms, e.g. the Mishnah in Bava Qamma 9:6, where the restitution in case of wrong dyeing of the wool is discussed:

(6) jT BQ 9:6:

“If someone told the dyer

to dye it red (اذدوم) and he dyed it black (šāhōr), black and he dyed it red, Rebbi Meir says, he gives him the value of his wool”. Rebbi Jehudah says, if the increased value is more than the expenses, he gives him his expenses; if the expenses are more than the increased value he gives him the increased value”.

(7) Gemara:

“What means ‘if the increased value is more than the expenses, he gives him his expenses’? A person gave to another five lots of wool, five portions of dye, and ten minas for his wages. He told him, if you had dyed it red (sumaq), but the other had dyed it black (ukam). He told him, if you had dyed it red, it would have been worth 25 minas, now that you dyed it black it is worth only 20 …” (Guggenheimer 2008)

The Mishnah in (6) employs the Hebrew words اذدوم ‘red’ and šāhōr ‘black’. The Jerusalem Talmud in the gemara of this Mishnah introduces the Palestinian Aramaic words ukam ‘black’ and sumaq for ‘red’. So we learn from the text that these two Aramaic colour names correspond to the “archaic” BH terms in the context of dyeing.

While the two terms from the Mishnah BQ must have been semantically transparent for the Rabbis, there are other cases, where the gemara tries to disambiguate older, rarely attested colour terms, which had become obsolete, like in the case of the Biblical tāḥāš in Exod. 25:4-5. Before we come to the Rabbinic exegesis of the term, let us have a closer look at the passage from the book of Exodus, as it appears in the LXX, together with the corresponding BH words in brackets:

(9) LXX

Ex 25:4-5 καὶ γατίνθον (‘blue’, ~ təḵēlεṯ) καὶ πορφυραν (‘purple’ ~ ‘ارگامان) καὶ κοκκινον διπλουν (‘double crimson or...
scarlet’ ~ ROADCAST) και αθηρον κεκλωσμενην (‘spun byssos’ ~ σέβης) και τριξας αιγεως (goats hair) και δερματα κριων (rams’ skins) ηψωσοντοσισεμενα (dyed red ~ ‘ αδομ’) και δερματα υακινθινα (‘blue’ ~ ταχασ) και ζυλα ασηπτα (incorruptible wood)

The colours listed in (9) constitute strong evidence for the occurrence of the ‘reds’, ‘blues’ and ‘violets’ in BH (and Koine Greek), implying an affinity, or even a “lexical solidarity” between the terms for the dyes and the skins. The problematic expression tahaš refers to skins and has been translated in Greek with υακινθινα. In the same context, the Jerusalem Talmud in Shabbat 2:4d uses the term ianthinon ‘violet-blue’ for tahaš, as opposed to glaukinon ‘bluish-gray’:

(8) JTShab 2:4

“Rebbi Eleazar asked, may one make the Tent of leather from an impure animal? But is it not written, and tahaš skins. Rebbi Jehudah, Rebbi Nehemiah and the Rabbis. Rebbi Jehudah says, violet[-blue] (ianthinon); it was called thus because of its color. Rebbi Nehemiah said, blue [bluish-grey] (glaukinon).” (translation: Guggenheimer 2012)

The violet-blue colours are designated in PBH not only by ianthinon (Gk. ιων ‘violet’) but also by the term iakinthinon (Gr. hyacinthus, the same as in LXX, Ex. 25:4-5 above), and later also by <altinon>, in the Midrash Kohelet Rabba 1:9,29 which corresponds to Gr. ὑακινθίουν ‘true (purple)’, cf. also Edict. Diocl. 2.4.6. So we are in a position to trace potential parallels between the alternation of the dyeing techniques and the corresponding linguistic change.30

The loanwords:

Approximately two thousand Greek and Latin loanwords in Hebrew and Jewish Aramaic can be attributed to language contact. In many cases, the Latin items must have entered Hebrew via Greek, since Greek served as a lingua franca in both the Roman and Byzantine periods. The borrowing process is not restricted to single nouns, but also encompasses adjectives and verbs i.e. word classes that are usually less easily borrowed: an example is the Hebrew denominative verb sapāg ‘absorb’ (cf. u-ḥilād šello yispog “as long as it does not absorb”, Mishnah Shabbat 22:1), nistappag ‘to be dried’ (wa-ala we-nistappag “(and he) ascended and dried himself”, Mishnah Yoma 3,4) is of Greek origin, from the Gr. noun σπόγγος, in the form sepog ‘sponge’, cf. Mishnah Kelim 9,4 “a sponge that absorbed liquids” and from which the verbal forms were then derived.32 The vast majority of them pertain to material rather than spiritual culture.33 Words from all stages of Persian and other Iranian languages have been borrowed into all layers of Hebrew pertaining to clothing, textiles, and jewellery, testifying to the luxurious Oriental lifestyle (cf. below and notes 14, 21).

Novel terminology due to new onomasiological needs: new materials, techniques, and trading routes

The weaver’s shuttle34

In Biblical Hebrew, there are attested terms for weaver’s equipment, as for instance ’ereg ‘weaver’s
bobbin’, cf. Job 7:6: “My days are swifter than a weaver’s bobbin,” and are spent without hope” and dallāh (Is. 38:12) a ‘warp’, properly something dangling, that is, a “loose thread or hair; figuratively indigent: hair, pining sickness, poor (-est sort)”. In the Rabbinic literature we find more frequent attestations of the weaver’s shuttle than in the Bible, and even loanwords are employed, e.g. krkd (mShab 8:6; BTShab. 8b; JTShab. 10b) ~ Gr. κερκίς, -ίδος ‘weaver’s shuttle; peg; pin; measuring rod’ (Hom.+).

The silk production

As expected, one of the most obvious innovations and differentiations in terminology concerns the emerging silk production in the late antiquity. The Mishnah Kilaim 9:2 adds silk to the older rule of the distinction between wool and linen of the Deuteronomy 22:11 (also in Lev 13:19; and Ex 39:27-29) using the terms shiriin and kalakh for two different kinds of silk:

(10a) mKil 9:2

“Silk (shiriin) and kalakh-silk do not come under the law of Diverse Kinds, but they are forbidden for appearance sake”.

The term kalakh has been associated with the Gr. word κάλχη denoting ‘murex; purple flower, Chrysanthemum coronarium’ (Alcm., Nic., Str.).

The Palestinian Aramaic gemara of the tractate Kilaim introduces metakhsa as an explanation for shiriim and kalakh at the same time it gives us information about the usage of the term kalakh, as kalka:

(10b) “Raw silk (shiriin) and silk noil (kalakh).

Raw silk is metakhsa. Kalakh-silk is imperial ‘gbyn. Rabban Simeon ben Gamliel said, I went around among all sea-faring men and they told me that it was called kalka.” (translation: Guggenheimer 2001)

While the Yerushalmi seems to connect kalakh with ‘imperial purple’ and informs us about ‘pure silk tissues’, the <closerika> BTShab10:8b, which correspond to Gr. τὸ ὀλοσηρικὸν (Edict. Diocl. 22:14), the Babylonian Aramaic gemara, although it attests the word metaka, for example in the tractates Ketubboth and Shabath, it actually uses another term to explain the metaka-silk in the gemara of Shab 20b(31) and differentiates it from the sirah (or shirah) silk, namely by the term pranda-silk (also in Shab 20b(33) Soṭ 48b(44), which leads us to the Middle Persian paran, also known from the Pahlavi Șāyast-nēšāyast (4:1). In Targ. 2 Esth. 5:1; 6:10 we find another silk of Iranian provenience, the p’rang (pranigan) silk, probably connected with a geographical term.

Terminological innovations due to religious and social factors

The Bavli addresses the issue of how and when clothes can reveal the origin and social status of the person who wears them, and indicates that Jews who traveled from Palestine to Babylonia were recognised as foreigners by their clothes:

(11) bTShab145b-

“Why are the scholars of Babylonia distinguished [in dress]? Because they are not in their [original] homes, as People say, In my own town my name [is sufficient]; away from home, my dress.” (translation: Epstein 1952)

High quality and luxury items, like puzmaq PBH ‘gaiter, fine shoe’ and trousers as an Oriental garment, like sarbal ‘cloak, trousers’ are mainly Persian/Iranian lexemes in PBH, mostly via Aramaic mediation. Like the majority of loans, they belong to a very high literary register of language. On the contrary, there is no evidence for a distinctive slave attire: “ordinary slaves seem to have been wearing the
simple and ragged clothes characteristic of members of the lower strata of society. Others who had higher positions within the servile hierarchy will have resembled wealthier free persons in their outward appearance".44 An example for upcoming distinctions in late antiquity pertains to the differences between the monks and the Rabbis45. Furthermore, a case of ideological differentiation in attire can be traced in the clothing of the inhabitants of Qumran, who must have deliberately abstained from the use of wool as a raw material and the ‘luxury’ dyed garments (Shamir & Sukenik 2011). Head covering also offers a representative example for regional customs in combination with religious and social ‘dictates’. Although the strict rule of head cover for women in Biblical and post Biblical times has been a matter of discussion, the kind of veil or head cover could vary and be replaced according to different periods and geographical regions, e.g. there is evidence for local differentiations, cf. mShab 6:6:

(12) “One goes out with a tetradrachma on a arthritic foot. Girls go out with threads and even chips in their ears. Arab women go out veiled and Median women pinned,46 and also everybody, but the Sages spoke about what is.”47

The term employed here is a participle passive in the fem. pl.: ra’ulot ‘veiled’, a verbal root derived from a noun ra’alah, also Arabic ra’u’l ‘veil’, which can be interpreted as ‘veiled (in Arabian fashion)’.

Apart from ‘veils’, also hairnets are mentioned in the Mishnah, cf. Kelim 24:16:48

(13) “There are three kinds of hairnet (svacha): that of a girl, which is susceptible to uncleanness; that of the old woman, which is susceptible to corpse uncleanness; and that of a harlot, which is not susceptible to any uncleanness”

As in the case of the Arabian fashion, we benefit from other passages about garments not traditionally worn by Jewish people. A more ‘exotic’ term can be found in the Babylonian Talmud, in the Berachot (20a): karbalta means a type of a hat, of a certain woman who was wearing a head covering in the street.49

(14) “There was the case of R. Adda b. Ahaba who saw a heathen woman wearing a red head-dress (karbalta) in the street, and thinking that she was an Israelite woman, he rose and tore it from her. It turned out that she was a heathen woman, and they fined him four hundred zuz” (translation: Epstein 1952)

The word is also attested as ‘cock’s crest’, probably continuing an Akkadian form karballatu ‘for a piece of linen headgear for soldiers’.50 In addition to the head dress and the trousers, which were unpopular or even unacceptable garment pieces for the Graeco-Roman style,51 another feature of Oriental fashion gradually enters the Rabbinic lexicon, namely the ‘long-sleeved tunic/coat, tunica manicata’, as the term <krdot> (Targ. 1 Sam 2:28) ~ Gr. χειριδωτός, suggests.52
Conclusion and prospects

On the one hand, the study of language change can be very useful – as supporting evidence to the archaeological findings – for the purpose of reconstructing cultural and technical innovations concerning clothing and textile production. Next to their religious importance, the Rabbinic texts are an invaluable source for the investigation of linguistic and cultural transitions throughout many centuries, pertaining not only to Judaism and Palestine, but to the greater area of the Eastern Mediterranean. On the other hand, the writing system, the transmission of the texts and the various manuscript editions pose numerous problems for the identification and interpretation of specialised vocabulary in the Rabbinic literature, especially of loanwords. Scholars working on Greek loanwords in the Rabbinic literature suggested principles and criteria which can be useful for revising out-of-date etymologies and offering new etymological solutions.

Linguistic analyses on the level of the clothing and textile vocabulary of the Rabbinic literature produce parallel results to the findings of archaeology and ancient history. Further, the linguistic evidence allows us to assume a moderate case of language contact: where the secure terms from the Graeco-Roman world become lesser, the vocabulary from other areas of the Near East increases, revealing new dimensions for our cultural understanding. It is also important, that the differences between the attestations of the Palestinian and Babylonian traditions, respectively, and the vocabulary of Josephus and the Diaspora should not be neglected, in order to highlight the particular linguistic varieties of the texts, which enable us to reconstruct regional and sociolinguistic characteristics of the textile terminologies.

Abbreviations

bT = Babylonian Talmud
BH = Biblical Hebrew
CAD = The Assyrian Dictionary
EWAia = Etymologisches Wörterbuch des Altindoarischen
Gr. = Greek
jT = Jerusalem Talmud
Lat. = Latin
LXX = Septuagint
PBH = Post Biblical Hebrew

Bibliography


Sha’atnez – The Biblical Prohibition Against Wearing Mixed Wool and Linen Together and the Observance and Enforcement of the Command in the Orthodox Jewish Communities Today

Orit Shamir

Jewish law forbids Sha’atnez – wearing mixed wool and linen together was forbidden for the Jewish population. The article will first explain the meaning and acronym of sha’atnez, and then review the sha’atnez textiles which were found in the Land of Israel. The possible reasons for the prohibition of sha’atnez will be presented and remarks on observance and enforcement of the law in Orthodox Jewish communities today will be made according to ethnographic investigation.2

The concept of sha’atnez

Jewish law forbids sha’atnez – wearing garments of mixed wool and linen. This is mentioned twice in the Hebrew Bible: It is written in Leviticus 19:19, where it is stated that “you shall not put on cloth from a mixture of two kinds of material”. The prohibition of “the mixture of diverse kinds” of material is mentioned in additional contexts such as interbreeding different species of animals together, working different species of animals under the same yoke, and planting different species of seeds together in a single field. Sha’atnez garments are mentioned but the specific materials are not listed. In Deuteronomy 22:11, however, it is added that “You shall not wear cloth combining wool and linen”.

Sha’atnez applies only to sheep’s wool and linen. Any other combination of plant and animal fibres does not create sha’atnez, such as the combinations of cotton, silk, camel hair, mohair, hemp or nettle. The wool and linen may not be spun, woven, sewn, tied, knotted, or knitted together for garment use. Even one linen thread found in a large garment of wool renders the entire garment sha’atnez.3 Men and women are equally obligated in all the prohibitions of sha’atnez and it is also forbidden to clothe a child in sha’atnez garments.4

1. I would like to thank Rabbi Nahum Ben-Yehuda for his comments.
2. The Ancient Textiles Study Collection in Israel includes a wealth of textiles, basketry, cordage wood and leather artifacts, fruits and seeds – dating from 8000 BCE until 1800 CE. They can be seen on the on-line web site project of “Selected Artefacts from the Collections of the National Treasures”. In 2018 the collection will move to the National Campus for the Archaeology of Israel instead of the storeroom that is used today and will be called “The Nash Family Center for Ancient Textiles and Organic Materials”. Some of the textiles presented in this paper are stored in this collection. http://www.antiquities.org.il/v/default_en.aspx
3. Brauner 2006, 1; Mishnah tractate Kil’ayim 9:9; Sifrah Qedoshim 2:4; Sifrah Qedoshim 2:4; Sifrah Devarim 235.
This law is strictly observed by the Jewish Orthodox community today and many people bring clothing to special experts who are employed to detect the presence of sha’atnez by microscopes and other means.

**Etymology of the word sha’atnez**

The word is not of Hebrew origin, and its etymology is obscure. Some like Albright quoted also by Lambdin and Milgrom suggest that it is of Egyptian origin:

s’d ‘to cut’ and ng ‘thread’ or sht means weave and n’dz means false; the compound sha’at-nez therefore signifies a ‘false weave’ or false textile.

The Mishnah, Judaism’s first major canonical document following the Bible, explains the word sha’atnez as an acronym of three words in Hebrew: shua = ‘combed’, refers to the combing of the raw fiber; tavey = ‘spun’, the process of spinning fibers into a thread; nuz = ‘twisted together into threads’. They represent three different stages in the processing of the wool and linen fibers.

The Modern Hebrew word sha’atnez means mixture, and this may be a semantic change as a result of the word’s use in Biblical law. We use this word very often, for example, “the food in Israel is sha’atnez of cultures”.

**Sha’atnez textiles preserved in the archaeological record**

Although thousands of textiles in Israel have been examined by the author, not one piece of sha’atnez has been recovered from any Roman period Jewish site. This stands in contrast to Roman sites in neighboring areas, as for example in Syria at sites such as Dura Europos and Palmyra, and in Coptic Egypt, which have yielded great quantities of textiles made of mixed linen and wool.

Yet a few pre-Roman and Roman sites have yielded Sha’atnez textiles (Table 1, fig. 1) and they are discussed in my previous article about this topic.

### Table 1. Sites that yielded Sha’atnez textiles

<table>
<thead>
<tr>
<th>Site</th>
<th>No. of textiles</th>
<th>No. of Sha’atnez textiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wadi ed-Daliyeh (Fig. 2)</td>
<td>58</td>
<td>3</td>
</tr>
<tr>
<td>Masada, sewing threads</td>
<td>Thousands, only 122 were published</td>
<td>7</td>
</tr>
<tr>
<td>Cave of Letters sewing threads</td>
<td>346</td>
<td>1</td>
</tr>
<tr>
<td>‘En Tamar (Fig. 4)</td>
<td>c. 200</td>
<td>c. 4</td>
</tr>
<tr>
<td>Kuntillat ‘Ajrud (Fig. 5)</td>
<td>120</td>
<td>3</td>
</tr>
</tbody>
</table>

6. Albright 1943, 32, note 27.
9. Liebenberg 2014
Explanations for the Biblical prohibition

The Hebrew Bible does not explain why it is forbidden to mix the two fibers—wool and linen—other than being God’s command, but ancient (like the sages) and modern interpreters have suggested different explanations in order to make the rule of sha’atnez understandable. I will present a few reasons that could explain sha’atnez.

a.) One explanation is connected with the priests’ garments: only priests were allowed to wear sha’atnez. Why was it necessary that the High Priest dressed in clothes made of mixed wool and linen while serving in the temple?

Perhaps this was to distinguish between the worship carried out by the priests and that carried out by the Jewish commoners. Therefore, sha’atnez was forbidden for the commoners. This explanation is also corroborated by Josephus Flavius (Joseph ben Matityahu, 37-100 CE), who wrote in his book *Antiquities of the Jews* that wearing sha’atnez was prohibited and reserved for the priests of Israel. I will here discuss only one aspect of the priests’ clothes and this is the sha’atnez. Although the garments of the High Priest were different from the garments of the ordinary priests, most scholars agree that all of them wore sha’atnez. Ordinary priests wore sha’atnez only in their girdle and the High Priest in additional garments. The Bible describes the priests’ girdle in the following way: “And the sash of fine twisted linen, and blue and purple and scarlet material, the work of the weaver, just as the Lord had commanded Moses.” Rabbinic Judaism maintains that sha’atnez was permitted in the case of the priest’s girdle, in which linen was woven with purple, blue, and scarlet yarn. According to the Rabbis (Judaic studies teacher, religious authority in Judaism), the purple, blue, and scarlet was made from wool.

As Boertien states, the use of special fabrics or liturgical garments was, and still is, a common phenomenon worldwide. In Egypt a special kind of Egyptian linen, the ‘royal linen’, was intended for priestly vestments. In Mesopotamia, where the dominant fiber was wool, the priests were also dressed in linen.

The eight garments worn by the High Priest are as follows: The breastplate, ephod, robe, tunic, turban, belt, crown and pants. Three of these garments were sha’atnez woven with plied linen threads and blue, scarlet and purple wool threads, considered the most expensive dyes and produced from Hexaplex trunculus (*tekhelet*), *Murax Brandaris* or *Thais Haemastoma*—(*argaman*) shellfish—and the kermes (*tola’at shani*) insect.

The Bible instructs that the High Priest’s vestment should be decorated and colored, for honor and for beauty: “Make sacral vestments for your

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15. [https://www.templeinstitute.org/priestly_garments.htm](https://www.templeinstitute.org/priestly_garments.htm) (accessed 01/02/2016).
18. Quillien 2014; Sheffer & Tidhar 2012, 310.

brother Aaron, for dignity and adornment.” Indeed, the Talmud informs us that when the Persian king Ahasuerus made a feast for his advisors and officers and sought to impress them with his greatness (as recorded in the scroll of Esther, which tells the story of Purim), he put off his own royal vestments and donned the uniform of the High Priest, which was more precious than his...
Figure 4. ‘En Tamar. Linen textile decorated with wool bands (Israel Antiquities Authority No. 2003-9038. Courtesy of the Israel Antiquities Authority. Photo by Clara Amit).
own. These priestly garments were in his possession since the First Temple had been destroyed by the Babylonians. Another aspect of “honor and beauty” means that the uniform must fit each perfectly. Thus, it was forbidden for the pants, for example, to be too long or too short. The garments were made on order for each priest, tailored to fit his measurements exactly.

One of the interpreters is R. Shimshon Refael Hirsch. In his work on the philosophy of Jewish Laws and Observances he states: “Only the priest had wool and flax mixed in his clothing, for he represents the community as a unity, and in his personality bridges all dissimilarities.” Rather than thinking of *sha’atnez* as something negative, in fact it represents a higher level of existence to which only certain individuals involved in certain activities can aspire!\(^{24}\)

b.) Another explanation is given by the Talmud:\(^{25}\) here, it is suggested that the prohibition of *sha’atnez* is related to Cain and Abel, the first naturally born human beings. They brought offerings to God: “Now it came to pass at the end of days, that Cain brought of the fruit of the soil, interpreted as flax, an offering to the Lord. And Abel he too brought of the first born of his flocks and of their fattest, and the Lord turned to Abel and to his offering.”\(^{26}\) This mixture ended up being lethal and Abel lost his life.

c.) Another reason is that linen is a product of a riverine agricultural economy, such as that of the Nile Valley, while wool is a product of a desert, pastoral economy, such as that of the Hebrew tribes. Maimonides, a medieval Jewish philosopher,\(^ {27}\) argued that the prohibition was a case of the general law against imitating Canaanite customs\(^ {28}\) – “And you shall not walk in the manner of the nations…”\(^ {29}\) The rules about forbidden mixtures serve to remind the Israelites how their past experiences with Canaanites and Egyptians threatened their national identity.
Observance and Enforcement of the Command in the Orthodox Jewish Communities Today

Observant Jews in current times also follow the laws of sha’atnez. With the widespread use of synthetic fabrics, the issue of sha’atnez is more complicated and especially since many garments are manufactured in various parts of the world by non Jews. In some cases, parts of a garment are being manufactured in one country and other parts in another. The result is that it is difficult for consumers to know the type of fibers that is in that garment.

Considering these developments, the sha’atnez testers of North America and their contacts in other countries have an informal network by which alert notices are sent out as new developments are discovered. This is all part of a support system that has been developed around this ancient and mysterious prohibition. For example, I found in one of the websites dealing with sha’atnez this message: “We are therefore alerting the public that some jackets of the following brands were found to contain sha’atnez this past winter: Austin Reed, Brooks Brothers, J. Crew and Zara Man.”

Most sha’atnez that is found today is located in the collar stiffeners of men’s suits especially in the more expensive suits. Most suits today are made of wool or wool blends. To retain the shape of the collar area, a canvas stiffener is generally sewn into the collar and linen is the fabric considered by the clothing industry as being the best material for this purpose.

Since clothing labels cannot be relied upon, there must be another way in which to determine whether or not an article of clothing contains sha’atnez. Sha’atnez laboratories had been established with the approval of prominent Rabbinic Authorities – in Israel, the U.S., England and elsewhere. The laboratories are staffed by specially trained experts who know where wool and linen may have been used in clothing and other articles, e.g., a suit may contain sha’atnez in any over sixty places. They also know how to identify wool and linen scientifically by means of microscopic analysis and chemical testing.

Newly purchased garments are checked to ensure that there are no forbidden mixtures. The sample takers are trained to take appropriate samples from a garment without damaging it.

Even suits that are 100% synthetic may contain sha’atnez. American law allows some leeway in labeling. A label that states that a garment is 100% wool may contain as much as 2% of other materials. In addition, the label refers only to the fabric, not to additional sewing threads or material in the padding and ornamentation.

It is permitted to try on a garment in a clothing store without knowing whether it has sha’atnez or not. If the label clearly states that the garment includes both wool and linen, then it is prohibited. However, there are different opinions about this case.

Sometimes labels can be misleading, especially in foreign languages, for example: “Laine” in French is wool, while “lin” in French means linen.

Removing the Sha’atnez

Once the sha’atnez in the garment has been located, either the wool or the linen must be removed completely. If the tailor or the store has already removed it, it still must be submitted to verification in a sha’atnez laboratory.

Sometimes the sections containing linen are removed from wool clothing or wool from linen clothing. If linen is found in a collar canvas, it is removed and replaced by a non-linen textile.

Training to become a sha’atnez checker (fig. 6)

“If you are looking for a job, there is a great need, particularly in smaller Jewish communities, to recruit qualified sha’atnez checkers. For those communities or individuals serious about undergoing a training programme, we recommend that you contact Rabbi Joel Shochett, head of The National Committee of sha’atnez Testers and Researchers, New Jersey.”

8. **Sha’atnez – The Prohibition Against Wearing Mixed Wool and Linen**

**Conclusions**

The concern to avoid sha’atnez during the Roman period, despite the hardship of war against the Roman army and the certain temptation to buy these textiles from non-Jews at the markets, is impressive and caused technical weaving problems.

Stitching wool textiles with linen threads or vice versa is also forbidden in sha’atnez. The presence of linen in the sewing threads of the Cave of the Letters and Masada can be explained by the harsh siege conditions of the Roman army.

Another important fact is the almost complete absence of mixed wool and linen (sha’atnez) textiles at non-Jewish sites, except in a few cases in the Roman period in a Nabatean burial at ‘En Tamar. It is striking that most of the textiles in Israel during the Roman period were produced by Jews and purchased by the non-Jewish population. There is a great resemblance between the Nabatean and Jewish textiles (1st-2th centuries CE), including weaving techniques, colors, decorations such as shaded bands and the number of threads per cm.

This long tradition of keeping the rules of sha’atnez exists at least since 3000 years and continues till today.

**Bibliography**


34. Shamir 2016.

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**Figure 6.** Brussels School Learns sha’atnez. [http://www.collive.com/show_news.rtx?id=10219](http://www.collive.com/show_news.rtx?id=10219) (accessed 31/01/16).


Armenian *karmir*, Sogdian *karmīr* ‘red’, Hebrew *karmīl* and the Armenian Scale Insect Dye in Antiquity

Agnes Korn & Georg Warning

*For our friend Uwe Bläsing*

This paper looks at three terms denoting the colour ‘red’, viz. Armenian *karmir*, the obviously corresponding Sogdian word *karmīr*, and *karmīl* ‘scarlet’ found in the Hebrew Bible. It will first briefly discuss the etymology of these words (summarising an argument made elsewhere) and argue that the words in question represent a technical term for a red dye from Armenia produced by scale insects. We will then attempt to show that historical data and chemical analysis of extant historical textiles confirm the Armenian red as the relevant dye.1

Etymologies

**Hebrew karmīl**

As a starting point, it is worthwhile to consider the status of colour terms in Hebrew (and other premodern cultures) in general. Jacquesson notes:

> “En français, il y a très peu de choses dont on ne puisse pas dire ‘c’est rouge’ ou ‘c’est noir’ – mais en hébreu ancien il y a très peu de choses dont on puisse le dire. En hébreu biblique (…), chaque couleur a un domaine d’application restreint, à certains types d’objets. (…) Il semble qu’elles [= les couleurs] soient souvent comme des textures, des sortes de matière – et l’importance des teintures confirme cette impression.”

Essentially, then, ancient colours are not abstract features, but bound to the objects of which they are a quality, rendering colour terms almost material features.

This applies to the shades of an animal’s coat, which still nowadays are described much like a quality of the animal (as in English *dun*, German *Falbe*).

1. Sincere thanks are due to the persons and institutions specified below for their permission to publish their photos. We are also very grateful to Johnny Cheung (Paris) and Erika Korn (Konstanz) for providing copies and references of works not readily available to us, and to Sidse Frisch (Copenhagen) and Emmanuel Giraudet (Paris) for help with the images. Transcriptions of the Hebrew passages were kindly provided by Annelies Kuyt (Frankfurt a.M.); translations are from *The Holy Bible, containing the Old and New Testaments, Authorized King James Version (…)*. Nashville: Broadman & Holman 1979. The underlinings in the passages quoted below are our additions. New Persian is transcribed in the classical pronunciation insofar as literary quotes (and poets’ names) are concerned, but in contemporary Farsi pronunciation where the reference is to modern works (including titles of books and articles.) For more details on etymological and philological matters, see Korn 2016.

3. The series of these three colours always refers to textiles of liturgical importance, used in the temple and for priest’s garments (see Brenner 1982, 143-146; Hartley 2010, 185-210; and Clines s.v. for the attestations).

4. Cf. e.g. Mayrhofer 1956, 261.

5. Delitzsch 1898, 757f.

6. We are indebted to Holger Gzella for this information. Cf. Sáenz-Badillos 1993, 115-120; Wagner 1967, 67.
by Delitzsch, might be taken to be present in a word found in the meantime in Sogdian, an Eastern Iranian language from the Middle Iranian period, as Meillet (1912, 247) announced: “Le mot [arménien] karmir « rouge », dont le caractère iranien est encore mis en doute par Hübschmann [1897], Arm. Gramm., p. 167, se retrouve maintenant en sogdien sous la forme krmʾyr”. That this Sogdian word, probably to be read /karmīr/ should be the source of Armenian karmir has then also be advocated by Olsen and others.

However, there is a considerable geographical distance between Armenian and Sogdian, and also a chronological problem, since the word would need to have migrated early enough from Central Asian Sogdiana into Palestine to feature in the Old Testament. The assumption of Sogdian loanwords in Armenian has also been weakened on linguistic grounds by recent research, which has shown that a Western Iranian language is more likely to be the source.10

Obviously, Armenian karmir needs to come from an Iranian dialect that shows the required output of PIE *ku̯r̥mi-, particularly ar as product of PIE *r. Such a dialect needs to be assumed anyway to account for Iranian loanwords in Armenian such as marg ‘bird’ (cf. Sanskrit mṛga-).11 Parthian and Persian, the chief sources of Iranian loanwords in Armenian, are excluded because their result of *r is ir in this context (cf. New Persian kirm ‘worm’). An

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8. Gauthiot 1914, 143 etc.
10. Cf. Korn 2013. Note that the absence from Western Iranian was the only reason to assume an origin from an Eastern Iranian language for that specific group of loanwords in Armenian (the words in question do not have any specifically Eastern Iranian features).
Iranian language that shows the required output of *r* (‘kard’/‘did’, ‘barz’/‘high’, ‘varg’/‘wolf’), and indeed /karm/ for ‘worm’, is Zazaki, a contemporary Western Iranian language spoken in Eastern Anatolia, overlapping with regions where Armenian was also spoken.

**Persian qirmiz**

Persian قرمز qirmiz, nowadays the usual word for ‘red’, is surprisingly absent from earlier New Persian (where ‘red’ is surx). There is no attestation of qirmiz (nor *kirmiz*) in the Shāhnāme, and none, for instance, in Omar Khayyām’s Rubā’iyāt (where the red wine is described as lāl or arḡawān), nor in the classical Persian texts contained in the TITUS database. Also, the Persian encyclopaedic dictionary by Dehxodā, who regularly quotes passages from classical poetry for each entry, has no literary example for qirmiz.

Hasanī 2010, studying the Persian word surx ‘red’, finds the oldest attestations of qirmiz to be verses by Niẓāmī (12th century) and by Nāṣir Khusrau (11th century):¹³

**‡‡** همچنین دائم نخواهد ماند برگشت زمان
موی جهت غنیتی و رون خویت قرمزی

* hamčinīn dānam naqṣ-āhad mānd bar gašt-i zamān /
mū-yi ja’d-at ‘anbarī va rū-yi xūb-at qirmizī.

“And I also know that over the course of time your curled hair will not remain amber-scenting nor your good face red (qirmizī).”

(Nāṣir Xusrau, Dīvān, Qaṣīda 223, line 7)

The other poet, Niẓāmī, was from Ganja, a town in the Republic of Azerbaijan, some 70 km from the Armenian border of today. It is known as an old centre of carpet production in wool and silk, illustrated here by the Ganja carpet in Fig. 4 (admittedly not ancient, but in the style termed “Old Ganja”). Indeed, one of Niẓāmī’s verses containing qirmiz, describing a banquet prepared for Alexander by the Chinese emperor, appears to use qirmiz in material-like sense:¹⁴

**‡‡** نشاط می قرمزی ساختند
بساطی هم از قرمز اندکتند

* našāṭ-i mai qirmizī sāxtand / 
bisāṭ-ē ham az qirmiz andāxtand

“They made the wine’s joy red (qirmizī) / [and] also spread out a carpet from red (qirmiz) [material].”

(Niẓāmī Ganǰawī, Šarafnāma, episode Mihmān-kardan-e xāqān-i Čīn Iskandar-rā)¹⁵

Ancient and also later Arabic dictionaries define qirmiz as referring to the Armenian scale insect dye. One of these, the Aqrab al-mawārid (ca. 1900), is also the reference given by Dehxodā:¹⁶

**‡‡** صبغ آرمنی احمر یقال انه من عصارة دود
یکون فی أجسام و یقال انه تصبع به الثواب
فلأ يکن پنفس لونه

šabgūn armaniyun ahmaru yuqālu
annahu min’ ašārati dādīn yakūnu fī ṣāfāmīhin wa yuqālu annahu tuṣbağu bihi at-ṭīyābū fa-lā yakādu yundalu lawnuhu

11. A third Western Iranian language in addition to Parthian and Persian as source for Iranian items in Armenian needs to be assumed also for other reasons (cf. Korn & Olsen 2012).

12. These are: Vīs u Rāmīn (Gurgānī); Sindbad-Nāme (Ẓahīrī Samarqandī); Gazals (Qabūlī).

13. Nāṣir Xusrau (1995, 562); it is Qaṣīda no. 253 in other editions. Nāṣir Xusrau was born in Qabodiyon (Khorasan, today Tajikistan).

14. Niẓāmī 1956, 410 l. 4. This verse is also the attestation of qirmiz quoted in the Tajiki dictionary by Šukurov et al. 1969/II, 691:

**‡‡** نامی فی بوئنوم و رون خویت قرمزی

* Ḥasanī 2010, studying the Persian word surx ‘red’, finds the oldest attestations of qirmiz to be verses by Niẓāmī (12th century) and by Nāṣir Khusrau (11th century):¹³

15. Wilberforce Clarke translates (Niẓāmī 1881, 651): “Exhibited the joyousness of the crimson wine; / Cast also a carpet of crimson silk.” while Bürgel’s German prose translation has “The red wine, which was drunk on red carpets, raised the spirits” (Niẓāmī 1991, 296). The Persian text edition comments “They spread out a red (qirmizī) carpet and tablecloth in the gathering place and, as they served red wine on the red carpet, they started to celebrate the red wine (all with surx)” (Niẓāmī 1956, 410).

16. Dehxodā (XXXVIII, 230 s.v. قرمز). Cf. also the quotes in Lane (VII, 2519), and note that the dictionary of classical Persian by Steingass (1891, 966) qualifies qirmiz as coming from Arabic.
Fig. 4: Carpet style *Kedim Ganja* ('Ancient Ganja') from Ganja (Azerbaijan) dated 1895, with dedication in Armenian. Photo: Marco Frangi. 

17. For further details see Azadi *et al.* 2001, 410.
Thus, the word must have been borrowed from Persian into Arabic, perhaps already with the meaning of the Armenian red; in Arabic, the initial k- was changed into qāf to yield girmiz; later on it was borrowed back into Persian. This also implies that Persian cannot be the source of Hebrew karmiš (in spite of opinions to the contrary voiced by some authors), and the ultimate source of the word must rather be an Iranian language such as Zazaki.

Also, historical sources report that scarlet dye needed to be imported into Iran, and it is known that textile workshops found it difficult to afford the high prices for the Armenien red dye. It is also known that the Sasanian kings were wearing red coats, and that king Hormisd I sent such a red coat to the Roman emperor Aurelian (270-275), maybe of similar style as the Sasanian caftan in Fig. 5.

**Textual evidence**

Indeed, classical sources and Armenian historical texts (as well as testimonies from later times) combine to show that the red dye produced in Armenia was famous for its quality already in antiquity. The clearest description is in the Geography (short version, chapter V, xv) attributed to Anania Širakacʿi (610-685):

> “A red Armenian dye of which it is said that it is from the juice of a worm living in their swamps, and of which it is said that clothes are dyed with it, and its dye is hardly surpassed.”

Thus, the word must have been borrowed from Persian into Arabic, perhaps already with the meaning of the Armenian red; in Arabic, the initial k- was changed into qāf to yield qirmiz; later on it was borrowed back into Persian. This also implies that Persian cannot be the source of Hebrew karmiš (in spite of opinions to the contrary voiced by some authors), and the ultimate source of the word must rather be an Iranian language such as Zazaki.

Textiles and cochineals

The next step for the present argument is to demonstrate that the evidence of etymological reasoning and of textual resources has a counterpart in reality, i.e. that an Armenian dye was used widely enough to render the assumption plausible that it is referred to by Hebrew karmiš: the Armenian scale insect is by far not the only species from which cochineal dyes have been produced. The best known type is the Mexican...
Fig. 5: Cashmere caftan (6th/7th c.) found in Antinoë (Egypt). Red dye: *Porphyrophora hamelii*. Photo: © Lyon, MTMAD – Pierre Verrier
scale insect, *Dactylopius coccus* (Fig. 6), which was widely used before synthetic colours were invented, but it cannot play a role here because it came from Latin America too late to be of relevance.

The Indian scale insect, *Kerria lacca* (Fig. 7), forms encrustations on branches; one breaks the twigs with the encrustation into pieces (and puts them into water to use the dye). This substance is called *lākṣā*- in the Sanskrit literature and described much like a mineral, probably because the crusts are not seen as being composed of individual insects. The word *kṛ́mi*- ‘worm’, on the other hand, is not used for the scale insect. Assumptions that Armenian *qirmiz*, or Persian *qirmiz*, might be of Indian origin, are thus rather unlikely.\(^\text{27}\)

Then there is the Mediterranean scale insect *Kermes vermilio* (Fig. 8), which predominantly lives on Mediterranean oak trees. In the passage quoted above, Di-o-skurides refers to this species, obviously assuming that the regions he mentions all use the same cochineal. However, *kermes* was not seen as an insect in antiquity, but rather perceived as a kind of fruit or berry of the tree (indeed the females are immobile).

The European scale insects, *Porphyrophora*, comprise several species. The ones potentially relevant here are the Armenian one, *Porphyrophora hamelii* (Fig. 2), and the European one, *Porphyrophora polonica* (Fig. 9).

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Fig. 6: *Dactylopius coccus* on cactus. Photo: Ana Roquero

Fig. 7: *Kerria lacca* crust on twig. Photo: Barbara Bigler

Fig. 8: *Kermes vermilio* on Mediterranean oak. Photo: Dominique Cardon

\(^{27}\) For more discussion of the Indic scale insect, see Korn 2016, 5f.
9. Armenian karmir, Sogdian karmīr, Hebrew karmīl and the Scale Insect Dye

28. This particularly applies to textiles from Antinoë (Egypt), about which Pfister 1935, 46 says that they “correspondaient toujours à une origine persane” (similarly 1934a, 83 n. 21). Pfister 1928, 242 also notes that cochineal dyes start to appear in Egypt as part of the Iranian influence.

29. Pfister 1936, 82. See also Pfister 1932b, 134-139 for some Oriental stylistic features of this group of textiles.

30. Pfister 1935, 36f.; Pfister 1934a, 85: “Palmyre étant alors le principal intermédiaire pour le commerce partho-romain et plus généralement pour les échanges d’Orient à Occident, Doura a profité de cette situation en devenant ville caravanière.”

31. These are the following items:
   Pfister 1932a (textiles from Antinoë in the Louvre): Pl. 13 bottom left, Pl. 14 bottom left, Pl. 14 top (= Pfister 1932b, Pl. XLI), all described as having their red by indigo over madder (Rubia tinctorum), but recognised as Porphyrophora in 1936, 9 n. 1;
   Pfister 1934a (no photos): woollen trousers (apparently several pieces, details not given) “dyed with a cochineal colorant that is similar, but not identical to Kermes”, thus from a hitherto unknown cochineal reacting similar to the Mexican scale insect (p. 83);

Chemical analysis

In a series of articles and books from the 1930s, Rodolphe Pfister published and examined a number of textile specimens from regions in contact with the Iranian cultural sphere, which in a number of instances show Iranian motifs or Iranian style. The red colorants of these pieces include, besides madder (Rubia tinctorum), a scale insect dye other than Kermes.28 One such piece is the tapestry fragment (Fig. 10), about which Pfister says: “Quant au style, nous trouvons de nombreux souvenirs sassanides”, and applies this also to details of the weaving technique.29 The textiles Pfister analysed were found in Egypt (dating from the 3rd-7th centuries AD) and in Dura-Europos (Fig. 13) and Palmyra in Syria (2nd-3rd centuries AD) on the border between the Roman and the Iranian empires.30 Pfister identified the red of this tapestry as well as a number of other textiles31 as being dyed with

Fig. 9: Porphyrophora polonica on grass root. Photo: Dominique Cardon

Fig. 10: Tapestry fragment found in Egypt (Antinoë). Red dye: Porphyrophora. Photo: Pfister 1936, 80ª.
a *Porphyrophora* scale insect. He suggests that it is *Porphyrophora polonica*, and proceeds to develop an argument how this species might have ended up in Iranian lands, and in fact in Syria and Egypt. This logic sounds somewhat far-fetched, and suggests a closer look at the method by which Pfister arrives at his conclusion.

To determine the dyestuffs used, Pfister produced test samples of white wool dyed with various substances; his scale insect dyes were “Lac dye” (*Kerria lacca*), “Kermes” (*Kermes vermilio*) and “Cochineal” (*Dactylopius coccus*). He then compared the chemical reactions of these against each other, and to threads taken from historical textiles. His method was to extract the colorants with various acids etc. and then to treat the solutions with further substances. At each stage, he looked at the colour obtained. Pfister found that the three scale insect dyes react differently in his experiments (particularly when the extraction is done by chlorhydric acid), and there was evidence for all of them in one or the other historical textile sample. Now, the question was which dye was present in the samples where Pfister obtained reactions similar to that of the Mexican scale insect (rather than to the other scale insect dyes or to madder or other red dyes derived from plants). Not knowing at first which scale insect could be involved here, Pfister preliminarily called it “Persian cochineal”, until he got hold of the Polish scale insect and announced that the reactions obtained are like those of the Mexican scale insect:

“Nous avons finalement trouvé le colorant du Vieux-Monde qui donne des réactions identiques avec celles de la cochenille [mexicaine], c’est Margarodes polonicus [= *Porphyrophora polonica*], coccidé vivant à la naissance des racines de certaines plantes des steppes”.

Indeed, Pfister’s observation is right insofar as the similarity of the Mexican and the *Porphyrophora* reds is concerned, but we argue that his method of merely looking at colours obtained in his experiments (rather than carrying out a chromatography) is insufficient to determine which *Porphyrophora* species is present in the textiles in question:

“des travaux plus récents sur le rouge d’insectes (...) ont montré que la similitude de composition et la variabilité des proportions des composants, tant majoritaires que mineurs, sont telles chez les *Dactylopius* et *Porphyrophora* spp.,

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Pfister 1935 (no photos): two monochrome items from Antinoë (Musée Guimet, p. 39), one monochrome item from Dura-Europos (Louvre, p. 43); several pieces from Palmyra of which the weft is dyed with scale insect (p. 44, in some cases combined with purple);

Pfister 1936: E1 Pl. XXXI (= Fig. 10), E2 Pl. XXXII (Musée de Cluny), description of both p. 81f. (apparently found in Egypt, as Pfister p. 83 writes that their details suggest “non-Egyptian origin”); p. 9 n. 1 mentions the items from the Louvre published in 1932a and one additional item (unpublished?);

Pfister 1934b / 1937 / 1940 (textiles from Palmyra): 1934b: T1, T18, T19, S15 (doubtful), L1, L7, L21; 1937: L 60, L 61 (with black-and-white photo), L31, L52, L53, L62; another part of L62 is 1940, 26 recognised as cochineal with lac-dye, which is also the red dye of four items in 1940 (L 121 with black-and-white photo; L 124 with colour photo; L 123); 1937, 12 also mentions a woolen medallion in a Gothenburg museum and 1940, 69 three items dyed with “Polish cochineal” from Xinjiang (cf. n. 42) in the Victoria and Albert Museum London (Ch. 00230, Stein 1921/II, 982 with photos in vol. IV; Ch 0028, Ch 00248); Pfister / Bellinger 1945 (textiles from Dura-Europos): nos. 7, 33-2 (no photos), 132 (black and white photo), 133 (Fig. 13). It is not quite clear whether any of the pieces published in Pfister 1928 (textiles from Antinoë, with black-and-white photos) contain the scale insect dye in question (and if any are identical to some he republished later). Pfister 1934a, 83, adds that those textiles from Egypt that show the *Porphyrophora* dye all seem of Persian origin.


33. For details, cf. Pfister 1935, 24f, who writes that some tricky cases were checked with black light (a certain type of UV light, wavelength 375 nm) which produces fluorescence in some substances, but does not specify which ones.

34. Pfister 1935, 33f. Previously Pfister 1928, 229, had thought (following other authors) that the Mediterranean insect would react similarly to the Mexican scale insect and thus assumed that *Kermes* is present in the specimens that he then found to contain two different cochineal dyes (cf. Pfister 1935, 46).

35. Thus in Pfister 1934b.

que la distinction entre espèces et leur identification dans un textile ancien sont particulièrement complexes et qu’elles nécessitent le recours à de nouvelles méthodes d’extraction et d’analyses."\textsuperscript{37}

Also, Pfister obviously did not think of the Armenian scale insect, nor did he have some at hand to compare his results to.

Modern methods qualified as necessary by Cardon to determine the exact scale insect species include chromatography by HPLC (high performance [formerly: high pressure] liquid chromatography). The liquid to be analysed is pressed through a tube (with a solvent such as acetonitrile or a mixture of methanol/water) that contains an adsorbent material (such as synthetic resin or calcium carbonate), with which the components of the solution will interact in different ways, producing differing speeds for the components on their way through the tube. The components thus pass a certain fixed point of the tube at different moments, where one sends light of an appropriate wave length through the tube (often UV light) to measure the percentage of light that is absorbed by the solution; one can also determine the start, maximum and end of their passage at the fixed point. Solvent, adsorbent material and wave length of light need to be chosen depending on the substances one wishes to analyse. The chromatogram then shows the light absorption rate in relation to the time within which the solution passes the tube (cf. Fig. 11). The characteristic time points of the various components can be identified with the behaviour of the pure substances which one submits to the same analysis. The chromatogram also allows calculating the quantity of the various components in the solution (by integrating the area below the curve).

Studies employing the method just outlined include the one by Wouters & Verhecken 1989. In order to submit dyed textiles to chromatography, one extracts and dissolves the colorant and separates it from the mordant, for instance by a liquid containing an acid, to yield a solution which is then analysed. Wouters & Verhecken first produced test samples of dyed wool with various scale insects to determine their dyeing substances. These turn out to be acids such as carminic acid, kermesic acid, etc. It emerges that the various species of scale insects contain substances which are closely related chemically, but in very different quantities.\textsuperscript{38} Wouters & Verhecken then

\textsuperscript{37} Cardon 2014, 626.

\textsuperscript{38} As the test samples also showed, these quantities also depend on the mordant employed (as well as on the details of the extraction of the colorant from the insect and the dyeing process).
proceeded to compare the results to test those of historical textiles.\textsuperscript{39}

Fig. 12 presents the concluding table by Wouters & Verhecken 1989 summarising their analysis (adapted for the present purposes, and with the results for the Armenian scale insect Porphyrophora hamelii highlighted). It shows the relative quantities of selected dyeing acids in test samples and in historical textiles from various regions and centuries. Clearly the main difference is that between Dactylopius and Porphyrophora on the one hand and Kermes and Kerria lacca on the other. But within the first group, the chemical composition of Dactylopius is by far closer to Porphyrophora hamelii than to Porphyrophora polonica.

As mentioned above, Pfister found the results for his supposed Porphyrophora polonica “identical” to those of Dactylopius coccus. Since the composition of the dyeing substances of Porphyrophora hamelii is much closer to Dactylopius coccus than that of Porphyrophora polonica (cf. the numbers in bold in Fig. 12), this suggests two possibilities: Either Pfister’s method would yield the same results for Porphyrophora hamelii and Porphyrophora polonica, which would mean that the method is not fine-grained enough to permit a decision between the two species, or else Pfister’s observation is mistaken (the results are actually not “identical”), and Porphyrophora hamelii would have behaved even more similarly to Dactylopius had Pfister had the opportunity to carry out experiments with this species. We thus argue that Pfister’s approach is not sufficient to permit a decision in favour of Porphyrophora polonica. It seems at least as likely (and historically much more so) that the textiles in question are dyed with the Armenian red.

Historical textiles which were submitted to modern chemical analysis that has shown their red dye to be the Armenian scale insect Porphyrophora hamelii include the Sasanian caftan mentioned above (Fig. 5). As this caftan was found in Antinoë in Egypt, it

<table>
<thead>
<tr>
<th>dyeing acids</th>
<th>laccic acid B</th>
<th>“dc II”</th>
<th>carminic acid</th>
<th>laccic acid A</th>
<th>flavokermesic acid (+)</th>
<th>kermesic acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>↓ scale insects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Dactylopius coccus</em> (Fig. 6)</td>
<td>0</td>
<td>1.4-3.8</td>
<td>94-98</td>
<td>0</td>
<td>0.4-2.2</td>
<td></td>
</tr>
<tr>
<td><em>Porphyrophora hamelii</em> (Fig. 2)</td>
<td>0</td>
<td>0.1-1.2</td>
<td>95-99</td>
<td>0</td>
<td>1.0-4.2</td>
<td></td>
</tr>
<tr>
<td><em>Porphyrophora polonica</em> (Fig. 9)</td>
<td>0</td>
<td>+</td>
<td>62-88</td>
<td>0</td>
<td>12-38</td>
<td></td>
</tr>
<tr>
<td><em>Kermes vermilio</em> (Fig. 8)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0-25; 75-100</td>
<td></td>
</tr>
<tr>
<td><em>Kerria lacca</em> (Fig. 7)</td>
<td>0-20</td>
<td>0</td>
<td>0</td>
<td>71-96</td>
<td>3.6-9.0</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 12: Composition of dyeing acids in various scale insects (adapted from Wouters & Verhecken 1989, 198.\textsuperscript{41}

\textsuperscript{39} The procedure of producing test samples of wool dyed with various substances and comparing their behaviour to threads taken from historical textiles, and to extract the dye by an acid and analyse the solution is not unlike Pfister’s approach, but the methods of analysis are quite different. Analysing solutions obtained from dyed wool (rather than analysing the dyes themselves) intends to produce conditions close to those of the historical textiles. It needs to be kept in mind that the mordants have an important effect on how the dyes will attach to the fibres (thence quite differing colours depending on the mordant employed).

\textsuperscript{40} “*Dactylopius* coccus” is a yellow dyeing substance which is present in several scale insect dyes (Wouters & Verhecken 1989, 191). In the meantime, it has been recognised as a glucoside of flavokermesic acid (Cardon 2014, 696). The chemical structures of flavokermesic and kermesic acid are very similar (cf. Fig. 4 in Cardon 2014, 695).

\textsuperscript{41} “All figures represent relative abundances, calculated from integration at 275 nm” (Wouters & Verhecken, *ibid.*).
seems highly likely that other textiles from the same excavation (such as Fig. 10) contain the same Porphyrophora species, and a similar logic would extend to Porphyrophora dyes of Iranian style from other parts, such as the pieces from Dura-Europos (among these Fig. 13) and Palmyra.

One might then suggest that further historical textiles from the Iranian sphere which have been shown to be dyed with a Porphyrophora species might likewise contain Porphyrophora hamelii. This applies to the cashmere fragment from Xinjiang (Fig. 3), and at this point we are reminded of the Sogdian word karmīr and of the fact that the Sogdians were traders along the Silk Road, and very much present in what is now Xinjiang, and red pieces of cloth are among the commodities mentioned in Sogdian texts.

Other historical textiles submitted to HPLC yielding Porphyrophora hamelii as red dye include a pair of a bishop’s knitted silk gloves from France (15th/16th centuries) and a hat offered by King Henry VIII to the town of Waterford, Ireland (16th century), demonstrating how appreciated the Armenian red proved throughout centuries and cultural spheres.

If, then, the Armenian red was so widely spread that it found its way into Iranian textile remains preserved in Syria and Egypt, it seems quite probable that karmīl in the Ancient Testament, which since Delitzsch 1898 has been assumed to be of Iranian origin, refers to exactly this red dye.

Conclusion

As mentioned above, karmīl in 2 Chronicles replaces Hebrew tōlaʿ at šānī used in the other books of the Old Testament. The Chronicle books retell events described in older sources, with characteristic adaptations. 2 Chronicles 2–5, within which the only three attestations of karmīl are found, re-describes the construction of the Temple found in 1 Kings 6–7, but adds a curtain (while no textiles are mentioned in 1 Kings). The term ‘veil’ as well as the actual formulation clearly is a reference to “the design and construction of the tabernacle” made by Moses in the desert (Exodus 25–27). Particularly parallel to the passage quoted in the beginning is Ex. 26:31:

\[
\text{And thou shalt make a veil of blue, and purple, and scarlet, and fine twined linen of cunning work: with cherubims shall it be made.}
\]

One might wonder whether perhaps the motivation for the substitution of karmīl for tōlaʿ at šānī in the quasi-quote in 2 Chronicles lies in a substitution of

42. In fact, Pfister 1934a, 88, 92, mentions textiles found by Sir Aurel Stein in Xinjiang which seem to be of “Syro-Iranian character” and Pfister 1940, 69, describes some of Stein’s pieces from the Thousand Buddha Caves as dyed with “Polish cochineal” (cf. n. 31).
44. Williamson 1982, 209.
scale insect dyes in this period. The commonly used tōlaʿat šānī is likely to refer to Kermes, which was in use in Antiquity and up into modern times all around the Mediterranean. In 2 Chronicles, reflecting Aramaic influence, and Iranian via Aramaic, it seems possible in view of the discussion above that the reference of karmīl is to the Armenian dye.

If so, this would imply that the term for the colour, or rather for the dye, came with the colorant it referred to, just as so many commodities of trade have brought their names with them. This would confirm the statement quoted at the beginning that Hebrew colour terms, and in fact probably any ancient colour terms, are a feature of the object they come with, underlining once again the importance of studying etymology together with the realities that the speakers employ the words for.

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45. According to Cardon (2014, 595), the Kermes species referred to by tōlaʿat šānī is Kermes echinatus, which is not identical, but very similar, to Kermes vermilio.

46. Cf. Singer (1954, 246): “The best variety [of cochineal red] is said in the Old Testament to have come from the mountains—that is, the Armenian region.”


Armenian Textile Terminology

Birgit Anette Olsen

The part of the Armenian vocabulary that is inherited from the Indo-European protolanguage is notoriously limited, variously estimated to include between 450 and 700 stems. Otherwise, the lexicon is dominated by etymologically obscure elements and an impressive amount of Middle Iranian loanwords, reflecting the centuries of Iranian political dominance. In particular the Parthian loans, introduced during the Arsacid dynasty (247 BC-224 AD), have left their mark on the Classical Armenian language, attested from the early 5th century, to a similar extent as Old French on English or Low German on Danish, so that linguists until the late 19th century still considered Armenian an aberrant Iranian dialect rather than an independent branch of the Indo-European family. The other main sources of loanwords, Syriac and Greek, are intimately connected with the introduction of Christianity around 300 and hence mainly restricted to the specific word fields of religion and philosophy.1

Obviously, this state of affairs also affects the textile vocabulary where the impact of Iranian language and culture can hardly be overestimated.2 Thus, it is quite natural that the Iranian superstrate dominates the lexicon pertaining to advanced textile production, clothing, fashion and ornaments, while on the other hand the core of inherited terms refers to basic products and techniques such as fleece and wool, spinning and weaving. The basis of the present lexical study is the classical language, mainly as attested in the oldest text, the Bible translation from around 410.3

The terminology of wool

Any discussion of Indo-European culture in general and the dating and geographical position of the Indo-European homeland in particular must include a reflection on the word for ‘wool’, since the occurrence of wool sheep and the technology of wool production is a significant cultural feature of all the ancient Indo-European civilizations. There can be no doubt that the protolanguage had a feminine noun with the precise meaning wool in the daughter languages and a protoform *h₂ulīk̂-nah₂ which is continued in most branches of the family: Vedic ūrṇā-, Avestan varənā-, Latin lāna, Welsh g wlan, Gothic wulla, Lithuanian

1. According to Solta (1990, 13), 5572 of the words included in Ačaryan’s etymological dictionary (1928-35) are registered as being of unknown origin, 4014 are loanwords, mainly Iranian, and only 713 are considered inherited.
2. Cf. e.g. Hübschmann 1897, 91-259; Bolognesi 1960; Schmitt 1983; Olsen 1999, 857-920.
3. The treatment by Olsen 1999 includes details concerning the inventory and historical analysis of nouns and adjectives.
vilna, Old Church Slavic vlı́na. Other cognates are the Greek neuter s-stem ἔλενη for expected feminine *lēnē where the aberrant gender and inflectional type may have been triggered by the two other words for ‘wool’, εἶρος and πόκος, and Hittite hulana-, also ‘wool’, whose exact protoform, *h₂ul₁₂-nah₂ or *h₂ul₂-nah₂ may be debated. Irrespective of the details, the very existence of this stem in Hittite at least takes us back to the period before Anatolian, as the first branch, separated from the rest of the Indo-European family. However, one thing is the existence of a common word; another is its precise original meaning and derivational background.

As summed up by Anthony (2007, 59):

“Sheep with long woolly coats are genetic mutants bred for just that trait. If Proto-Indo-European contained words referring unequivocally to woven wool textiles, then those words have to have entered Proto-Indo-European after the date when wool sheep were developed. But if we are to use the wool vocabulary as a dating tool, we need to know both the exact meaning of the reconstructed roots and the date when wool sheep first appeared. As the dating of this mutation is perhaps around 4000-3500 BC., one would then assume that the separation of the Indo-European family took place as late as the 4th millennium”.

This is a fair assumption, but taking on the role of the Devil’s Advocate, one could object that even if every single Indo-European language had a concordant word for ‘wool’, the meaning in the protolanguage need not necessarily be ‘wool’ in our sense. Instead, it might e.g. have denoted the rough annual shedding of early domesticated sheep which could not be spun, but only used for the production of felt. In that case the semantic development to ‘wool’ would have taken place at a later stage, independently in the separate branches.

A scenario of this sort is not very likely, but we need exact linguistic evidence to definitely refute the faint possibility. If it can be proved that the meaning of the basic root of the word for ‘wool’, i.e. *h₂ye₃l₁₂, was ‘pluck, tear out’, the semantics of *h₂ul₁₂-nah₂> Latin lāna etc. ‘what is plucked (off)’ only makes sense in connection with the fleece of wool sheep. Incidentally this does seem to be the case, as substantiated by Latin vellō ‘to pluck (hairs, feathers etc.)’ and vellus ‘fleece’. Thus, we can be fairly confident that our Indo-European ancestors, perhaps five or six thousand years ago, did in fact possess domesticated wool sheep, initially plucking rather than shearing their wool to use it for spinning and weaving.

The exact match of lāna etc. happens to be unattested in Armenian. What we do have, however, is a precious isolated archaism in the form of the primary men-stem gelmn ‘fleece’ (Olsen 1999, 504; Martirosyan 2010, 204) from which *h₂ul₁₂-nah₂ constitutes a secondary derivative: where *h₂ye₃l₁₂-mn > gelmn is the fleece, *h₂ul₁₂-nah₂ > *h₂ul₂-nah₂ (> lāna etc.) is a substantivized feminine/collective ‘that which pertains to the fleece’, i.e. ‘wool’.

In the meaning of ‘wool’ we find another inherited term, asr, cf. e.g. Psalms 147.16: dnē z-jiwn orpēs z-asr “he giveth snow like wool”, or Rev.1.14: ev glux nora ew herḳ ibrew z-asr spitak ew orpēs z-jiwn “and his head and hair was white like wool and like snow”. Traditionally, asr is considered a contamination between *pókos as in Greek pókos ‘fleece’, Old Norse fár ‘sheep’ on the one hand, and the neuter u-stem

*péku > Vedic pása, Avestan pasu, Latin pecu, Gothic faihu ‘livestock, cattle’ and Modern English fee on the other.5 While the meaning ‘fleece’ matches that of pókos (but not that of fár!), the u-stem inflection6 is more in accordance with Vedic pása etc.

The root of at least pókos and its cognates has been identified with that of Greek πέκος ‘(pluck >) comb, card’,8 Lith. pešū ‘pluck’, so that pókos, rarely also neut. s-stem pékoς with regular e-grade, would be ‘plucking’ or ‘that which is plucked’, i.e. ‘sheep’s
wool, fleece’, and we would have exactly the same semantic development as in *h₂ulh₆-nah₂-’wool’ from *h₂uelh₆- ’pluck’. An etymological identity between the roots of πόξος, πεῦ ’pluck’ and *pékʰu ’livestock’, on the other hand, is not quite certain. While it is traditionally assumed that *pékʰu would have had a hypothetical basic meaning ’(wool) sheep’ or ’small cattle’ with a secondary extension to ‘livestock’ in general, this development cannot be philologically verified, so that the connection is sometimes questioned, cf. e.g. Mallory & Adams (1997, 23). Still, the formal similarity and the apparent mutual semantic influence between *pékʰu and (*peke/o- ⇒) *pékʰos/ pokʰos would seem to suggest an old connection, thus in particular the u-inflection of asr ’wool’ and the perfect formal identity between the Greek s-stem πόξος ’fleece’ and Latin pecus, -oris ’cattle, small cattle’.

Another derivative of the root *pekʰ- possibly survives in the otherwise etymologically unclear ostayn (i-st.) ’web, textile’ with the compound sardioslayn ‘cobweb’ (cf. sard ‘spider’). At least a protoform *pokʰi-ti-, already posited for Old Swedish faet, Old English feht ’fleece’, Old Frisian fecht ’wool, fleece’, would probably yield Armenian ost- by regular sound change. As for the end segment -ayn, one may tentatively suggest a compound *pokʰiti-tii- or the like,10 derived from the root *ten- ’stretch; spin’, cf. e.g. Vedic tanti- ’cord, line, string’, tāntu- ’thread, cord, string, line, wire, warp (of a web)’, tántra- ’warp’, Persian tan- ’spin, twist’, so that the original meaning would have been something like ‘wool-web’.

Another potentially inherited term is the o-stem burd ’wool’ with the denominative verb brdəm ‘shear, cut (wool)’, which does not have a generally accepted etymology. However, in his monumental, but not so easily accessible dictionary, Aćařyan,11 with reference to Patrubány,12 mentions a possible connection with Sanskrit bardhaka- ’cutting’ and Latin forfex ‘tongs, pincers; shears, scissors’. Semantically the suggestion is quite attractive. Like Latin lāna etc. on the one hand, Armenian asr and Greek πόξος on the other, we must assume that the verbal root *bʰerdl- ’gather, harvest’ → ’pluck (wool)’ derives from a time when wool was plucked rather than shorn, and that the derivatives only later, in the individual branches and following the technological development, were lexicalized with the specific meaning of ‘shearing’.13 The root vocalism of burd which would at first sight appear to point to a lengthened o-grade *bʰərd̥o-, is somewhat surprising; on the other hand, we have two apparent parallels in durgn ’potter’s wheel’14 and burgn ’tower’.15 The word burd is quite rare in classical literature beside the more usual asr.16 Another word for ‘fleece (of wool)’ is the Semitic loan gzaṯ, Syriac gezzǝθā, which is only attested four times in the same passage of the Book of Judges, 6.37-40, as a translation of Greek πόξος.

While Armenian may thus have preserved as many as three inherited words for ‘fleece’ and

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8. Also, with secondary semantic transfer, ‘shear’, e.g. Theocr.28.13: πόξος πέξασθα ’have their wool shorn’.
9. Cf. dustr ’daughter’ < *dugja fihr with loss of the laryngeal *a, regular palatalization *g > *g̥ after u and voicing assimilation *g̥t > *kt >st. The numeral ur ’eight’ most likely goes back to *opīd as a substitution for *okh after *sepm (> evride) ’seven’ (cf. Martirosyan 2010, 631).
10. Regular loss of *s- in unaccented syllable, *-u > -an- and i-epenthesis *-ani > -aun.
13. Cf. Flemestad & Olsen, this volume, for further details and references.
14. Root *dʰerg̥- ’turn’.
15. Root *bʰerdl- ’(be) high’. A lengthened o-grade is rather a morphological monstrosity except in vṛddhi formations, and apart from this peculiarity, the root-final -o- of both burgn and durgn is at variance with the regular development of the palatal *g̥t > -o- in the clearly inherited burjʰ ’high’ < *bʰryu- and aor. darjəy ’turned’ < *dʰryg̥- from the very same roots. On this background it seems possible, as suggested in Olsen 1999, 951, that we are dealing with loans from another Indo-European language with different sound laws where -ur- might represent either a zero grade *-r- or an o-grade *-or-. Now burd might be added to the evidence, and at least it is noteworthy that from a semantic point of view burgn, durgn and burd are all likely candidates for cultural loans/Wandervölker.
‘wool’, gełmın, asr and perhaps burd, the origin of the common term for ‘flax, linen’, ktaw (o-st.), is unknown, and its rare synonym xcuc in Judg. 15.14 seems to have a Caucasian source. The Wanderwort behēz/behēz ‘fine linen’, as also Greek βύσσος which is transmitted through Semitic, ultimately goes back to Egyptian, but the immediate source is unknown; another pedigree of the same stem is viš ‘fibre of flax’. Xorg (o-st.) ‘sackcloth’ is either transmitted through Syriac xurgā or borrowed directly from Middle Iranian *xwarg-. Finally, stew ‘camel’s hair’ is traditionally compared with Vedic stūkā- ‘knot or tuft of hair or wool’ and stupā- ‘knot, tuft of hair’ though the exact protoform is open for discussion.

**Terminology of spinning and weaving**

Most of the verbs pertaining to basic textile technology of spinning and weaving are more or less direct continuations of inherited stems though the lexicalized meaning has sometimes undergone changes in the course of time. While the common Indo-European root for ‘weave’, *u̯ebh-, known from e.g. Greek ὑφαίνω and German weben, has left no apparent traces, the usual Armenian verb is ankanem. Synchronically this looks like the active counterpart of ankanim, aor. ankaw, ‘fall down, come down, hang down’ from the root *sengw- as in Gothic sigguan ‘sink, go down’, English sink, and the causative sagqjan ‘lower, let down’ which would also be the expected meaning of ankanem. If we are indeed dealing with the same root from a historical point of view, the peculiar semantic development may perhaps be seen in connection with weaving on vertical looms where the warp is held down by the loom-weights, cf. also ankuač ‘weaving, texture’ with the literal meaning ‘what has been made fall, go down’. A compound with the same stem is found in the designation of the ‘weaver’, ostaynak, lit. ‘who makes the web come down’, i.e. ‘web-weaver’, cf. e.g. 1.Chron.11.23: niżak ibrew z-stori ostaynakac “a spear like a weaver’s beam”, whence also the derivative ostaynakut’iwn ‘weaver’s work’.

A root from the terminology of spinning is Indo-European *(s)penh,25 with or without the “mobile s-” in Gothic spinan ‘spin’, Lithuanian pinū ‘plait’, Old Church Slavic pņo ’stretch’ and, with secondary metaphorical meaning, Greek πένομαι and πονέομαι ‘exert oneself, make an effort’. An Armenian continuation of this verb is allegedly found in henum ‘weave, sew together’ with the variant hanum where the vocalism is assumed to be analogically extended from the original aorist stem. However, it is remarkable that henum and hanum hardly occur in classical literature, losing ground to niwtcem in the basic meaning of ‘spinning’ from the earliest records, but still sporadically attested in later sources.

The commonly used verb for ‘spin’ is the denominative niwtcem, derived from the generic term niwt ‘stuff, material’ which is mainly used about textiles, e.g. Ex.39.27: i niwtøy behezoy “of linen material”. Beside its literal meaning ‘spin’, e.g. Matth.6.28 = Luke 12.27: očjanay ew očniwtē “they toil not,
neither do they spin”, the verb *niwt­r­em* is frequently used metaphorically in the sense of ‘spinning a yarn, telling a tall story, scheming’, cf. e.g. Ps.49.19: *Be­ran k­o ya­čaxer z­-c­arut­i­wn*, * Lincoln 1:4, 20:12*.

**38.** Cf. *Schmitt 1967, 297.*

**37.** Cf. *Beekes 2010, 1484.*

**36.** The Ossetic verb *taxun*, mentioned in IEW with the translation ‘weben’, rather means ‘equip, dress up’ and thus does not belong here (Cheung 2007, 374).

**35 reconstructs the former with a root-final velar *tek*-*, the latter with a palatal *tek*. Now, if the Arme­nian verb *tek’em* is excluded for semantic reasons, there is no specific reason to reconstruct a velar rather than a palatal.**

Thus it is sufficient to posit a single root *tek*- ‘make, produce’, perhaps continued in its simple form in Greek τέκνον ‘child’ with the reduplic­ated present τίκτων ‘beget, produce’. An apparent s-extension is found in Hittite takkešzi, 3.pl. takšanzi ‘fit together, unite’, Latin texō ‘weave, plait; join, fix together, build’ and Middle High German deh­sen ‘break flax’, and finally an old reduplicated stem *te­tk*- > *tekbp-­* is traditionally seen in Vedic tāṣṭi ‘builds, fashions, makes’, Avestan tāšt ‘made’, Old Church Slavic tesati, Lithuanian tašyti ‘hew’. This stem also appears to be the base of the noun continued in Vedic tāṣkan-, Greek τέκτων ‘carpenter’ (Mycenae­an te­ko­ko­-n) and Avestan tašan- ‘creator’, famously featuring in the poetic language of Indo-Iranian and Greek where ‘carpenter of words’ is used as a kenning for the poet. However, the precise formal distinction between *tek*- and *tek* is somewhat unclear, and
it is even possible that Greek τέκτων is rebuilt from *tekšan on the model of the agent noun *teks-tor- = Latin textor ‘weaver’. At any rate there seems to be a lexical connection between simply ‘fitting together’, as in the Hittite verb, and the two more specialized craftsman’s terms ‘building’ or ‘doing carpentry’ on the one hand, ‘weaving’ on the other. Presumably, the connecting link is the use of wattling in the construction of houses.41

This brings us to the curious formal identity of the roots of Armenian hiws ‘plait (of hair)’, hiwsel ‘to plait’ and hiwsn (pl. hiwsunk < *-ones) ‘carpenter’ where it is tempting, but formally problematic to venture an equation with tákṣan- and τέκτων. The equation was already assumed by Ačaṙyan,42 and later elaborated by Winter who, apart from dealing with the doubtful internal cluster, had to postulate a dialectal development *t- > h- rather than the regular t-.

Klingenschmitt’s alternative derivation from a reduplicated *pi-pk- from the root *pek- ‘pluck; comb’44 is phonologically impeccable, but morphologically ad hoc. Moreover, the semantic development is far from obvious, as is also the case of the alternative derivation from *peyuk. Perhaps the most promising suggestion is Martirosyan’s tentative comparison with Lithuanian sukti ‘turn’, Old Russian sskatı ‘twist, twine’, Russian sukati ‘twist, spin’45 which is at least semantically satisfactory for hiws, hiwsel, while the stem formation of hiwsn may have been influenced by the pre-Armenian match of tákṣan-, τέκτων.46

The inherited textile vocabulary includes not only the word for the ‘web’ as such, but apparently also the more specialized terms for ‘warp’ and ‘woof’. The word for the ‘warp’ is either arēǰ, lit. ‘that which goes down’47 or azbn, while the ‘woof’ is ṭezan, cf. e.g. Lev.t.13.52: Ey ayresčě z-jorjn et ē arēǰ icě et ē ṭezan y-asveac kem i ktwaeac “And he shall burn that garment, whether the warp (στήμονα) or woof (κρόκην), in woollen or in linen”.

In Armenian historical linguistics it is all too often the case that a proposed etymology depends on a sound law that is founded on one or two stray examples, as is also the case of azbn. Two nouns in Classical Armenian end in -zbn, skizbn ‘beginning’ and azbn ‘warp, chain in weaving’ (cf. Olsen 1999, 369-370). While an indigenous suffix -mn/-man is well attested, we have no comparative evidence whatsoever for a similar suffix with *-b (> -b-) instead of *-m-. Consequently, skizbn and azbn either belong to some undefined substratum in which case we can stop worrying about them from an Indo-European comparative point of view, or they are inherited after all if -bn for -mn is due to some sophisticated conditioned sound law. Already in the early 19th century, Holger Pedersen suggested a regular development -zmn- to account for these words, and since both of the basic roots stand a good chance of being inherited, it does seem sensible to look for a historical explanation for the suffixal elements as well.49

41. Mallory & Adams 1997, 139.
42. Ačaṙyan III, 201.
43. Winter 1962, 262 and 1983.
44. Klingenschmitt 1982, 133-134 and 217.
45. Martirosyan 2010, 410-412. Root *seyk-; *-k- regularly palatalized after *-u-.
46. A lengthened grade *-ēu- which regularly yields -i-w- would be morphologically peculiar, so the value of the comparison depends on the expected outcome of the diphthong *-ey-. Usually *-ey- and *-oy- are assumed to merge with the end result -oy-, but as argued by de Lamberterie (1982, 81-82), there are no incontestable examples of *-ey- > -oy-, so it is possible that *-ey- > -i-w- is regular. Besides hiws (hiwsel, hiwsn) de Lamberterie points to hiwsnam, aor. hiwcanim ‘pine away’; Goth. usioks ‘ill’ < *seyg-/*seyg- (cf. also IEW 915). Another potential example would be t’iw (o-st.) ‘number’ < *teyhos (cf. Ved. tavās- ‘strong’, Av. tawuah ‘power, strength’) where we could avoid an inconvenient case of vṛddhi. As for the apparent exceptions k’or- ‘sister’ < *k’eur < *seyesör and the suffix -oyt (-i-st.) = Greek. -oxm-< *-eh with, the hiatus between -e- and -a- may have remained until the development *-ey- > -i-w- (followed by the later merger of *-ey- and *-ay-) was completed.
47. Cf. Greek στήμονα ‘that which stands up’.
Between ἀζβν and Greek ἀσίμα ‘warp’ (usually δίσιμα) there exists a both very precise and very specific semantic correspondence, which can hardly be accidental. Thus Judg.16.13: Ἐρὴ ανκὲς εἶναι τῷ ὀφθαλμῷ τὸν ἐπὶ αὐράς τῆς κεφαλῆς μοῦ μετὰ τοῦ διάσματος “If thou weavest the seven locks of my head with the web.” The corresponding Greek verb ἀστιμα < *ἀστ-ι-μα-ω ‘set the warp in the loom’, i.e. ‘start the web’, has been convincingly connected with Hittite ḫatt- ‘pierce, prick’ by van Beek (apud Beekes 2010, 167). From a formal point of view the Greek form is an exact match of the Hittite j-present ḫa-az-zi-zi, to be read /htētēs/ < *ḫatt-je-ći, but the semantic specialization pertaining to textile terminology must have taken place at a time after the separation of the Anatolian branch from the Indo-European family, i.e. not earlier than “Core Indo-European” and perhaps as late as the predecessor of the Greek-Armenian(-Albanian-Phrygian) subbranch.

Tcezan ‘woof’ has no generally accepted etymology. A connection with the root “(s)tegʰ- ‘stehen’”, as in Old Icelandic stýnda ‘stitch, stitch, stab’, Old Church Slavic o-stegnoťi ‘tie, knot, chain’, Russian stegat’ ‘quilt’ has been rejected because the Slavic forms would point to a velar *-gʰ-, while Armenian -z- must represent the lenition product of an intervocalic palatal *-gʰ-. However, the semantic correspondence is remarkable, cf. also Shetland stór ‘sew, stitch together’, and Danish stýng ‘a stitch’, and the formal problem would be solved by a Slavic borrowing from Germanic.

Even the word for the beam of a loom, stori, may be based on an inherited lexeme, *størh jo-, from the same root as Middle High German star ‘stiff’ and in particular Old High German starro ‘wooden block’.

Textile terms based on inherited roots further include k’ul "thread", reconstructed by Jähkyvan as *kolo- and compared with Latin colus ‘distaff’. The reconstruction may be adjusted to *kölh₁, ‘turn’ as a vṛddhi derivative ‘pertaining to the spindle’ (?), but there may be other possibilities such as a zero-grade formation *köl₁h₁, with rounding of the sonant after labiovelars. The semantically related aslani ‘thread, ribbon’ is internally derived from asel ‘needle’, based on the root *h₂ak- ‘(be) sharp’ and belonging to the same subset as aleln ‘bow’ and rīteln ‘blade’. The derivational details are not quite clear, but at least we seem to be dealing with a close cognate of Old High German ahil ‘awn’, Middle English eile ‘awn, prickle’.

**Terminology of garments**

The inventory of inherited words for garments is quite scarce. The generic term z-gést (u-st.) ‘garment, clothing’ is a compositional tu-stem, including the prefix z- which, at least functionally, corresponds to Ved. abhi-< *h₂jmhi- and the tu-stem *-géstu- as opposed to the Latin ti-stem vestis. A similar formation is z-ard ‘ornament, finery’, also an original tu-stem *-h₂ar-tu- or *-h₂g-tu-, however, the cognates, Vedic ītū- ‘the right time; rule, order’, Hes. ἅρπις σῶρας, Latin artus ‘limb’ are not associated

51. Cf. Kloekhorst 2008, 331. The verb is also continued in Lycian ē-ti, but instead we might be dealing with an instrument noun *-gala- of the type Old Norse lykill ‘key’ < *luk-ilaz < *-el- ‘instrument for closing’ according to Rasmussen’s analysis (1999, 651-651). The exact phonetic basis of the Armenian derivative is somewhat uncertain.
53. The u-stem inflection may well be an archaism since tu- rather than ti-stems in Vedic are habitually found after prefixes, cf. Wackernagel-Debrunner 1954, 651.
with clothing.  

More specific terms include awjik ‘collar’, presumably a derivative of a stem *(h)jangʰi- or *(h)ngʰi-*, related to Greek αὐχήν, Aeolic ἀψην ‘neck’, and perhaps *p’elk ‘rough mantle’ (also ‘curtain’) which has been connected with Greek πέλας, Lat. pellis ‘skin’ and the semantic close match of Old Persian *pelik ‘mantle’, allegedly from the same root as Gothic ṣiλh, Middle Breton maut ‘finger’ with cognates in Old Welsh maut, Middle Breton met ‘thumb’.

Otherwise, the general picture is dominated by Iranian loanwords, thus the generic terms patmowčan ‘garment’, Pahlavi *pmwcn-’, and handerj ‘clothes, clothing’ from an Iranian protoform *(h)ndarj-, cf. Pahlavi *drz ‘beam’. The underlying Iranian root *darz-, also reflected in Middle Parthian *drz- ‘tie on, load (pack-animals)’, is probably Indo-European *dér-g- ‘turn’ with a semantic development to ‘twist, spin’ as also in Albanian *dref ‘turn; spin’. The inherited Armenian verb *darj ‘garment, coat, cloth, veil’, pl. ‘clothes’ could not be an inherited bónos-derivative *bórs-hos with distant assimilation *dorj > jorj, i.e. [dorj] > [d’ord]. If so, the joint evidence of Iranian, Armenian and Albanian would point to an extension of meaning ‘turn’ → ‘spin’ as common heritage.

The number of nouns of Iranian origin for specific garments and other specialized textiles is quite impressive, thus:

- šapik ‘shirt’, cf. Middle Parthian špyk ‘undershirt’, originally ‘nightshirt’, a substantivized derivative of the word for ‘night’, Avestan šxsp-, Vedic kšáp-.
- varšamak ‘napkin, apron’, cf. Sogdian w’sa’m, Chwarezmian w’s’mik ‘veil for the head’.
- t’aškinak ‘handkerchief, sudarium’, corresponding to Pahlavi *tškak ‘undershirt’, from an Iranian protoform *təškainaka- or the like, cf. Avestan *ṭaršu- ‘dry’ with t- > t- as in e.g. t’ag ‘crown’ < Iranian tāg-.
- vtavak ‘shift, shirt, robe’, used about the ephod or priestly robe, possibly a derivative of the stem continued in Pahlavi wyt’h- [witáb] ‘shine’ in which case the original meaning would be a shining or simply white garment.
- lenjak ‘towel’ via an intermediary Iranian source ultimately from Latin linium ‘anything made of

60. Cf. also Clackson 1994, 107-109 with discussion.
61. Feist 1939, 151.
63. HAB IV, 442; cf. also Martirosyan 2010, 610.
64. There is no particular reason why dērpp ‘would go back to a *-ti-stem *der-ti- (which would have yielded Armenian *terd) as assumed by Clackson (1994, 54). Cf. de Lamberterie 1997, 74-76 for a common Greco-Armenian formation and Praust 2000 for further discussion of the root.
66. From the same root also Armenian *derjak ‘tailor’, Pahlavi *dlcyk-.
68.IEW 258.
linen, towel etc.’.  
70. viżakkē ’covering’, used in the Exodus about the Ark of the Covenant, has been compared with Khotanese pvēys- ’cover’ < *pati-vai- by Bailey.  
71. gawti ’girdle, belt’, perhaps < Iranian *gadjtia- from *gaβtia- ’hold’; cf. also paregwati below.  
72. kamar ’girdle’, cf. Avestan kamāra-, Pahlavi kml ’waist; belt, girdle’.  
73. zankapan ’stocking’ or the like, cf. Pahlavi zng ’ankle, shank’ + the Iranian stem -pāna- ’protecting, protector’. A similar formation is the semi-calque sinapank ’greaves’ whose first member is the inherited srownk ’shank’ (cf. Latin crūs etc.), similar to Gothic Avestan rānapānō “qui protège la jambe, la jambière”.

On the other hand, the Greek contributions to the old Armenian textile vocabulary are relatively modest: lōdik ’cloak’ from Greek λώδιξ, λωδίκιον; kclamid ’robe, cloak’ from χλαμύς, -ύδος; and pcilon ’cloak’ from φελόνης, φαιλόνης.

As is natural, the Iranian military domination also affects the terminology of military outfit as seen from the following examples:  
74. pateank ’armour’ from Iranian *patayāna-, *patiyāna- or the like, containing the stem of the verb patem ’surround, enclose’ (cf. e.g. also arcatcapat ’covered with silver’) which probably reflects an Iranian version of the root
*peth* - 'spread out embrace'.

- varapakanak (military) cloak’, lit. ‘breast-protector’, cf. Avestan varah- ‘breast’ and -pan- as in zankapan ‘stocking’, sīrapanek ‘greaves’. The original source of zrakh ‘armour’ with the reflex -h- of Iranian -d-, cf. Avestan zrāōa- ‘armour’, is apparently neither Middle Parthian nor Middle Persian from which we expect -r- and -y- respectively, but rather a third branch of Middle Iranian, though the word may have been transmitted through one of the two main dialects.

- kštapanak ‘armlet for the right arm’ with the literal meaning ‘side guardian’, cf. kowšt (side) → ‘belly’, Pahlavi kswst ‘side, direction’ (but Modern Persian kūšt ‘belly’) and the same final element as in varapakān.

- salawart ‘helmet’ from a formation similar to Avestan sārauwa- ‘helmet’, lit. ‘head-concealer’ though the stem formation of the final member in the Armenian version is not an a-stem, as in Iranian, but either an extended root noun (Indo-European *-ur-t-) or a a-ti-stem (*-ur-ti-).

Taṙatok (soldier’s) cloak’ is etymologically obscure, cf. Martirosyan 2010, 602 with references.

Similarly, the vocabulary of ornaments, jewelry and royal attire is heavily influenced by Middle Iranian:

- a prominent example is tāg ‘crown’, cf. Manichaean Middle Persian t’g [tāg] ‘arch’ and the Modern Persian palatalized version tāj ‘crown’. Bolognesi derived Arm. tāg and Persian tāj independently from the same root as Greek στέφος <*(s)tegʷʰ- on account of the initial τ- which he considered incompatible with an Iranian loan. However, there are other examples of such a development, e.g. tاكoyk ‘vessel, goblet’ vs. Middle Persian tkwk ‘drinking vessel’, and moreover, Benveniste’s ingenious derivation of tāgōwi ‘queen’ from *tāga-byolē- ‘crown-bearer’ (f) strongly suggests an Iranian origin of both compositional members. The relation between tāg/ tāj and στέφος may still be maintained: tāj from a “tomós”-type *tōgʷʰ-os and tāj a hybrid formation between tāq with Brugmannian lengthening and a competing s-stem *tegʷʰ-es-, like στέφος, with e-grade and palatalization.


- xoīr ‘mite, diadem, bonnet’, cf. Avestan -xaiōda- ‘helmet’; hence also artaxowrag ‘covering, tiara’.

- for the compound mehewand ‘necklace’, whose final member -awand clearly reflects Iranian *-banda- ‘band’, Bailey suggested a first member *mrjju-, whence Avestan maɾəzu- ‘neck’ or ‘vertebra’; this was later improved by Gippert to *mrjju-ja-band- which would explain the connecting -es-. However, the phonetic development *-rjju- > -h- has no recognized parallels, so as an alternative explanation Olsen has suggested a protoform *mītrīya-flanda- from a stem related to (Iranian →) Greek μῖτρη ‘headband’ etc.


- čelanak ‘sort of head ornament’, probably ‘hair pin’, is a diminutive of the Middle Iranian word
for ‘dagger’, Pahlavi cēyl’n’. 94

• *snēds, translating Gk. τρίχαπτον ‘fine veil of hair’ in Ezek.16.10, cf. Modern Persian sundus ‘species panni serici tenuis’.

• pačoč and pačučank ‘attire, toilette, ornament’, cf. Meillet 1922.

• čamuk ‘decoration, ornament’, apparently also of Iranian origin though the details are unclear, cf. Ačaṙyan III, 180.

• *prološuk ‘hair-clasp’ looks like a derivative of the etymologically unclear *prološ ‘moray’, the clasp perhaps compared with the jaws of the fish.

The ultimate origin of maneak ‘necklace’, Greek μανιάκης, is also likely to be Iranian, while the background of kēayr ‘necklace’ is unknown.

Textile techniques, dyes and decorations

As we have seen, the words pertaining to basic textile production such as spinning and weaving mainly have an indigenous background, but when it comes to more advanced techniques and the production of luxuries, the Iranian influence has left its unmistakable mark. An interesting example is the agent noun nkarakert ‘embroiderer’. 95 While the first member of this compound is clearly nkar ‘picture; variegated’, 96 the final stem differs semantically from other formations in -(a)kert < *-kṛta- ‘-made’ with the expected passive meaning of the participle. This is what we find in the semi-calques jerakert ‘hand-made’, p‘ayakert ‘made of wood’ or the complete loanword ašakert ‘disciple’, Manichaean Middle Persian ḵš gyrd ‘disciple, pupil’, according to Benveniste’s brilliant analysis a South West Iranian loan whose first member corresponds to Old Persian hašiya- (Avestan hāšīiā-) ‘true’, so that the original meaning would be ‘qui est rendu autentique, accompli’. 97 The discrepancy of verbal voice in nkarakert is not readily explained, and for this reason it seems worth considering if we could not be dealing with a different root. An obvious candidate is Indo-Iranian *kart- ‘spin; stretch a tread’. Incidentally such a root is attested in RV út kṛnatti, and from Iranian probably Chwarezmian knčy- ‘twist’. 98 In that case a nkarakert would simply be a ‘picture-weaver’ or ‘picture-embroiderer’ and thus be etymologically distinct from Pahlavi ng rgr (-kar) which would be a ‘picture-maker’, i.e. a painter. From the same semantic field and with the same first member we also find nkaraker “variegated, emboidered” where the final member is kerp ‘form’, cf. Manichaean Middle Persian gyrb ‘form, shape’ < Indo-European *-kṛtap-, etymologically related to Latin corpus etc.

Words for precious materials borrowed from Iranian may be exemplified by dipak ‘brocade’, Pahlavi dip’g’, and zaṙnawoxw ‘silken’, originally ‘interwoven with gold’, i.e. *zarna-vuʃla-, cf. Sogdian zynγwfc with the same final participle, ‘woven’, as čačanawoxw ‘variegated, multicoloured’. However, one designation for a luxury article, the word for scarlet, ordn ‘worm’, 99 and thus semantically comparable with Old Church Slavic črьmьnъ ‘red’ which is related to črъvъ ‘worm’. 100 This is hardly surprising, considering the fact that Armenia is the homeland of the Armenian or Ararat cochineal, a scale insect of which a precious crimson dye has been produced from ancient times. It is thus not unthinkable that for once the Iranian word which is the source of the European words for crimson
Another red dye is scarlet, Armenian *janjazarit*, produced from the insect Kermes vermilio, mainly feeding on a species of oak trees, *quercus coccifera*, in the Mediterranean region. The only early Armenian attestation is from Isaiah 1.18 where we have a parallel of the red scarlet and crimson as opposed to the white snow and wool: *Ew erê ic'ên melêc jeř ibrew z-janjazarit, ibrew z-jîwîn spitak araricê*, *ew etê ic'ên ibrew z-ordan karmir, ibrew z-asr sôwr ararîcê* "Though your sins be as scarlet (Greek ὡς φοινικά κόσμον), they shall be as white as snow; though they be like red crimson, they shall be as pure wool". According to Ačaṙyan, we are dealing with a Semitic loanword, cf. Syriac *z̓ x̓ o rdā* ‘coccus, red worm’. Apparently the stem *janjir-* (janjir armel ‘tire, annoy’) has played a supplementary folk-etymological role, e.g. the alternative spelling *janraxarit* and the later meaning of *janjazarit*, ‘dark, dull red’.

The semantically related cirani ‘purple; of purple, purple coloured’, most likely has an Iranian origin. Obviously the stem is connected with ciran ‘apricot’, and with a basic meaning ‘golden’ we may compare with the family of Avestan zaranīa-, Sogdian *z̓ rn*, Vedic hiṟaṇya- ‘gold’, *śveta* ‘white’ with the North West Iranian development of *śv- > sp-,* cf. Pahlavi *sp̄ ȳ t̄ k̄*, Sanskrit īśv-.

The historical background of *kanaĉ* ‘green’108 and
gorš 'grey’ is unknown, and of the basic colour terms only delin 'yellow’ has a plausible Indo-European etymology.

This selection of textile terms from Classical Armenian testifies to a rich and varied vocabulary, historically shared between a foundation of inherited lexical material and an influx of cultural loans from the politically and culturally dominant Iranians. Our sources do not permit us to go beyond the stage of the reconstructed Indo-European protolanguage, but we do know for certain that the area now inhabited by Armenians has a long tradition of advanced textile technology. In a cave in Vayocc Jor in the southern part of Armenia, archaeologists have excavated a beautifully sown moccasin, “the world’s oldest shoe”, dated to about 3500 BC. What language its wearer spoke and what words he or she would have used to describe it, its material, colour and fabrication, we shall never know.

Abbreviations


Nor Baṙgirk c = Nor Baṙgirk haykazean lezowi I-II. Venice. Reprint Erevan 1979-81.

Bibliography


110. Apparently a derivative of the same root as deli ‘peach’, deljan ‘blond’, dalukn ‘jaundice’) which would match Latin helus > holus ‘herb’ < *gélh os except for the initial *g-, regularly yielding j-, i.e. [dz-]. Perhaps the stem was contaminated with the semantically related dalar ‘fresh and green’ = Greek ἰδανός.

10. Armenian Textile Terminology


Remarks on the Interpretation of Some Ambiguous Greek Textile Terms

Stella Spantidaki

The study of written sources of the Classical period (5th and 4th centuries BC) reveals the existence of a very rich vocabulary related to textile production. There are terms referring to materials, tools, manufacture and decoration techniques, colours, people and places related to textile manufacture. Many terms are quite clearly defined, while others present major difficulties in their interpretation. Usually these concern terms for tools, such as κερκίς (pin beater or shuttle) and ἱμικάτη (distaff or spindle) or terms describing fabrics with some kind of decoration. Among the decorative terms, some refer to specific decorative techniques, such as κατάστικτος (embroidered) while others refer to aesthetic results, such as ποικίλος (with elaborate and colourful decoration).

I believe it is quite important at this point to underline a significant characteristic of the ancient Greek language. Although languages are not simply univocal codes and their meaning is the most important dimension, ancient Greek has what may be called an indivisible polysemy of words (and grammatical cases). Its semantic richness cannot be compared to modern European languages, such as English. In this context, one and the same ancient Greek term can include more than one meaning simultaneously (e.g., ὥρα = time, season, youth, perfect moment), in which case the translator does not have to choose between the different meanings, because they are all included – or the same term can have different meanings depending on the context (e.g., ὀργή = anger, wrath, but also drive, impulse, temperament, outburst), in which case the translator has to choose the right meaning. This could lead to difficulties in the lexical field of textiles and textile production.

Very often a single term creates semantic harmonics, which produce in the mind of the listener a series of mental associations through its resonances, consonances and connotations. In order to understand a term, one has to clarify its entire semantic potential. Furthermore, each term must be interpreted in relation to its context as opposed to adopting an univocal or unambiguous meaning. This kind of ambiguity certainly does not apply to every single term. For example, terms for weaving tools must have been clearly defined in Antiquity, although they often seem ambiguous to us today.

1. I would like to thank Marie-Louise Nosch and Cécile Michel for giving me the opportunity to participate in the conference.
3. Cf. modern poetry such as the great Shakespeare or Proust and the using of the developed metaphor in Castoriadis 1999, 35-61.
In this chapter I am going to discuss the term μίτος,

4 core term of a family of words with many
composita, such as εὐμίτος, λεπτόμιτος, τρίμιτος,
pολύμιτος and derivatives, such as μιτώδης, μίτινος
and τριμίτινος. The term μίτος is without known et-
ymology as per all recent etymological dictionar-
ies and accordingly without convincing explanation
about its original meaning. In time it came to re-
fer to the thread in general, ἀγαθὶς μί(λ)του,
6 ‘ball of
thread’. The term seems to change meaning depend-
ing on the compositum (in the case of
λεπτόμιτος
we
are certain that this term refers to a fabric created
with fine threads, but in the case of τρίμιτος for ex-
ample, we are not sure of the meaning of the term
μίτος). From all these related terms, I have chosen to
examine the terms μίτος => τρίμιτος / τριμίτινος =>
pολύμιτος. These terms contain the term μίτος and,
moreover, they refer to multiples of μίτος. I think it is
important to try to elucidate both the meaning of the
core term, and that of its composita.

References of these terms in ancient written
sources are scarce. The first reference of the term
μίτος is found in the Iliad,7 and there are three more in
texts of the Classical period. Τρίμιτος and τριμίτινος
are mentioned four times in Classical literature.8 Con-
cerning the last term of the family, πολύμιτος, only
two references can be found in texts of the same pe-
riod.9 The first one refers probably to dense fabrics
and the other is a fragmentary text, where the term
is mentioned without a context. The term πολύμιτος
then disappears from Greek literature for five centu-
ries to appear again in the 1st century AD,10 where it
has been translated as ‘figured linens’.11 Later, He-
sychius, in the 5th century AD, mentions the term
dίμιτος,12 which seems to fit perfectly in the family.
During the Byzantine period one more related term
appears, ἐξάμιτος, referring to weft faced compound
twill fabrics.13

So it appears that μίτος, apart from always re-
fering to a simple thread, could also denote a spe-
cific type of thread, depending on the context. There
are several theories on the meaning of this family of
terms, still under discussion.

Theories on the definition of Μίτος

Μίτος = warp thread

In the first theory, the term is defined as the warp
threads of the loom. This is mainly based on the Ho-
meric passage, where the term μίτος has been trans-
lated by several scholars as warp.14 Additionally, a
passage from the Anthologia Graeca seems to refer
to threads divided by the pin beater, the κερκίς, thus
pointing to the warp threads.15

Μίτος = single thread

According to the second theory, if μίτος signifies
thread, the terms τρίμιτος and τριμίτινος could refer to
three-ply yarns, in contrast to single threads. Three-
stranded cords have been discovered in Akrotiri,
Thera, dated back to the 17th century BC, more than a thousand years before the Classical period. In the context of this theory, the more recent term δίμιτος would refer to two-ply yarns. The term πολύμιτος would refer to multiple plying, threads or ropes created by more than three different yarns. Fragments of rope dated to the Classical period have been recently discovered in Piraeus, but they have not yet been studied. There is, however, a Classical iconographic scene, which could perhaps be associated to the process of plying and the term πολύμιτος (Fig. 1). Margarete Lang agrees with Eugen Petersen that the scene depicts a woman twisting together a large number of threads, creating a thick thread or rope forming a large ball. Petersen remarks that small weights are attached to the threads in order to keep them taut during the plying, although this cannot be seen on the drawing. Lang comments that in sail-making the number three was important and remarks that the second of the finer threads seems to be a three-ply one.

The two Classical terms, τρίμιτος and τριμίτινος may also refer to fabrics created with three-ply yarns, and the later term δίμιτος to fabrics created with two-ply yarns. Fabrics with two-ply yarns have been discovered in Greece, but all belong to earlier periods, as for example in Akrotiri, Thera (17th century BC), Mycenae (13th century BC), Aghia Kyriaki on Salamina (Mycenaean cemetery), Lefkandi (around 1000 BC) and Corfu (7th century BC) (Fig. 2).

The Tractate Sheqalim of the Jerusalem Talmud refers to priestly vestments and the veils and curtains of the Tabernacle with their respective textile requirements. Among them, it mentions six-ply and multiple-ply (32 and 48-ply) threads, which could correspond to the Greek terms ἑξάμιτος (six-ply) and πολύμιτος (32 and 48-ply). Although the elaboration of the Jerusalem Talmud was finished in the mid-5th century AD, this passage could reflect techniques of much earlier periods.

Preserved fabrics from the Classical period are always created with single yarns. However, it is clear that the technology of plying yarns existed in Greece during the Classical period. After all, the city of Athens alone needed huge amounts of roping for its numerous ships and surely for countless other

16. Unpublished study, ARTEX.
18. Lang 1908, 53.
19. Petersen 1892, 182.
20. Lang 1908, 53.
22. Spantidaki & Moulhérat 2012, 192, fig. 7.4-7.6.
23. Moulhérat & Spantidaki 2009, 16, fig. 3.
24. Moulhérat & Spantidaki in press.
25. Metallinou et. al. 2009, 42, fig. 41a and b.
26. Jerusalem Talmud, Tractate Sheqalim, Ch. 8, p. 51. I am grateful to Nahum Ben-Yehuda for kindly providing me this information.
27. The Naval Inventories of Piraeus of the 4th century BC, which mention the parts of the ships stored in ship sheds make reference to different kinds of rope, ἕξδάκτυλον (6-finger) and ὀκτώδακτυλον (8-finger) (e.g., IG II 1627.471). The term δάκτυλος is an Attic unit of length measuring ca. 2 cm. These different size ropes would have been produced with different numbers of finer cords, but the numbers in their description do not necessarily correspond to the number of the smaller cords, but only to their thickness.
11. Interpretation of Some Ambiguous Greek Textile Terms

purposes. The question is whether we can connect the technique of plying with the family of the term μίτος.  

Μίτος = heddle

According to the third interpretation theory, the term μίτος refers to the heddles of the loom that is the group of threads connecting the heddle bar to the threads of the warp.28 In a passage of the Partitiones of Aelius Herodianus (2nd century AD), the term μίτος is explained as μιτάριον, the term that gave the Modern Greek term for heddle, μιτάρι.29 It would be plausible to assume that in the 2nd century AD the term had at least the meaning of heddle. Several references from later periods point to an interpretation of the term μίτος as heddle.30

The warp-weighted loom has a natural shed formed by a shed bar at its bottom, so the Greeks could create a plain weave using only one heddle bar. The Modern Greek term δίμιτος is an Ancient Greek term that has survived in Modern Greek and refers to every type of twill. In Ancient Greek, δίμιτος could refer to a weave using two heddle bars, the twill 2:1 (Fig. 3). Unfortunately, there is no written evidence to this term until the 5th century AD. The Classical terms τρίμιτος and


Fig. 2. Detail of the weave and the two-ply threads of the fabric of Aghia Kyriaki on Salamis. Photo ARTEX.
τριμίτινος, could refer to a weave using three heddle bars, the twill 2:2, or 3:1 (Fig. 4 and 5). The medieval term ἑξάμιτον refers to samite - weft faced compound twill (Fig. 6).

A brief remark on the term ἑξάμιτος. The weaving unit of weft faced compound twill is 6:1; so it appears that this weaving term has been named after its number of floating warp threads, which in this case, are six. We could assume that the meanings of the terms δίμιτος and τρίμιτος and τριμίτινος are in the same
11. Interpretation of Some Ambiguous Greek Textile Terms

direction. In this hypothesis, the term δίμιτος could refer to twill 2:1, while the terms τρίμιτος and τριμίτινος to twill 3:1. In this case, the term mitos refers to floating threads, not the heddles of the loom.

Finally, I can only associate the ancient Greek term πολύμιτος with complex weaves using several heddle bars, such as ‘taqueté’ (weft faced compound tabby).31

There is no material evidence of twill textiles in Greece: none of the discovered fragments of Greek archaeological textiles is woven in twill. Furthermore, depictions of weaving looms in Greek iconography do not show traces of mechanical shedding; at best, one can recognize one heddle bar, κανών, which was necessary for weaving a tabby.

Classical depictions of clothing on vases and sculptures usually show plain fabrics with stripes or small-scale geometric patterns, or fabrics decorated with complex designs. Diagonal lines that possibly represent twill variations are rare and they seem to be more common on depictions of furniture (Fig. 7). In contrast to this, Archaic iconography (6th century BC) depicts more often garments decorated with patterns that may refer to twill.32 If these depictions can actually be connected to twill, they indicate that twill was known in the ancient Greek world.

What does this linguistic information mean for the use of twill in Classical Greece? All surviving textiles from Greece derive from funeral contexts, consequently, their corpus is not characteristic of the textile production in this period. We are not familiar with the real variety of garments and utilitarian textiles used, only with those chosen to accompany the dead in the grave. Yet, the absence of terms connected to twill garments in Classical literature and in catalogues of dedications of textiles, such as the Brauron Clothing Catalogues, may indicate that

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32. As an example, see Archaic attic vases in the British Museum, Museum numbers: 1843,1103.77; 1843,1103.100.x; 1867,0508.949; 1868,0610.3.
twill was not commonly used in Greece during this period.

Mitos = relation to felt?

Lastly, in Classical literature there seems to be a connection between the terms τρίμιτος and τριμίτινος and felt. Two in four known mentions of τρίμιτος and one in three references of τριμίτινος are indeed related to felt products, hats or shoes.

αλλά τρίμιτος ἐστι πῖλος33 - trimitos felt
ήμεϊς δ’ ἑαυτὸν ἰππίσκον ἢ τρίμιτον ἐχε ἐκ τους34 (pilous) - if you have a head ornament or a trimitos felt
καὶ δὴ ποδεῖα τριμίτινα35 - trimitina felt shoes indeed

A τρίμιτος πῖλος (felt) would have been a sort of felt created either with three μίτοι or with a τρίμιτος / τριμίτινος fabric. In view of that, according to the third theory the terms τρίμιτος / τριμίτινος refer to twill fabrics, a τρίμιτος / τριμίτινος πῖλος would refer to a felt created from a twill fabric.36 According to Elizabeth Barber, this felt could also have three (perhaps decorative) loops on it.37 According to a third interpretation, it could be a sort of felt created with three different layers, either by different coloured felts or by different fabrics. Additionally, the term δίμιτος also seems to be related to a felt hat.38

Conclusion

The above hypotheses show that the various meanings of the term μίτος, both synchronically and diachronically, reflect the characteristic polysemy of Greek. They also underline the fact that semantics and production techniques evolve and change through time. So each term of the μίτος family could, during the same period, have more than one meaning simultaneously. Yet at the same time, a meaning could replace another, as the semantics changed. In other words, the interpretation theories could coincide in certain periods, with the term μίτος having more than one meaning at the same time. But they could also replace one another, as the meaning changed through time. Hopefully, new finds will narrow down the semantic field and help elucidate the meanings of this family of terms.

Ancient Sources


33. Lyssipp. Fr. 3 (3) (PCG V 1986).
34. Cratinus Fr. 5.1 (Kock 1888).
37. For discussion see Barber 1991, 268, note 7.
38. Barber 1991; LSJ, s.u.


**Bibliography**


Sabellic Textile Terminology

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Despite numerous recent studies of Italic textiles and textile production etc., no systematic study has so far been attempted regarding the textile terminology of Italic languages besides Latin. The present study seeks to remedy this, making a first step into the textile terminology of Sabellic languages, predominantly Oscan and Umbrian.¹

There are two types of sources for Sabellic textile terminology: inscriptions and glosses in Greek and Latin literature. Both are, however, fraught with uncertainties. The glosses, as for example seen in the case of Etruscan, may have been misunderstood or misinterpreted and should be treated with due caution, and there is considerable debate on many of the epigraphically attested terms and significant doubt about their precise interpretation. Glosses are especially problematic, since they have been transmitted to us through a succession of manuscripts. As noted by Clackson, it is only through epigraphy that we can access the texts, and therefore the terms themselves, directly.² Sometimes, however, the glosses are indeed correct, making their investigation important.

The extant Sabellic corpus, although minuscule compared to Latin, is nevertheless linguistically invaluable and offers complementary evidence of the Indo-European and Italic textile lexicon, although many aspects of the various Sabellic languages are notoriously difficult to interpret and remain a matter of debate. The present contribution does not claim to endorse the interpretation of the most doubtful cases, but includes them in order to provide an overview of Sabellic terms that have been suggested by scholars as belonging to the domain of textiles.³

1. References to Sabellic inscriptions follow Untermann 2000. In the case of Umbrian, references, e.g. “VIIa 24”, are to the Iguvine tables. Translations of the Iguvine Tables are, unless otherwise noted, adapted from Poultony 1959. Bold font, following scholarly convention, indicates terms attested in the “native” alphabets, while italics indicate those attested in the Latin alphabet. Translations of Greek and Latin texts are, unless otherwise noted, adapted from the Loeb editions when available. For the term Sabellic, cf. Rix 2002, 2: “Der Terminus entspricht den oben genannten Forderungen: er ist einfach und gut motiviert. Sabellī (*Saβello-*) ist der einheimische Name, mit dem die Römer die Samniten, manchmal auch undifferenziert alle zentralappenninischen Bergstämme genannt haben; er ist das Individuativum zu *Saβno- (*Saβno-lo- > *Saβn̥lo- > *Saβenlo- > *Saβello-; Typ Graeculus, Poenulus), das vielleicht der ursprüngliche Name der ganzen Sprachgruppe war [...]. Von *Saβno- ist der Name *Saβnii̯om abgeleitet, der für das Stammland der oskischen Gruppe bekannt ist (osk. Safinim, lat. Samnium, griech. Σαύνιον), und von diesem wiederum das Ethnikon Saβīno- (dissimiliert aus *Saβnīno-), das als Σαφίνιος die Sprecher des Südpikenischen und als Sabīnī Roms nördliche Nachbarn bezeichnet (ein Teil der *Saβnīos wäre dann später Umbrī genannt worden).”


3. Of Sabellic terms that are not "Sabine", Oscan or Umbrian, the only item of interest is South-Picene tokam, which, while formally
The textile terms

Oscan:

There are exiguous few terms attested in the Oscan group of Italic dialects, but there are occasional references in Greek and Latin sources to Samnite dress, and there have been studies of the iconographical material. Presumably, only one epigraphically attested Oscan term belongs to the domain of costume:

O. plavtad: A feminine -ā-stem noun, designating the sole of a shoe or a foot, a substantivization of Proto-Italic *plauto- ‘flattened, with flat feet’, apparently derived from the Italic root *plau- (‘to hit/step with the palm of the hand or foot’) from *plh₂-ut- (‘palm of the hand, sole of the foot’), with the suffix -tō/-tā- (cf. Latin plautus ‘flat-footed’ and plaudere ‘to clap, strike, beat (with the palm of the hand)’; Umbrian preplotatū, preplohotatū ‘must crush, stamp down’, semiplotia (Festus) ‘shoe-soles divided into halves’). According to Franchi de Bellis it is a cognate of Greek βλαύτη and means ‘sandal’.

—hn. sattiieís. detfri seganatted. plavtad—

“Detfri of Herens Sattiis left her mark with her sole.”

The bilingual inscription is found on a large terracotta tile (94x66cm) and is dated to c. 100 BC. The verb states that it was marked/signed with the ‘sole’, and the imprints are also preserved. The interpretation of the term therefore depends on the imprints on the terracotta itself, and these clearly indicate footwear, not feet. The imprints are moreover similar in shape and size to extant Etruscan wooden/bronze sandals.

corresponding to Latin toga, means ‘grave’. As argued by Marinetti (1985, 144, n.93) and followed by Adiego (1995, 136), the grave is understood as that which covers, from the same root as Latin toga: *(s)teg-/(s)tog- ‘to cover’. It is, however, interesting to note that according to Juvenal (3.172, cf. Watkins 1969: 238 and Olsen 2016, note 31), the use of a toga was closely linked to burial: pars magna Italiae est ... in qua nemo togam sumit nisi mortuus “there is a large part of Italy ... where nobody puts on a toga unless he is dead”; this provides a clear connection between toga and grave, and although speculative does not exclude the possibility of another type of semantic extension. Outside Sabellic (and Latin) the only attested Italic textile term is Tusculan struppum (corresponding to stroppus/στρόφος) and the Faliscan feast Struppearia, Festus 410, 6-7 (cf. Pliny NH 21,3), see Biville 1990, 176-178; Adams 2007, 177.

4. Strabo 6.1.2; Livy has two mentions of Samnite dress: 9.40, 10.39.11-12.
6. Cf. below under Umbrian fibre sources for Oscan καποροινναί.
7. Abl.sg. (Pocc.21/ Sa 35, Pietrabbondante); Untermann 2000, 563.
8. Festus 274 (Lindsay): <Plotos appellant> Umbri pedibus planis <natos. Hinc soleas dimidiatas, qui>bus utebant in venando, <quo planius pedem ponant, vo> cant semiplotia et ... <Macci> us poeta, quia Umber Sarasinas erat, a pedum planitia initio Plotus, postea Plautus coeptus est dici “The Umbrians called those born with flat feet ploti. Thence they term semiplotia the soles that are divided into halves which are used in hunting to put the foot more flatly ... The poet Maccius, who was an Umbrian from Sarsina, was initially called Plotus, later Plautus, from the flatness of his feet”; P. ex F. 275 (Lindsay): Ploti appellantur, qui sunt planis pedibus. Unde et poeta Accius, quia Umber Sarasinas erat, a pedum planitie initio Plotus, postea Plautus est dictus. Soleas quoque dimidiatas, quibus utebantur in venando, quo planius pedem ponerent, semiplotia appellabant “Those who have flat feet are called ploti. Wherefrom also the poet Accius, who was an Umbrian from Sarsina, was called initially Plotus, later Plautus, from the flatness of his feet. They also call the soles that are divided into halves, which are used in hunting because they set the foot more flatly, semiplotia”.
9. See Franchi de Bellis 1992, 14. There is no need to follow Schwyzer (1968, I. 61) who places it in the “ägäisches Substrat”, nor Beekes (2010, 219), who classifies it as “Pre-Greek” on account of the variation τ ~ δ (i.e. in βλαύδες, Hsch.); it is an Italic loanword, cf. below.
10. Tr. Clackson 2014, 715, modified. The Latin inscription reads Herenreis Amica | signavit q(ualis) | ponehambus tegila “Amica of Herens left her mark when we were making tiles”.
12. See e.g. Bonfante (2003) 203, pl. 140; the sandals have a maximum length of c. 25cm, corresponding rather well to the approximately 21-22cm of the imprints in the inscription.
Sandals were common footwear also in Greece, and Greek βλαύτη, while also denoting footwear of fine quality, specifically refers to a distinct type of sandal (σανδαλίου τι εἶδος). For phonological reasons βλαύτη cannot be an inherited word in Greek, and Italian piota ‘sole of the foot’ suggests that plauta meant ‘sole’ in Vulgar Latin dialects, with the further semantic development to ‘sole of a shoe or sandal’ in Oscan. It is interesting that in 5th century Athens the so-called Etruscan sandals were considered luxury articles that were either imported from Etruria or imitated Etruscan models.

While thick soles were “extremely common throughout the Greek world”, this was also a feature of the Etruscan sandal, characterised by Pollux as wooden, with gilded straps. In addition, Etruscan sandals were characterized by a hinged sole, consisting of two separate wooden pieces framed by a bronze or iron frame and these movable parts followed the movement of the foot, making it easier to

15. Ernout (1909, 216) posits two forms: one dialectal (with monophthongization of the diphthong au to o, regular in Umbrian), the second is the one preserved in the Romance languages (e.g. Italian piota).
18. Pollux 7.92-93.
walk on the thick wooden soles. These two halves conform to the *semiplotia* (*soleas dimidiatas*) in the Festus passage quoted above. Greek βλαύτη is apparently a Wanderwort, either from Greece to Italy, or vice versa, but it cannot be an inherited word in Greek, since $b > p$ is unattested in Greek loanwords, while $p > b$ is well documented. In particular, the use of $b$ for $p$ is attested in both the Greek of Magna Graecia (Taras, modern Taranto) and Sicily. For Taras this feature has been explained as due to the influence of Illyrian and Messapic languages spoken by people from the Balkans. Greek βλαύτη is therefore presumably a loanword from Italic, and Oscan *plauta-* is accordingly an indigenous Italic word, which in Southern Italy (possibly through the influence of Messapic/Illyrian) provided the Greek word.

There are also two Oscan glosses that concern textiles, both attested in Varro:

O. asta:

Varro DLL 7.54: *in Men<e>echmis: “inter ancillas sedere iubeas, lanam carere.” idem hoc est verbum in Cemetria N<e>: evii. carere a carendo, quod eam tum purgant ac deducunt, ut careat spurci-tia; ex quo carminari dicitur tum lana, cum ex ea carunt quod in ea h<e>: eret neque est lana, quae in Romulo N<e>: evius appellat asta ab Oscis.

“This in The Menaechmi (Men. 797): “Why, you’d bid me sit among the maids at work and card the wool.” This same word *carere* ‘to comb/card’ is known from the *Cemetria* of Naevius: *Carere* is from *carere* ‘to lack’, because then they cleanse the wool and spin it into thread, that it may *carere* ‘be free’ from dirt: from which the wool is said *carminari* ‘to be combed/cardied’; then when they *carunt* ‘comb/card’ out of it that which sticks in it and is not wool, those things which in the *Romulus* of Naevius calls *asta*, from the Oscans.”

Unfortunately, the term *asta* is not treated by Untermann, since it is a gloss. Varro’s etymology is of course incorrect and *carere* is corrected by modern editors to *carrere* (from Proto-Italic *kars-e- from the PIE root *(s)ker-s-). The verb means ‘to card/com (wool)’ and this poses problems in the interpretation of the Oscan gloss. It is translated by Conway as “wool-cardings, sordes” and is assigned to him by the glosses “whose form is less certain, and which, though assigned to Oscan, show no specifically Oscan characteristics”.

Fay suggested the following etymology: “Oscan asta (= ‘pile, nap’): With asta (n.
While *asta* in either interpretation is not a clear synonym of ἔξαστις, its potential connection with ἔξαστις is, however, interesting: Beekes (s.v.) suggests it may simply mean “what sticks out” and refers to a new etymology proposed by Van Beek, who proposes a connection between ἄττομαι and Hittite ḫatt.(m), ‘to pierce, prick’, reconstructing *h₂et-ie/o*.29

A card or comb of course consists of piercing/pricking points, so Oscan *asta* would be a neuter plural perfect participle passive “which has been carded, ‘pricked out’, vel sim.”, conforming to the statement of the gloss that the wool is carded to remove that which sticks in it and is not wool.

O. *supparus*:

Varro *DLL* 5.131: *Indutui alterum quod subitus, a quo subacula; alterum quod supra, a quo supparus, nisi id quod item dicit Osce. 

“One kind of put-on goes *subitus* ‘below’, from which it is called *subacula* ‘underskirt’; a second kind goes *supra* ‘above’, from which it is called *supparus*, unless this is so called because they say it in the same way in Oscan.”

Contrary to Varro’s definition, the *supparus* or *supparum* was not a garment worn “above”, but rather an undertunic that appears to have been worn by or associated with the costume of the young girl.30 According to Conway, the doubling of *p* before *r* and the anaptyctic vowel both indicate a genuine Oscan word, but he adds that “the -*a* is only intelligible if the final syllable contained -*a*- *i.e.* if the word was an -*a*- stem”.31 The Oscan connection is further elaborated in Walde: “ist entweder osk. Vermittlung anzunehmen, oder Entlehnung des gr. Wortes in das Lat. und Osk”,32 and Ernout: “*Supparus* est emprunté du gr. σίφαρος, σίφαρος, comme l’a reconnu Varron, par un intermédiaire osque dans lequel le groupe -*ar* en syllabe intérieure ne subissait pas l’apophonie. Si σίφαρος avait été emprunté directement par le latin, il aurait abouti à *supperus*, comme σίσαρον à *siser*; *u* de *supparus* est dû à un faux rapprochement avec *supra*. On trouve aussi dans les auteurs siparum, sipharum, siparium qui sont de simples transcriptions littéraires du grec”.33 However, as pointed out by Housmann, the treatment of *supparus*, *supparum* and *siparum* etc. as a single term is misleading, though the ultimate source must be the same: “Facts tell another tale. These are two words, distinct both in form and in significance and one of them makes its appearance more than two centuries earlier than the other.”34

*Supparum, supparus*, attested since Plautus, is originally a garment, while *sip(h)arum* denotes a kind of sail, and it was only at a later stage that the distinction between the two was lost. Most likely, both terms have been borrowed from Greek, *siparum* as a late, transparent rendering of Gk. σίφαρος/σίπαρος ‘sail’, and *supparus, supparum* transmitted through Oscan as seen from the vocalism: -*a*- without the Latin weakening to -*e* - in unaccented syllables, and -*u* probably triggered by the following labial as in other examples from Sabellic, e.g. Oscan ambwifid ‘wrongfully’, pertumum ‘prevent’, Umbrian prehubia ‘provide’. The term *supparus* is therefore clear evidence of Oscan influence on Latin textile terminology, and it is itself a loanword from Greek, *i.e.* through the colonies in Magna Graecia.

27. Fay 1914, 256.
29. Greek ἄρμα ‘warp’, moreover, apparently has an exact parallel in Armenian azbn, see Olsen, this volume, 193.
31. Conway 1897, 220.
32. Walde-Hofmann II: 633.
34. Housmann 1919, 149. It should, however, also be noted that the connection between web and sail is readily apparent in Greek terminology; see Nosch 2015.
Hernican:

Hernican is part of the Oscan group. Virgil briefly describes the military dress of the Hernici in the Aeneid, but the only attested dress term is found in Fronto, *Ad M. Caesarem et Invicem* 4.4.1:

O. samentum:


“Then we inspected that ancient township, a tiny place, indeed, but containing many antiquities and buildings, and religious ceremonies beyond number. There was not a corner without its chapel or shrine or temple. Many books too, written on linen, and this has religious significance. Then on the gate, as we came out, we found an inscription twice over to this effect: “Priest, don the fell”. I asked one of the townsmen what the last word meant. He said it was Hernican for the pelt of the victim, which the priest draws over his peaked cap on entering the city.”

The term *samentum* ‘fell’ is occasionally mentioned in recent literature; given that the rest of the inscription is in Latin, it is presumably a technical term, preserved due to conservatism in religious language. Apart from a slight modification of the protoform to “sacsmementum” (cf. *lūmen* ‘light’ < *le/ouksmy*), the explanation of Bücheler has been accepted by Walde-Hofmann and, with hesitation, also by Ernout & Meillet. The underlying root is probably that of Latin *sacer*, Umbrian *sacru* etc. ‘holy’, with extra-Italic cognates in Germanic, cf. Old Norse *sätt* ‘treaty’, and Hittite *šákli-/šâkl*- ‘custom, rule, law; rite, ceremony’.

Umbrian:

Umbrian clothing terms:

There are a number of passages including more or less secure textile and clothing terms in the Iguvine Tables:

*Vlb* 49-51: *ape angla combifianšiust perca arsmatiam anouihimu. Cringatro hatu destrame scapla anouihimu. Pir endendu. Pone | esonome ferar [aes esonomf ffrar],

36. Verg. *Aen.* 7.681-690 also describes the hernican military dress as being made of skin.
41. For Umbrian *semiplotia*, see above under Oscan *plautad*.
Fig. 2. Tab. Ig. VIb, which contains many of the textile terms, from Devoto 1937, plate following p. 44.
pufe pir entelust, ere fertu poe perca ars-mattiam habiest. Erihont aso destre onse fertu. Erucom primatur dur | etuto, perca ponisiater habituto.

“When he has announced the auspices he shall put on a (‘striped’) ritual garment, take a band, and place it over his right shoulder. He shall place fire (in the fire-carrier). When that in which he has placed the fire is brought to the sacrifice, he who has the (‘striped’) ritual (?) garment shall carry it; the same shall carry the aso42 on his right shoulder. With him shall go two officials (priniaturi), they shall have the (‘striped’) garments of the purple-dressed (official).”

U. anouihimu43 ‘to put on (clothing)’, from *owē- with the preverb an-, derives from Proto-Italic *ow-ẹ/-. The verb is cognate with Latin -aō (as in induere), and may be denominative to a verbal noun whose formation corresponds to Latin induviae, exuviae, etc. The PIE root is probably *h₂eyH- ‘to put on (especially footwear)’, with cognates in Armenian aganim ‘to put on’, Lithuanian aũi, Old Church Slavonic obuti ‘to put on shoes’ (< *obuti < *e-ou-jej), Avestan aũthra- ‘shoes’.44

U. cringatro45 The meaning of this word has not been conclusively determined. It is, however, an object worn by sacrificial priest over the shoulder; plausibly interpreted by Buck as a “sort of band worn about the shoulder as a token of office”.46 Etymologically it derives from *kring/k-ā- with the instrument noun suffix -tro-, based on a denominative verbal stem and presumably cognate with Old English and Old High German hring ‘ring’, as well as Old Church Slavonic krogšt ‘circle’.

U. percam;47 in general, this term is interpreted either as a ceremonial staff or a garment. It has possible cognates in Oscan perek (and its abbreviated form per), a unit of length, and Latin pertica ‘a rod, wand’, from *pertkā- < *pertikā-.

The term percam is the object of the verb anouihimu ‘to put on (a garment)’ (cf. above). The semantic extension needed for the “staff” interpretation (“to take up, equip oneself with”) is in itself unproblematic, but Jones argues convincingly based on contextual analysis, especially of Vlb 49, where the sequence of actions becomes impractical for the priest if it were a staff, but natural in the case of a garment.48 Importantly, the interpretations as “staff” or “garment” are not mutually exclusive, since the semantic extension from rod > stripe > stripe on a garment > garment is equally unproblematic and has numerous parallels in ancient languages, e.g. the Sabine trabea (cf. below).49 On this background, we must
conclude that the most likely meaning of perca ... anouhimu must be “he shall put on a (striped) toga/ritual garment”.

U. ponisiater: the term is presumably a substantivized adjective denoting a priestly individual: “the one dressed in the purple striped dress”. It is an attribute of the perca, perhaps in the same way as Latin praetextātus, “dressed in a purple garment” (cf. also tunicātus, togātus, trabeātus51). The morphological analysis thus suggests an adjective in -āto- from *poinik-jo- ‘purple’, itself an adjective in -jo- derived from poinik- ‘Phoenician’. Formations in -āto- derived from colour terms are well attested in Latin, e.g. purpurātus, albātus, candidātus, atrātus. The perca ponisiater should therefore be understood as ‘the (striped) garment of the purple-clad (official)’.52


“He shall sacrifice with mead, perform (the sacrifice) upon the ground, offer grain, recite the same formulas as before the Trebulan Gate, pray silently, have a hand-towel folded double upon his right hand, and add to the parts cut off a ficla cake and a struśla cake”.

U. mantrahklu: A neuter -o-stem denoting an object held by the priest, mostly interpreted like Latin mantēlum ‘hand-towel, napkin’, presumably from *man-təh-tlo- > *man-trā-tlo-, composed of *man- ‘hand’ and an instrument noun based on the zero grade of the root *terh₁- ‘to rub’.54

Vlb 61-63: “Fututo boner pace rasc veistra pople toto Ioiiuniar, i toto Ioiiuin, ero nerus sihitir anšihitir; iouies hostatir anostatir, ero nomine, erar nonne”. Ape este dersicurent, eno | deitu “etato Ioiiunür”, porse perca arsmatia habiarest.

“...Be favourable and propitious with your peace to the people of the state of Iguvium, to their chief citizens in office and not in office (i.e. girded and ungirded), to their young men under arms and not under arms, to their name, to the name of the state”. When they have said this, then he that has the (‘striped’) ritual garment shall say: “Go, men of Iguvium!!”.

U. šihitu anšihitu: An -o-/ā-stem adjective whose precise meaning and etymology are uncertain, but is generally presumed to be cognate with Latin cingere ‘to surround, gird’, i.e. from *kīnk-to- from a possible Proto-Italic root *keng-, thus referring to girded and ungirded officials. ‘Girded’ presumably refers to the belt or girdle as an emblem of office, symbolically representing the class or status of the official. The following hostatir anostatir suggests that these are not soldiers or part of the army.56 They were presumably

50. Gen.sg.m. ponisiater (Vlb 51) and puniçate (Ib 15). Untermann 2000, 607-608.
51. The trabea was also Sabellic, cf. below.
54. LIV 632 and Meiser 1986, 141. Expected full grade neuter *tera₃tlo- > *teraklo- beside zero grade feminine/collective *tp₄h₃-tlo- > *trāklo-. De Vaan’s hesitant derivation (2008, 614) from the same root as Latin turgere ‘to rub clean, polish’ by means of a composite verb in -ā-, otherwise only known in connection with preverbs, is formally problematic.
55. Acc.pl masc. šihitu anšihitu (Vlb 59) and sihitir anšihitir (VIa 48); D.pl masc. šihitir anšihitir (VIIa 14, 28, 50), sihitir anšihitir (Vlb 6) and sītir anšihitir (VIIa 13). Untermann 2000, 395. Cf. also Meiser 1986, 55.
56. Roman parallels include Festus 251, 19-21 (Lindsay). Cf. Hoss 2011, 29: “Legally, the wearing of arms – especially a sword – at all times in public defined the soldier as such. By extension, the belt to which the sword was fastened became a distinguishing feature of soldierly dress”; Hoss 2011, 30: “The military belt of the Roman soldier can therefore be defined as a symbolic object, both an article of clothing and a piece of military equipment, setting the soldier apart from civilian men and making him a miles”. In Late Latin the cingulum militare denotes the sword belt or balteus, cf. Isid.19.33.2. There were, however, other types of cincture in Rome, for example the Roman bride was also characterized by a special type of cingulum, cf. Festus 55 (Lindsay); public slaves were also defined by a special kind of cinctus, cf. Isid. 19.33.4.
rather some kind of religious or political individuals, and there may be a parallel to the cinctus Gabinus.\textsuperscript{58}

\textbf{III 14: kletre\textbf{\textit{tuplak}} prumum antentu}

“On the kletra\textsuperscript{59} first put on the two-fold (cloth)” [Tr. Weiss]

\textbf{U.\textit{\textit{tuplak}}}\textsuperscript{60} composed of a form of the word for two and a zero-grade derivative of the root *pel- “fold”, interpreted either as a neuter -ak-stem from Umbrian du\textit{plo}-, or the accusative singular feminine of the adjective du\textit{plo}- with the clitic particle -\textit{k}.\textsuperscript{61} Several interpretations have been suggested of this term, but Weiss argues cogently for the interpretation of Peruzzi, who suggested that the \textit{tuplak}- is a “two-fold cloth”.\textsuperscript{62} As stated by Weiss, Greek διπλαξ (‘mantle’) almost always has this meaning when substantivized and many\textit{duplex} garments are attested in Latin, notably the\textit{laena}, which is explained by Suetonius as a\textit{toga\textit{\textit{duplex}} qua infibulati flamin\textit{es} sacrif\textit{icant} “two-fold toga in which adorned with a pin the priests sacrifice”\textsuperscript{63}. It should be noted that a protoform *\textit{dui-plak}- and, with analogical *\textit{du}- for *\textit{dui}- in Italic *\textit{du-plak}-, would regularly yield Greek διπλαξ, Latin\textit{duplex} and Umbrian\textit{\textit{tuplak}} alike. Thus the Latin form is most likely derived from *\textit{pel}- rather than the synonymous root *\textit{plek}-.\textsuperscript{64} The use of the term thereby attests to a common ritual use of textiles in Latin, Sabellic, and Greek cult.

\begin{quote}
\textit{Umbrian textile production:}

For the aspect of textile production, we also find a few relevant terms in the Umbrian corpus:

\textit{VIb 43: Uocucom Iouio, ponne oui furfant, uitlu toru trif fetu}

“At the Grove of Jupiter, while they are shearing(?) (= at the time of the shearing?) the sheep, he shall sacrifice three bull-calves.”
\end{quote}

\textbf{U.\textit{\textit{furfa\textit{\theta}}} furf\textit{\textit{ant}}, and efurf\textit{\textit{at}}u as cognates of Latin for\textit{\textit{fex}} ‘tongs, pincers; shears, scissors’, from Proto-Italic *\textit{for\textit{\textit{p}}o}- “shearing” and *\textit{for\textit{\textit{b}}\textit{\textit{a}}\textit{je/o}- ‘to shear’, the verb denoting a “certain action with ‘sheep’ as direct object, ‘to shear’?” Following Janda,\textsuperscript{66} he suggests that the verb is denominial to a PIE adjectival *\textit{b\textit{\textit{h}}\textit{\textit{r}}\textit{d\textit{\textit{h}}}\textit{\textit{o}}-\textit{\textit{\textit{o}}}-- “capturing, harvesting, shearing”, originally *\textit{b\textit{\textit{h}}}\textit{\textit{r}}\textit{\textit{d\textit{\textit{h}}}\textit{\textit{o}}-\textit{\textit{\textit{\textit{o}}}-- ‘making booty’, cognate with Greek πέρθω ‘to capture, take in, sack, loot’

\textsuperscript{57} Religious cincture is also highly important in Indo-Iranian: in Zoroastrianism, the wearing of the so-called sacred girdle is obligatory for the faithful (along with the sacred shirt) and highly symbolic; failure to do so made one an unbeliever and a non-Iranian. Cf. Andrés Toledo 2013, 26: “The initiation of the sacred girdle has an Indian parallel and possibly stems from Indo-Iranian times [...]. Among many other parallels between the Zoroastrian and the Hindu sacred girdle, the terminology related to it is noteworthy [...]. Not only the same concept, but also the same Indo-Iranian root (-\textit{ja}- in Sanskrit \textit{dvij-ja- ‘twice-born’}, -\textit{zad} in Persian \textit{nög-zad ‘newly born’) in the same context is shared by both.” Cf. also Mallory & Adams (1997: 223-224) on the symbolic significance of the girdle in Indo-European culture.

\textsuperscript{58} Blumenthal 1931, 66. According to Cleland et al. 2007, 35, the cinctus Gabinus consisted in throwing an end of the toga over the shoulder or head and the excess knotted around the waist by forming part of the toga itself into a girdle (Isid. 19,24,7). It was originally used in battle, giving rise to its later use during sacrifices (Livy, 5.46.2; 10.7; Lucan 1.596) and religious rituals associated with war (Virgil.\textit{Aen}. 611-15). Cf. also Servius \textit{ad A.} 7.612. See Dubourdieu 1986 for a study.

\textsuperscript{59} A transportable chair for sacred emblems.

\textsuperscript{60} Neuter cons. stem noun in the acc.sg. (III 14). Untermann 2000, 775.

\textsuperscript{61} Weiss 2010, 115.

\textsuperscript{62} Weiss 2010, 118 (cf. also the discussion pp. 115-118).

\textsuperscript{63} Suet. fr. 167, translation Weiss. It should be kept in mind that the Iguvine Tables themselves describe priestly rituals.

\textsuperscript{64} De Vaan (2008, 473), presumably in an attempt to avoid the suffix *-ak-, reconstructs *-plk- for the Greek form and Italic *-plek- for the Latin, stating that the "appurtenance of the U. form -plak, the meaning of which is unknown, is difficult from a root *plk-".

\textsuperscript{65} 3.plur.present \textit{furfa\textit{\theta}} (Ib 1) and \textit{furfant} (VIb 43), 3.sg.imp.II \textit{efurf\textit{\textit{at}}u} (with the preverb e-, VIb 17 and VIIa 38. Untermann 2000, 302-303.

\textsuperscript{66} Janda 2000, 230-240.
and πτολίπορθος ‘capturing cities’ (and πορθέω ‘to pillage’). Umbrian furfa- is indeed often translated as ‘to shear’.\(^{67}\)

One could, however, argue that shears are an Iron Age invention linked to the metal, and, although an argument e silentio, that shears are so far unattested archaeologically in earlier times, which speaks against an interpretation of a Proto-Italic or PIE sense as “shearing”; the sense is rather one of “capturing, harvesting”. We are dealing with the plucking of wool, the original way of obtaining it.\(^{70}\) The Armenian term burd ‘wool’ with the denominative brdem ‘cut wool’ may reflect the same root, whether regularly from \(*ḅʰordan*- or, considering the somewhat surprising root vocalism, perhaps \(*ḅʰr̥dan*- or \(*ḅʰordan*- borrowed from a slightly different dialect.\(^{71}\) With the Italic evidence, this suggests a PIE origin and a meaning as “harvesting wool”. As for Latin forfex ‘shears’, the immediate protoform cannot be \(*ḅʰVrd*-\(^{68}\), which would have given ‘forbex, suggesting a dialectal borrowing from Sabellic.\(^{72}\) For the semantic connection between ‘plunder, rob’ as in the Greek derivatives and ‘pluck (wool)’ as in Italic and Armenian, one may also compare the English verb fleece in the meaning ‘rob of money’.

IV 4: *strucla petenata isek ařveitu*

“Likewise offer ‘combed’ strucla cakes”

(Tr. Weiss)

\(\text{U. petenata}^{73}\) presumably an -o-/ã-stem adjective derived from Proto-Italic *petke/o-* ‘to comb’ (*petken- ‘comb’) from PIE \(*p(ē)k-\^[v.]*\(, *p(e)kten-\^[m.]*\( (cf. Greek πέκκο ‘to comb, shear’, Lithuanian pėšti ‘to pluck’, Greek πάκτω ‘to comb, shear’, Old High German fehtan ‘to fight’; Greek κτείζ ‘comb’ \(<\astπκτεν-\^[24]\(; interpreted

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67. As by Meiser 1986: 101. In a recent article dedicated to this particular stem, Meiser (2013) proposes an alternative theory, deriving the basic root \(*ḅʰordan*- from \(*ḅʰerH-dʰ*-’make cutting’. We consider this interpretation less likely as it would isolate the joint Italic evidence from the otherwise semantically Greek and Armenian cognates.

68. Forbes 1964, 7: “Plucking was the typical Bronze Age operation for the production of wool, shears appeared only in the Iron Age about 1000 BC when the suitable metal tool consisting of two knives joined by a spring could be manufactured from Iron, a metal more elastic than bronze.” One can of, course, also ‘shear’ with a knife, and, although bronze would be more impractical, this does not exclude the possibility of its use. Cf. also the, admittedly late, statement of Joannes Laurentius Lydus De mensibus 1.35. ‘Ὅτι ἐν τοίς Νουμα καὶ πρὸ τούτου οἱ πάλαι ἱερεῖς χαλκαῖς ψαλίσιν, ἀλλ’ οὐ σιδηραῖς ἀπεκείροντο “at the time of Numa, even before him, the priests of old used to have their hair cut with bronze but not iron scissors” (tr. Bandy 2013).

69. For shearing in ancient Italy, cf. Gleba 2012, 234-5: “More developed sheep breeds present at the time did not moult and their fleece had to be cut off, a process accomplished with the help of shears or a knife. Shears appeared during the Iron Age and all of the known examples are iron. In fact, their invention is tied to the use of iron, which is more springy than bronze [...]. All ancient shears found in Italy are of the same design [...]. The vast majority of the archaeological examples derive from the burial contexts in north Italy. It has been suggested that the practice of the deposition of shears in male burials in north Italy, populated at the time by Celtic tribes, may express the wool-based wealth of the Celts, who appeared there by the 4th century BC [...].” Cf. Varro R.R. 2.11.9: *quam dempiam ac conglobatam alii vellera, alii vellinma appellant: ex quo rum] vocabulo animadverteri licet prius <in> lana vulsuram quam tonsuram inventam; Pliny NH 8.191: *oves non ubique tendentur; durat quibusdam in locis vellendi mos.*

70. Cf. Wild (2012, 453) for the difference between shearing and plucking: “The apparently primitive practice of plucking sheep probably continued in Roman Britain alongside shearing with sprung iron shears. Plucking has the advantage of harvesting the finer short-stapled underwool in the fleece rather than the coarser longer outer hair: the result tends to be a generalised medium wool yarn rather than a hairy medium yarn, both typical of Roman Britain. Shearing, however, recovers the whole fleece, and the appearance of flat iron wool combs in the province by the 3rd century AD indicates the need to separate long from short fibres for the spinning of different types of yarn”. The Lithuanian cognate pėšti ‘pluck’ (see below) presumably reflects the original meaning of the process.

71. Cf. Olsen this volume 190.

72. Cf. Ernout 1909, 171: “*Forfex is apparenté, comme on l’a déjà vu depuis longtemps, à skt. bardhakah “couvant, taillant; charpenter”, gr. πέρθω de *φερθω “détruire”, et dérivé d’une racine i.e. *bherdh-, dont le représentant latin devrait être *forbex puis *borex (comme bara representa un ancien *bhardha-, devenu *farfa puis *farba [...]); forfex est dialectal par le maintien du second *f après r (le traitement latin est b cf. verbun, got. waud “mot” de *werd-).”


74. de Vaan 2008, 453.
by Buck as *pectinatam* ‘comb-shaped’.\(^{75}\) While the comb-shaped objects in question are sacrificial cakes, the term does, nevertheless, thus reflect the concept of a comb, cf. also Latin *pectunculus* ‘small scallop’.

**Umbrian fibre sources:**

A number of terms for ovicaprids are attested in the Umbrian language:\(^{76}\)

Ovids:

**U. *erietu:***\(^{77}\) A sacrificial animal, presumably ‘ram’, cognate with Latin *aries* (-*etis*) from Proto-Italic *a/-eriēt-s* (nom., *a/-eriēt-* obl.) from PIE *h₁-r̥-i(-e)t-* ‘certain domestic animal’ (cf. Old Irish *heirp*, *erb* (f.) ‘she-goat, doe, roe’ (< Proto-Celtic *erbā-*), Greek ἕρπω ‘kid’, perhaps Armenian *oraj* ‘lamb’ (<*er-of*) and erinj ‘young cow’\(^{78}\)).

**U. *unu:***\(^{79}\) The meaning and etymology of the word are uncertain, but it is generally interpreted as belonging to the domain of sheep.\(^{80}\) It occurs once with *erietu* (Iia 6) and once alone (Iia 8). It has been interpreted as “young sheep”, and if so it may derive from Italic *ouno- < *ouī-no- < *ouī-* (cf. below).

**U. *habina:***\(^{81}\) A sacrificial animal, believed to be of the genus *ovinum*, perhaps “lamb”; if so it may be derived from *agīnā*, a substantivization of an adjective *agīnō-/ā* from Italic *agīnō-/ā* with dissimilatory loss of the first *n* after the addition of the suffix -īno- (cf. Latin *agnus*, Greek ἄγνος, both meaning ‘lamb’\(^{82}\)). The *h-* must then be due to the influence of another word, e.g. equivalent to Latin *haedus* ‘kid’ (< *gaiaido*).\(^{83}\)

**U. *uvem:***\(^{84}\) The term for ‘sheep’, like Latin *ovis*. Etymologically from Proto-Italic *ovi- < PIE *h₂ou-i- or *h₁ou-i-* (cf. Old Irish *ói*, Cuneiform Luwian *hāyi-*, Lycian *χawā-* ‘sheep’; Sanskrit *āvi- [m./f.] ‘sheep, ram’; Greek ἄξις, ἄφις ‘sheep’; Armenian *hovīw* ‘shepherd’; Latin *caprīnus* ‘shepherd’; Lithuanian *avis*, Latvian *avs* ‘sheep’; Tocharian B *awi* [nom.pl.f.] ‘ewe’\(^{85}\)).

Caprids:

**U. *cabriner:***\(^{86}\) An -*o/-ā*-stem adjective ‘of the goat’ (with *pelmner* ‘meat’) from Proto-Italic *kaprīno-* (cf. Latin *caprīnus* and below).

**U. *kaprum:***\(^{87}\) The term for ‘he-goat, buck’ from Proto-Italic *kapro-* with IE cognates in Welsh *caer-iwrch* ‘roe buck’, Irish *cáera* ‘sheep’ < *kaplero-*. Greek κάπρος ‘(wild) boar’, Old Icelandic *kaprum*.

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75. Buck 1928, 189.
76. Cf. also the general Umbrian *pequio* (acc.pl.) ‘livestock’, corresponding to Latin *pecu* (Vla 30- VIIb 30, 11 times). Etymologically from *pekā*, a collective plural to PIE *peku- ‘cattle’, perhaps originally ‘small cattle, especially sheep’. Moreover, Umbrian *staffarem* and *staffi* may attest to animal husbandry of sheep, cf. Buck 1928, 305: “staffare (Vlb 37) refers to some animal kept in a stall, probably a sheep”.; but both sense and etymology are disputed, see Untermann 2000, 693-95.
78. de Vaan 2008: 54.
79. Iia 6 and 8. Untermann 2000, 799. Cf. the example above under *erietu*.
82. de Vaan 2008, 30.
83. Cf. Untermann 2000, 314; Varro states that the “Sabines” termed the kid *fedus*, see the section on Sabine terms.
84. Masculine -i-stem noun: acc.sg. *uvem* (III 8, 10, 12, 26, 31) and *uve* (Iia 10); abl.sg. *uvikum* (with postp. -com, III 28); acc.pl. *uvef* (Ib 1) and *oui* (Vlb 43). Untermann 2000, 818.
hafr 'he-goat'; cf. also Oscan καπρόννα[ι.⁸⁸ According to de Vaan,⁸⁹ the a-vocalism makes it a likely candidate for a loanword, but at least the word is common to Italic and Germanic, and Celtic has a synonym in Old Irish gafn, Welsh gafr with an aberrant initial g- which may, however, have been influenced by the semantically related *gʰajdos 'goat' (Latin haedus, Old Norse getir).

**Umbrian colour terminology:**

Colour terms are an important part of textile terminology and the following Umbrian terms (all -o/-ā- stem adjectives) are attested:

- **U. adro:**⁹⁰ 'black' from *ādro-, like Latin āter. Interpreted by Cerri⁹¹ as opaque black, vs peiu bright black (cf. below).
- **U. alfu:**⁹² 'white' from Proto-Italic *alfo- from *h₁alb-/*-, like Latin albus (cf. Greek (Hes.) ἀλβος (acc.pl.)). See also Sabine alpus.
- **U. kaleřuf:**⁹³ of uncertain meaning, but perhaps white, cf. Latin cal(l)idus 'with a white star' (of horses).⁹⁴ Interpreted by Cerri⁹⁵ as bright white, vs alfu opaque white (cf. above).⁹⁶

**U. peiu:**⁹⁷ the adjective denotes the colour of sacrificial animals,⁹⁸ probably a dark colour, maybe black (cf. above). No precise etymology or meaning has yet been established, but the term is generally interpreted as *pik-jo- corresponding to Latin piceus 'pitch-black', cf. Latin pix 'pitch'.⁹⁹

**U. ponisiater:**¹⁰⁰ The term ponisiater, presumably from *poṁikjā-, attests to the term for the colour purple *poinikejo-, like Latin pūnicus a loan from Greek φοινίκεος 'red, purple' (“Phoenician”).

**U. rufru**¹⁰¹ and *rofu:**¹⁰² two related adjectives for red, like in Latin, both from the root *h₁reud-, rufru from Italic *rudh-ro- (like Latin ruber, cf. Greek ἐρυθρός and Old Indian rudhir-, rofu from *roydh-/*- (like Latin rūfus, cf. Gothic raufs, Old Irish rúað, Lithuanian rūdas, Old Church Slavonic rudb). Ancilloti & Cerri suggest that rufru may be opaque red, while rofu is bright red.¹⁰³

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⁸⁸. O.καπροννα[ι (Dat.sg.f., a –o-/ā-stem adjective (Pocc.129/Lu 32, Rossano). Untermann 2000, 369), an epithet of the goddess Mefitis, presumably from *kaprōnā and derived from *kapro- 'buck' (with anaptyxis and -ōnna from -ōnā). The precise meaning of the epithet is unclear, maybe the ‘buck goddess’ with the suffix of domination -ōn- and the feminine marker -īā. As a textile term it should mean something along the lines of ‘goatskin’, but one would then expect the suffix -ōn- instead. Poccetti states that the reading καπροννα[ι is also possible, providing a link to Juno Caprotina (cf. Poccetti 1979, 121: “L'evidenza grafica, tuttavia, non lascia escludere del tutto la precedente lettura [...καπροννα[ι, anche per un possibile rapporto con il lat. Caprotina, noto come attributo di Iuno”). Either way the epithet attests to the Oscan term for goat.

⁸⁹. de Vaan 2008, 89.

⁹⁰. Acc.pl.n. atru (Ib 29), adro (VIIa 25) and abl.pl.n. adrī (VIIa 9, 10, 21), adrer (VIIa 18). Untermann 2000, 54-55.

⁹¹. Ancilloti & Cerri 1996, 94.

⁹². Acc.pl.n. alfu (Ib 29) and abl.pl.n. alfīr (VIIa 25, 26) and alfer (VIIA 32, 34). Untermann 2000, 79-80.

⁹³. Acc.pl.m. attested as kaleřuf (Ia 20) and calersu (Vlb 19). Untermann 2000, 365.


⁹⁵. Ancilloti & Cerri 1996, 94.

⁹⁶. Cf. Isidorus 12,52: (equi) qui frontem albam (habent) calidi (appellantur).

⁹⁷. Acc.pl.f. peiu (Ib 24), peiu (VIIa 3) and acc.pl.f. peia (Ib 27), peia (VIIa 6). Untermann 2000, 526-27.


⁹⁹. See Untermann 2000, 527, for references.

¹⁰⁰. Gen.sg.m. ponisiater (Vlb 51) and pūnicate (Ib 15). Untermann 2000, 607-608.

¹⁰¹. Acc.pl.m. rufru (Ib 24), Acc.pl.f. rufra (Ib 27) and gen.sg.m. rufer (Vla 14). Untermann 2000, 637-38. South-Picene rufrasim (CH 1, Crecchio) is a possible parallel, but its meaning and etymology are unknown, cf. Untermann 2000, 636.

¹⁰². Acc.pl.m. rofu (VIIa 3) and acc.pl.f. rofu (VIIa 6). Untermann 2000, 638.

**Sabine:**

As mentioned above, glosses must be treated with the utmost caution, as they are not only often mistaken, but are also second hand evidence and may be marred by textual tradition. Sabine was one of the Sabellic languages spoken in central Italy in the hill districts lying east and southeast of Rome. The Sabine language is attested in the form of glosses, although some early inscriptions from Sabine or nearby territory use an alphabet “that may for convenience be called Sabine”.104

- Sabine *alpus* ‘white’:


  “What we name albus is thus termed from the Greek ἀλφόν, which the Sabines called alpus. Thence it may be surmised that the name of the Alps stems from the lustre of its snowy peaks”.

Conway states that the word is clearly borrowed from Greek or Celtic, because the genuine Italic reflex would be *alfo-*, cf. on U. alfu.106

- Sabine *hircus* and *fedus*:

  Varr. *L.* *L.* 5, § 97 <h>ircus, quod Sabini fircus; quod illic fedus, in Latio rare hedus: qui in urbe ut in multis A addito <h>aedus.

  “Hircus ‘buck’, which the Sabines call fircus; and what there is fedus, in Latium is hedus ‘kid’ in the country, and in the city it is haedus, with an added A, as is the case with many words.”

Conway conjectures that the true Sabine form was *felo-* and that either Varro’s text or more probably his knowledge is at fault.107

- Another term which is only defined as “Sabine” was discussed by Favorinus:

  *Nux terentina dicitur quae ita mollis est ut vix attrectata frangatur. De qua in libro Favorini sic reperitur: “item quod quidam Tarentinas oves vel nuces dicunt, quae sunt terentinae a ‘tereno’, quod est Sabinorum lingua mollae, unde Terentios quoque dictos putat Varro ad Libonem primo.” Quam in culpam etiam Horatius potest videri incidere, qui ait et ‘molle Tarentum’.108

“The nut that’s so soft it breaks when you’ve scarcely touched it is called ‘terentine’.” About this nut one finds the following in a book by Favorinus: “Similarly, there’s the fact that some people call sheep and nuts ‘Tarentine’ when they are properly ‘terentine’, from *terenus*, the Sabine term for ‘soft’; Varro, in his first book To Libo, expresses the view that the Terentii are so called from the same term.” Horace could seem to fall into the mistake noted by Favorinus when he speaks of “soft Tarentum”, too.”

It is the term “tarantine”, which is usually deemed to be a toponymical reference to the city of Taras (modern Taranto) in Magna Graecia which was famed for its wool in antiquity.109 The link with the toponym of Taras is highly dubious and clearly a conflation, but the Sabine term for soft *terenus* conforms to the

104. Wallace 2008, 96. Varro states that Sabine derives from Oscan: *L.* *L.* 7.28: secundo eius origo [i.e. the word *cascus*] Sabina, quae usque radices in Oscam linguam egit, “secondly, it has its origin from the Sabine language, which ran its roots back into Oscan”.


107. Conway 1897, 354.


109. Columella 7.2.3; Pliny *NH* 8.189-190.
reconstruction of Latin tener ‘soft, delicate’, which presumably derives from *tenVro- < *terVno- by consonant metathesis. Both Indo-Iranian and Greek have adjectives in *teru-, *ter-n- and *teru-n- (cf. Sanskrit tāruna- ‘young, tender, fresh’, Avestan tauruna- ‘young’, Ossetic taryn, tyrn/terna ‘boy’, Greek τέρυ ‘soft, weak’ and τέρην ‘soft, delicate’).

- trabea:

"Numa prescribed that the royal dress be made of purple and scarlet in honour of Helios and Aphrodite (…) and named the garment itself trabea in his native language. Agathokles the Sicilian is said to have been the first to make it. It has been termed trabaia, ‘dyed three times’, for it is made of three colours: purple, scarlet, and woad’.

The trăbéa, presumably the only certain textile related Sabine term, was a ceremonial garment of priests, kings, consuls, and knights in Rome from the beginnings to late Antiquity. According to Suetonius, there were three kinds of trabea: one sacred to the gods (entirely of purple), the second was royal (made of purple and some white), the third was a dress of augurs (of purple and scarlet). Isidorus follows Joannes Laur. Lydus and states that the one of purple and scarlet was regal. The fanciful etymologies of Joannes L. Lydus (“τρίβαφος”) and Isidorus (“quod … transbearet”) are nothing more than that. The term trabea was assigned to the Sabine language by Mommsen and Vetter. Interpreted by Ernout & Meillet as a form of toga of Sabine origin, they suggest a link with trabs ‘beam’, presumably because the trabea was “faite toute entière d’étoffe de pourpre, ou ornée de bandes horizontales de cette couleur”. According to Ernout it is confirmed by Virgil Aen. 7,612: ipse Quirinali trabea cinctuque Gabino, “arrayed in Quirinal robe and Gabine cincture”, where “l’alliance de Quirinalis avec trabea indique que Virgile considérait le mot comme sabin”.

Concluding remarks

Although the attested Sabellic terminology of textiles is, as is to be expected from the sources at our disposal, rather meager, the preceding contribution has nevertheless confirmed numerous Sabellic terms in the domain of dress and textiles. Several of the Sabellic textile terms contribute to the loanwords connected to textiles. Oscan plauta- was transmitted to Italic from Greek (through Magna Graecia); the supparus made its way from Greek to Oscan and thence to Latin; the Umbrian word ponisi-ater was, like the Latin pūnicus, a loan from Greek φοινίκεος; the Sabine term trabea was adopted in

110. de Vaan 2008, 613, s.v. tener. Also accepted as Sabine by Beekes 2010, 1468, s.v. τέρην.
111. Joannes Laurentius Lydus Hist., De mensibus 1.21 (tr. adapted from Bandy 2013).
114. Tac. Ann. 3. 2; Suet. Dom. 14; Val. Max. 2. 2, 9; Martial, 5.41.5.
115. See Dewar 2008.
119. Ernout-Meillet 698.
120. Cf. also Virg. Aen. 7. 187-188.
121. Ernout 1909, 238; Ovid Fasti 1,37; 6, 375 and 796; Metamorph. 14, 828.
Latin. For phonological reasons, the Latin term *for-fex* ‘shears’ moreover suggests a dialectal borrowing from Sabellic to Latin tool terminology. The use of the term *tuplak* attests to a common ritual use of textiles in Latin, Sabellic, and Greek cult.

The terminological characteristic which is most striking is that also Sabellic terminology conforms to other ancient languages in characterizing clothing by designation of the garment by reference to borders, stripes or bands: Umbrian *perca* and Sabine *trabea* conform to *e.g.* the Latin *claves*, *virgatae vestes* and the Greek ἰπόδος.

There are also aspects worth noting regarding costume vs status and function. Bonfante argues that decoration on Etruscan and Greek clothing was purely ornamental, but that it was symbolic in Roman clothing.\(^\text{122}\) The formalization of dress details found among the Romans as symbols of rank (*e.g.* the *clavi*), seems to have a parallel in the Sabellic *perca* and *trabea*, the latter adopted as such by the Romans.

Moreover, dress marked the social class of its wearer in both Etruria and Rome. Etruscan priest(esse)s and divinities were donned in specific clothing, like the *perca arsmatiam/ponisiater* in Umbrian ritual (and priestly attire at Rome). The custom at Rome of distinguishing senators, consuls, and knights by their clothing appears to have a parallel in Umbrian *śihitir/*anśihitir, but of course also in the Sabine *trabea*, which had precisely this function at Rome.

The Sabellic terminology thus not only provides valuable comparanda for the archaeological study of Italic textiles and the ritual use of textiles in ancient Italy, but also complements our knowledge of this crucial and important domain of Indo-European culture and life.\(^\text{123}\)

### Abbreviations

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\(^\text{122}\) Bonfante 2003, 92.

\(^\text{123}\) See Olsen forthcoming.

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Greek

Latin

Oscan

Umbrian

Verb
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Farbstoffe sind alles andere als ein leicht zu behandelndes Thema, denn von wenigen Ausnahmen abgesehen, die die mineralischen Farben betreffen, geht die archäologische Nachweisbarkeit in der Regel fast gegen Null, was gerade für die Textilfärberei sehr bedauerlich ist.


(41) ὁ ἐν μεσογείᾳ
(42) [ὁ]νοῦμενος κρόκον ἀπογραφέσθω ἐπὶ τοῦ ἔνγιστασ[στα π]αραφύ[λακος]. ἐ[ἀν δὲ σωτὸς μὴ παρῆ]

13. Beschaffung und Handel mit Farbstoffen

Beim hier angesprochenen Produkt handelt es sich um die getrockneten Blütenfäden des Safran oder Crocus sativus, die einen gelbfärbenden Farbstoff namens Crocotin liefern. Der wahrscheinlich ursprünglich nur in Griechenland und dem Vorderen Orient heimische Crocus sativus gehört zu den wichtigsten Farblieferanten der antiken Textilwirtschaft, der sich im Laufe der Geschichte nachweislich von seinem Ursprungsgebiet über das übrige Mittelmeergebiet verbreitete.5

Der Crocus sativus blühte im Herbst für zwei Wochen und mußte in diesem sehr engen Zeitraum geerntet werden, wobei unter wirtschaftlichen Aspekten lediglich die Blütenfäden von Interesse waren. Sie wurden während der Ernte aus der Blüte herausgezupft und anschließend getrocknet, was eine typische Arbeit für Frauen und Kinder ist. Ein verkaufsfähiges Kilogramm Safran mußte aus den getrockneten Stempelfäden von 150- bis 200000 Blüten gewonnen werden, für die man eine Anbaumfläche von 1000 m² benötigte. Dabei hat sich die Technik, mit der man die Blütenfäden gewinnt, bis heute nicht geändert, d.h. es ist ein enormer Arbeitseinsatz notwendig. Die Bedeutung solcher Tätigkeiten für den ländlichen Arbeitsmarkt ausgewählter Regionen ist noch nicht erforscht.

Wie ist das technische Procedere zu bewerten, da sich hier abzeichnet? Der Aufkäufer wurde von den einzelnen Bauern und Hirten mit dem handelsfähigen Safran beliefert. Da der Käufer wahrscheinlich die Absicht hatte, die so erworbbene Ware aus dem Gebiet des lykischen koinon auszuführen, unterlag sie damit auch der Verpflichtung zu einer Verzollung an der Außengrenze Lykiens, wobei wir leider nicht sagen können, wie hoch der geforderte Zoll war. Da aber die Zollinschrift am Rande des Hafengeländes von Andriake und dort wohl in situ gefunden wurde, dürfte es sich hier um die Erhebung der Exportabgabe handeln. Ob es daneben auch noch Rechtsvorschriften für einen internen Handel innerhalb von Lykien gab, läßt sich auf unserer dürftigen Quellenbasis nicht mehr entscheiden.6

Die Zwischenlagerung in einem Lager, möglicherweise auch die anschließende Verzollung, erfolgte auf der Ebene der Gemeinde, d.h. die administrative Verantwortung für die Verwahrung lag in der Gewalt der jeweiligen Gemeinde. Diese spezielle Regelung dürfte durch die Natur des handelsfähigen Safrans zu erklären sein. Offensichtlich wurde diese Ware auch in sehr kleinen Mengen (d.h. wohl im Unzen- und Pfundbereich) gehandelt, so daß die Möglichkeit, die Ware unbemerkt an der Zollkontrolle vorbeizuschaffen, durchaus gegeben war. Aus den wenigen uns vorliegenden Quellen kann nicht eindeutig ermittelt werden, ob man damals den Safran aus der wildwachsenden Form gewann oder ob es sich bereits um planmäßig angelegte Felder handelte.

Vgl. etwa Strab. 14.5.5 [671] zum kilikischen Krokus = Safran.

„Nach dem Kalykadnos kommt der sogenannte Bunte Felsen, mit einer eingehauenen Treppe, die nach Seleukeia führt. Dann Anemurion, ein mit dem vorigen gleichnamigen Kap, und die Insel Krambusa und Kap Korykos, über dem, zwanzig

6. Unsere Kenntnisse zur lykischen Textilwirtschaft sind zu limitiert, um hier zu einer Entscheidung kommen zu können. Lykien war wohl eher ein Lieferant von Rohstoffen.
Stadien entfernt, die Korykische Grotte liegt, in der der beste Safran wächst (... ἀρίστη κρόκον φύεται). Es ist eine große kreisförmige Vertiefung, die an allen Seiten von einem ziemlich hohen felsigen Rand umgeben ist; steigt man sie herunter, dann trifft man auf einen kleinen unebenen und größtenteils felsigen, aber mit immergrünen und gezüchteten Gesträuch bedeckten Boden, zwischendurch verstreut sind die Böden, die den Safran tragen.“ (Radt)

Ähnlich unergiebig ist auch Strab. 6.2.7 [273] zum Safrananbau von Sizilien. Hier ist die Information zum Safran in die Nachricht eingebunden, daß Sizilien bei all den zuvor genannten Dingen einen Überschuß produziert.

... σῖτῳ δὲ καὶ μέλετι καὶ κρόκῳ καὶ ἄλλοις τισὶ κἂν ἅμείνω τις φαίη.

„Für Getreide, Honig, Safran und einiges andere könnte man es [sic. Sizilien] sogar über Italien stellen ....“

Wir können demnach eine Aufgliederung der für Textilien einsetzbaren Farbstoffe nach verschiedenen Kategorien erstellen, die sich durch die Art ihrer Gewinnung ergibt.

Farbstoffe, die man aus wildwachsenden Pflanzen gewinnen konnte bzw. die durch Tiere produziert wurden

Diese Farbstoffe konnte man nur lokal gewinnen, wobei man im Fall der Pflanzen keinen gezielen Anbau vermuten kann. Diese Prämissen gilt möglicherweise für Farbstoffe wie den Safran, aber auch die verschiedenen Arten des Kermes, wobei man die Tiere, aus denen man den Farbstoff gewinnen konnte, lediglich einsammeln mußte. Hier gewinnen wir einen ersten und sehr interessanten Einblick in eine m.W. bisher kaum berücksichtigte Einnahmequelle der ländlichen Bevölkerung.

Wie dieses Beschaffungssystem in der Realität arbeiten konnte, erfahren wir eher beiläufig in einer kurzen Nachricht aus der aramäischen Vita des Symeon Stylites des Älteren. Von ihm wird berichtet, er habe als Hirtenjunge in den Bergen des Taurus Storax gesammelt, also ein sehr aromatisches Baumharz? Dieses sich hier andeutende Beschaffungsmodell kann man ohne Bedenken auf die Gewinnung des Kermes übertragen.

Kermes wurde aus den getrockneten Körpern des weiblichen Kermesschildläuse (Kermes vermillio) gewonnen. Dieses Insekt lebte üblicherweise auf einer mediterranen Eichenart (Quercus cocci-fera) und starb nach der Ablage seiner Eier, konnte dann also eingesammelt werden.8 Ergänzt wurde dieser spezielle Kermes etwa durch den armenischen Cochenille oder Ararat-Kermes, wobei die färberischverwenden Insekten (Porphyrophora hameli) auf Gräsern lebten, wo man sie ebenfalls relativ leicht aufsammeln konnte.9 Ähnlich sieht es im Fall des sogenannten polnischen Kermes aus, der von der polnischen Kermeslaus (Porphyrophora polonica) produziert wurde, die in Mitteleuropa durchaus gut verbreitet war.10 So verzeichnet das Urbar des Regensburger Stiftes St. Emmeram aus dem Jahre 1031 eine Reihe von zinspflichtigen Dörfern im Großraum von Regensburg, die getrocknete Kermesläuse an das Stift abliefern mußten.11

Farbstoffe, die als Neben- oder Abfallprodukt anfielen. Beispielhaft seien aus dieser Gruppe genannt

Juglans regia = Schalen der Walnuß
Punica granatum = Fruchtschale des Granatapfels

Dieses gilt auch für die verschiedenen färbbenden Baumrinden, da ich bei ihnen davon ausgehe, daß

13. Beschaffung und Handel mit Farbstoffen

Farbliefernde Pflanzen, die gezielt mit dem Ziel einer Gewinnung von Farbstoffen angebaut wurden.

Sicherlich ackerbaumäßig angebaut wurden die folgenden Farbpflanzen, für die wir in der Spätantike sogar eine staatliche Monopolbildung nachweisen können: Waid, Krapp und Saflor.12

D. Hagedorn, der in den 70er Jahren die ihm damals bekannten Belege zumindest in Ägypten zusammentstellte, machte dabei deutlich, daß der römische Staat zumindest in Ägypten den Anbau von ἰσάτις, also Isatis tinctoria oder Waid, und von ὀχομένιον und κνῆκος kontrollierte. Hagedorn interpretierte seinerzeit ‚ochomonion‘ mit einer gewissen Reserve als Synonym oder Variante für den Saflor oder die Färberdistel (Carthamus tinctorius), der üblicherweise als κνῆκος bezeichnet wurde.13 Es mag dabei von Bedeutung sein, daß später der arabische Autor Ibn al-Awwam ebenfalls zwei Sorten von Carthamus in Ägypten unterscheidet.14

Verbesserte Edition von SB X 10264 (nach Hagedorn, ZPE 17, 1975, 95)


Wir haben von dir für die 6. und 7. Indiktion als Zahlung für Waid (‘Υπ(ὲρ) τιμῆς ἰσάτεως), der an das officium rei privatae abzuführen ist, auf deinen Namen für neun Aruren und auf den Namen des Patermuthios und seiner Frau … für eine weitere Arure, für die insgesamt 10 Aruren, für die genannten zwei Jahre, dreitausend Silberdrachmen, in Zahlen 3000 Dr., erhalten. Im 5. Konsulat des Constantinus Augustus und dem 1. Des Licinius Caesar, am 18. (?) Phaophi …


(3. Hd.) Sie haben auch für die 4. und 5. Indiktion durch Ammon … erhalten.“

Nimmt man die Angaben aus der Ablieferungsliste P.Oxy. VII 1052 Zeile 19 ἰσάτεως. [Σ]ερόφεως δ(Υ) κεντ(ηναρία) η λί(τραι) λε = „An Waid / Aus dem Dorf Seryphis 8 centenaria 25 litrai (= 264 kg)“ hinzu, dann spricht dies dafür, daß hier an eine Ablieferung des Farbstoffs in Pulverform gedacht ist. Also erst nach dem arbeitsintensiven Bearbeitungsprozeß, den der römische Staat auf die Steuerpflichtigen abwälzte und durch den das ursprüngliche Blattgewicht auf 5 % Trockenmasse bzw. verwendungsfähiges Farbpulver reduziert wurde.15 Um das hier genannte Gewicht von 264 kg Farbstoff zu erreichen, mußte man immerhin rund 5.28 t Waidblätter abernten und verarbeiten.16


15. Der Herstellungsprozeß wird bei Fischer 1997, 14-17 beschrieben.
Für eine solche Vermutung könnte auch eine No-
velle Kaiser Valentinians sprechen, die sich Nordaf-
rika widmet.17 Die Motivlage des römischen Staates
darf als weitgehend eindeutig gelten, d.h. es sind sow-
wohl fiskalische Motive als auch die Versorgung der
staatlich kontrollierten Textilproduktion mit wichti-
gen Rohstoffen zu bedenken.18

Krapp (Rubia tinctorum) wurde bereits relativ früh
gezüchtet, was Plinius bestätigt.19

Plin. NH 19.47: Sunt etiamnum duo gen-
era non nisi sordido nota volgo, cum quae-
stu multum polleant, in primis rubia, 
tinguendis lanis et coriis necessaria, lau-
datissima Italia et maxime suburbana, et
omnes paene provinciae scatent ea. Sponte
provenit seriturque …

“Es gibt auch zwei Arten (von Pflanzen),
die nur dem gemeinen Volk bekannt sind,
aber doch viel einbringen: zuerst der
Krapp (rubia), der zum Färben der Wolle
und von Härten notwendig ist. Den besten
lieft Italien und vor allem die Umgebung
der Stadt (also Rom), aber auch fast alle
Provinzen sind überreich daran. Er wächst
wild und wird auch angebaut…“

Ein problematischer Fall ist der Saflor (Cartha-
mus tinctorius).20 Die spätantiken Belege (s.o.) sich-
ern für diese Zeit ein wahrscheinlich monopolmäßige
Bewirtschaftung dieser farbliefernden Pflanze, doch
wir müssen hier von einer doppelten wirtschaftlichen
Bedeutung dieser Pflanze ausgehen. So wird der An-
bau von Saflor oder knekos bereits in den ptolemäi-
ischen ‘Revenue Laws’ aus dem 3. Jh. v. Chr. geregelt.
Damals interessierte man sich aber für den Saflor vor
allem unter dem Gesichtspunkt des Ölmonopols und
nicht als möglichen Lieferanten eines Farbstoffs.21
Was sich an den wirtschaftlichen Rahmenbedingun-
gen zwischen der Zeit der Ptolemäer und der Spätan-
tikgeändert hat, entzieht sich meiner Kenntnis.

**Farbstoffe, die nicht im Bereich des Imperium
Romanum vorkamen und daher importiert
werden mußten.**

Für den grenzüberschreitenden Handel haben wir ein
wichtiges, aber auch wegen des komplizierten Inhal-
tes nicht unproblematisches Zeugnis. Es handelt sich
um ein großes Fragment aus dem Werk „De delatori-
bus“ des Juristen Marcianus. Die Nachricht ist gut da-
tiert, da es sich um ein kaiserliches rescriptum aus der
gemeinsamen Regierungszzeit der Kaiser Marcus Au-
relius und Lucius Verus (161-169) handelt.22

Unter dem Gesichtspunkt ‚Farbe‘ sind zunächst
die folgenden vier Warengruppen bemerkenswert,
obwohl sie keinen Farbstoff im eigentlichen Sinne
nennen, sondern gefärbte Vorprodukte. Das wären
zunächst die ‚pelles Babylonicae‘ und die ‚pelles Par-
thicæ‘, also gefärbte Lederhauten von Zickeln und
Lämmern, die man zur Weiterverarbeitung ins Imper-
ium Romanum importierte. Was allerdings den Un-
terschied zwischen babylonischen und parthischen
Häuten ausmachte, ist unbekannt. Man kann also wie
bei den dabei verwendeten Farbstoffen nur spekuli-
eren.23 Dies gilt auch für die ‚vela tincta‘, hinter denen
man gefärbte Wandbehänge und Teppiche vermuten
cann. Eindeutig hinsichtlich des Farbstoffs sind wohl
die ‚purpura‘, unter denen ich mit Purpur, möglicher-
weise auch mit Purpurersatz, gefärbte Gewebe ver-
stehe. Auch mit Purpur gefärbte Rohwolle oder Garne
wären denkbar.
Allerdings gibt es einen Eintrag in dieser Liste, der Anlaß zum gründlichen Nachdenken liefert. Denn es wird auch fucus genannt, was man üblicherweise als Hinweis auf Orseille oder die Färberflechte (*Roccella tinctoria*) versteht, also eine Pflanze, die einen roten Farbstoff liefert. Hier darf man sich allerdings mit Recht die Frage stellen, warum mußte man gegen hohe Kosten (man zahlte immerhin 25 % Außenhandelszoll) den Farbstoff einer Pflanze importieren, die sowieso überall im eigentlichen Mittelmeergebiet vorhanden war.

Ich kann daher nicht völlig ausschließen, daß sich hinter ‚fucus‘ das Produkt einer völlig anderen farbliefernden Pflanze verbirgt oder daß ‚fucus‘ sogar stellvertretend für eine ganze Gruppe von vergleichbaren Farblieferanten steht. Dabei kann man hier möglicherweise auch den echten blaufärbenden Indigo anschließen, der damals ebenfalls ins Mittelmeergebiet importiert werden mußte.

Leider wird in dieser Liste nicht das rotfärbende Brasilholz aufgeführt, das in islamischer Zeit (Zeugnis der Geniza von Kairo) eine sehr große Bedeutung hatte.24 Das rotfärbende Brasilholz stammte ursprünglich aus Ostasien, wo die entsprechenden Bäume etwa auf der Insel Java vorkamen.25 Da aber in der Liste des Macrianus das Aloeholz (alche) als gesonderter Artikel erwähnt wird, könnte auch das Brasilholz bereits in römischer Zeit importiert worden sein.

Wenn es um die Frage geht, in welcher Form diese Farbstoffe in den Handel kamen und transportiert wurden, dann kann man m.E. ohne besondere Bedenken auf die mittelalterlichen Belege zurückgreifen, denn ich gehe davon aus, daß sich in diesem Bereich relativ wenig geändert hat. Demnach kann man folgendes vermuten:

- Krapp in getrockneter Form als Krappwurzel
- Waid in fermentierter Form als Waidkugeln
- Saflor in getrockneter und dann wahrscheinlich gemahlener Form
- Safran in Form der gezupften und getrockneten Blütenblätter

Als Verpackungsformen darf man an Säcke oder Packen denken, die man sowohl auf Tragtiere laden als auch leicht als Sonderlast auf Schiffen verstauben konnte. Wenn man etwa die 264 kg Waid aus P.Oxy. VII 1052 als Beispiel nimmt, dann war dies eine Last, die man ohne weiteres auf zwei, höchstens drei Esel packen konnte.


Ich habe hier Hinweise zusammengestellt, die mir eher zufällig aufgefallen sind. Doch selbst diese Auswahl dürfte deutlich gemacht haben, daß wir hier ein sehr wichtiges Teilgebiet der antiken Technik- und Wirtschaftsgeschichte vor uns haben, das eine intensivere Untersuchung lohnen dürfte.

**Bibliographie**


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The colour purple evokes an inestimable, priceless luxury in our understanding. It almost belongs in a legendary world along with other exquisite goods. Purple is seen as example par excellence for a symbol of social status, a token of prestige. A significant study on the importance of purple has brought to light the persistent desire for this colour throughout the Greek and Roman world.2

Literary sources from Roman times provide us with quite comprehensive information on the colour and its sources. The most often quoted author is doubtlessly Caius Plinius Secundus, known as Pliny the Elder, who compiled specialist knowledge in 37 books on various topics. In the chapter on sea animals of his Naturalis Historia Pliny covers shellfish, amongst them the purple snails (Plin. NH 9.124–141). At this point Pliny gives a description of the purple dyestuff obtained from the animal and describes the dyeing process (Plin. NH 9.133–135). His excursus is the most detailed ancient description of the dyeing method with mollusc-purple upon which modern experiments in dyeing are based.3 However, the actual reason, why Pliny describes purple dyeing, is not that he is interested in dyeing fabrics in the first place. He describes maritime creatures, in particular the sea snails, and as such he pays some tribute to its characteristic feature: the colourfast dyestuff purple.

The Roman author Vitruvius and his work De architectura provides further information. Unlike Pliny, Vitruvius focuses on colours used as pigments for painting (decorae picturae, as in Vitr. De arch. 7.13–14). Already in his description diverse terms for ‘purple’ are used and it shows quite obviously, that different kinds of purple were produced, even from various species of molluscs. For a quick and convenient reference for the reader, the Latin text with an English translation of chapter 13 is presented in the following:4

1. Incipiam nunc de ostro dicere, quod et carissimam et excellentissimam habet praeter hos colores aspectus suavitatem. Id autem excipitur e conchylio marino, e quo purpura efficitur, cuius non minores sunt quam ceterarum <rerum> naturae considerantibus admirationes, quod habet

We now turn to purple, which of all is most prized and has a most delightful colour excellent above all these. It is obtained from sea shells which yield the purple dye, and inspires in students of nature as much wonder as any other material. For it does not yield the same colour everywhere, but is modified naturally by the course of the sun. 2. What is collected in Pontus and Gaul is black because these regions are nearest to the north. As we proceed between the north and west it becomes a leaden blue. What is gathered in the equinoctial regions, east and west is of a violet colour. But in the southern regions it has a red character; for example, in Rhodes and other similar regions which are nearest the sun’s course. 3. When the shells have been collected, they are broken up with iron tools. Owing to these beatings a purple ooze like a liquid teardrop is collected by bruising in a mortar. And because it is gathered from the fragments of sea shells it is called ostrum [Gk. ostreon = oyster].

Literature and in particular poetry use the effects and ambiance created by colours. The richness and the outstanding importance of the red colours, especially purple, has long been recognized. 

Apart from literary sources, epigraphical and papyrological documents reveal additional evidence on an era, where purple played a significant role. Papyrus texts from Egypt reflect the daily life and therefore represent valuable and unique evidence for our understanding. However, the main reason of writing these documents was not to record information on dyestuffs or dyeing-methods, but often a different one, which takes effort to evaluate the information contained and occasionally leaves the modern reader in the dark.

In a specific papyrological study Greek papyri were examined in terms of the meaning of πορφύρα and its related forms. The aim was to determine, whether the documents refer to purple wool or to purple dye. By comparing the indicated weight small amounts of weight were contributed to purple dye-stuff rather than purple-dyed wool. A conclusion, which was later on questioned.

5. E.g., Blümner 1892, 184-199.

6. Monica Guilimi, personal communication by e-mail (27.08.2014), based on non-invasive analysis of the textile (FORS) supervised by Maurizio Aceto; these tests confirmed previous VIS-spectroscopy results of Robert Fuchs and Doris Oltrogge in September 2012. Analyses using UHPLC are planned for 2017.


8. Experiments based on ancient archaeological textiles found in the Eastern Desert of Egypt aimed to question, if one stater of wool is sufficient to spin the weft yarn needed for the ornaments (Cardon et al. 2011). Considering the fineness of the yarns used, the possible length of yarn was calculated based on 1 stater (c. 13.5 g.) of spun wool. The result is surprisingly quite clear and contradicts the previously mentioned study, “Indeed, 1 stater of purple-dyed wool may often have been enough to decorate one set of garments (synthesis) consisting of a tunic with thin purple clavi plus a matching mantle with purple gammas of average size [...]” (Cardon et al. 2011, 212).
One additional observation of this study were the various kinds and varieties of purple attested in the Greek papyri throughout the times. That various kinds of purple were available on the market may be best seen in chapter 24 of the *Edictum Diocletiani de pretiis rerum venalium* (AD 301). The heading περὶ πορφύρας implies that all items listed were generally seen as ‘purple’ in ancient times. A study was able to demonstrate, that different dyestuffs and different dyeing methods were employed in order to produce ‘purple’.

This is an attempt to compile various kinds of purple attested in Greek documentary papyri and to amplify the previous mentioned study. The Greek term πορφύρα and its related forms are attested over 200 times between the 3rd century BC and 7th century AD in papyrological databases. Firstly, various compositions with πορφύρα, πορφύρεος respectively πορφυροῦς denoting different purples were collected. Secondly, other terms with the meaning of purple were identified. Thirdly, the content of the texts was carefully examined and compared in order to gain a better understanding.

**True and false purple**

Today we tend to speak of ‘true’ purple whenever referring to mollusc-dyestuff. This might be connected with the well-known and often quoted literary sources on dyeing with purple-snails as previously mentioned. So far, remains of three snail species have been found by archaeologists in deposits within the Mediterranean region: *Hexaplex trunculus* L. (also known as *Murex trunculus* L.), *Bilonus brandaris* L. (often quoted as *Murex brandaris* L.) and *Stramonita haemastoma* L. (or known as *Thais haemastoma* L. and actually a rockshell).
The question arises, if there was something like a *terminus technicus* for the use of true, mollusc-purple in ancient times. Indeed, one could see such a distinctive meaning in SB XII 11075.11 (1st half of 4th or 5th century AD; Oxyrhynchos). Unfortunately, the letters, which would have contained the exact type of garment mentioned, are lost. The unknown garment is described as [...] πλουμαρικόν ἄληθινοπόρφυρον, which for the sake of convenience we shall simply translate as “decorated with true purple”.

In the same document we read of a ἄλλο δελματικομαφόριον Μωτωνήσιον ἄληθινῆς μικτῆς πορφύρας (l. 8), a garment called ‘Delmatikomaphorion’ made of mixed true purple, that is carefully distinguished from the before mentioned garment (l. 7: ἄλλο δελματικομαφόριον ὀνύχινον ἀχαοπόρφυρον).

Within documentary papyri the adjective ἄληθινοπόρφυρος has already been attested in earlier times. This can be seen in the letter P.Oxy. I 114 = Sel.Pap. I 131 (2nd–3rd century AD; Oxyrhynchos), in which the sender called Eunoia deals with pawned goods. Amongst them we find a χιτὼν καὶ μαφότιν λευκὸν ἄληθινοπόρφυρον (l. 7), “a tunic and a white hooded cape with true purple border”. Similar to previously mentioned SB XII 11075, the writer lists another garment described as λινοῦδιον ἐμπόρφυρον (l. 8), “a linen shirt inclining to purple” (according to LSJ).

It might be possible to amend SPP XX 245. 9, an account on clothes from the 6th century AD, mentioning ἄληθινοπόρφυρος — with a lacuna right before — once more to “true purple” similar to SB XII 11075.

In Diocletian’s Edict a kind of purple is also designated by πορφύρα [...] ἄληθινη. The adjective specifies a purple from Miletus, of which two grades are recorded in total (§ 24.6-7). The difference between these two grades possibly was the use of true mollusc-purple in the dyeing process.

The dyestuffs, the combination as well as other ingredients, necessary in order to dye fabrics, have been compiled in dyeing recipes. Fortunately for Late Antiquity, at least two papyri were preserved containing unique information on the ancient knowledge of dyeing and other handcrafts: the Papyrus Leidensis X (P.Leid. X) and Papyrus Graecus Holmiensis (P.Holm.). In the beginning scholars saw the texts as material for forgers, but thanks to further experiments they are nowadays understood as sources for the enhanced knowledge and technology of ancient craftsmanship.

Several dyeing recipes concern the production of purple from vegetable dyestuffs. Amongst them we find one text, where the preparation and dyeing of true purple, is literally captured as Πορφύρας ἄληθινης στῦψις καὶ βαφή (P.Holm. 100). However, in this recipe no mollusc dyestuff is used at all. We might wonder, if the meaning of true purple necessarily implied the use of sea snails, was colourfast or if the result just looked like real purple.

The existence of the term ‘true purple’ raises the question, if there is something on the contrary, *i.e.*, ‘false purple’. The corresponding antonym is most likely found in ψευδοπόρφυρος, “false” or even “fake purple”, in P.Oxy. VII 1051.15 (3rd century AD; Oxyrhynchos). In this inventory of a woman’s property “one women’s shirt of false purple” is listed among other textiles and textile-related items. A similar kind of false purple may be identified in P.Oxy. XLII 3080.5 (2nd century AD; Oxyrhynchos): this is an order, an ἐντολή, for ten staters of counterfeit purple (παράτυπος). In this document, staters functions as a unit of weight (c. 13.5 g), so unfortunately we cannot deduce any information on the price.

13. Regarding the meaning of πλουμαρικός *et varia* see J. P. Wild in this volume, or Prunetti 1998.
15. The translation of this item as “a garment of purple linen” does not seem correct (Bagnall & Cribiore 2006, 295).
16. P.Leid.Inst.13, note to l. 29 (= BL IX, 349). Moreover, we find ‘true purple’ in the 2nd century papyrus P.Strasb. IV 222.14 from Oxyrhynchos.
of fake purple. We only learn that ca. 135 g of such dyed material were needed.

In inventories, the colours of the textiles were meticulously registered as distinguishing features. A circumstance that might be useful for our further considerations. In P.Oxy. VII 1051, before the term fake purple, we read of πορφύρας ῥιζίου (l. 13–14), which is translated in the editio princeps as “vegetable purple” and probably refers to madder as dyestuff (ῥιζίον: little root).22 It is noteworthy that in this inventory madder-purple differs from false purple. Scholars sometimes describe madder-purple as imitation of ‘true purple’, a point of view that is not far away from seeing madder-purple as counterfeit. In light of the clear terminology in P.Oxy. VII 1051, more caution is perhaps needed in our modern view. Often, we encounter a lack of evidence. Another, yet unsolvable question is what dyestuff was used for producing ‘false purple’.

Sea-purple

Less ambiguity may be seen in the term ‘purple from the sea’ which is attested in a letter of Tetos to her father: BGU VI 1300 = C.Ptol.Sklav. II 237 (4th May 210 BC or alternatively 29th April 193 BC; unknown provenance). A most appropriate modern title was chosen for the English translation: A shopping list of luxuries.23

Tetos to her father greetings. If you are well and things are otherwise according to your wish, it would be as we wish. I myself am well, and so are my mother and everyone in our household. When you sail upriver, please bring …and 2 shuttles, 2 medium-sized boxes and 3 smaller ones, 2 caskets, a case for alabaster ornaments, 2 tubes, 2 probes, an unguent box with a ring base and a Sikyonian goblet, 5 stater’s weight of myrrh, 3 of nard oil, myrrh oil, oil for the girl for the head…of purple and 2 rings, a golden mirrorbox, medium-white linen cloths with purple; and with respect to the slave girl, who was on the other side at Oxyrhyncha, take care that you manage matters concerning her securely and that nothing thus gets in your way. And bring up also 2 combs, 2 hairnets, 2 scarlet ones, 2 hair clasps, earrings (?) for the girl, a stater of sea-purple dye. Farewell, Year 12, Phamenoth 22.

In her letter Tetos explicitly asks her father — apart from many other requests for luxury items — for one stater of πορφύρα θαλάσσια, i.e., sea-purple. The term ‘sea’ most probably indicates the provenance of the purple rather than any specific hue resembling the sea.24

The fact that Tetos knew exactly, what she wanted, can be seen in her clear use of colour-terms: Besides πορφύρα (l. 18) an alternative expression is used for purple, ὀστρῖνος (l. 16), which also refers to shellfish-purple and shall be discussed later. Moreover, Tetos requests two κόκκινα hairnets (l. 24). The adjective κόκκινος is translated as scarlet (LSJ), and literally implies the use of the scale insect kermes coccus (Kermes vermilio P.), i.e., the Polish cochineal or the Armenian cochineal, another high-quality dyestuff used.25 The dyestuff of the scale insect is as well considered by Pliny (Plin. NH 21.45–46) or even by Dioskurides (Mat. med. 4.48).

25. Hofmann-de Keijzer et al. 2007, 214; Cardon 2007, 609-619; Froschauer 2007, 704. Regarding the terminology of insect dyes, two doctrines can be seen amongst scholarship at present: one that denotes all insects from the ancient Old World as ‘kermes’, in other words follows a historic approach; the other doctrine distinguishes coccid insects according to the ratio of their major or minor components, i.e. kermesic acid or carminic acid. As carminic acid is the main component detected in the New World Mexican cochineal, but is also found in other kinds of scale insects from Europe and the Mediterranean, the terminology Polish and Armenian ‘cochineal’ is used in analogy. As this paper aims to discuss dyestuffs, I decided to follow the terminology based on chemical composition according to analytical UHPLC-analyses. For further reading see Serrano et al. 2015.
It cannot be determined if indeed purple-dye was meant in BGU VI 1300 = C.Ptol.Sklav. II 237, as it was suggested in the English translation. In experiments based on the evidence from archaeological textiles, one stater (c. 13.5 g.) of purple-dyed wool proved to be enough to weave the ornaments of a tunic and a mantle. Hence the question, whether one stater of purple dyestuff or purple-dyed wool was requested by Tetos, has to be left unanswered for the time being.

As equivalent to θαλασσοπόρφυρος, the adjective ἁλιπόρφυρος is listed in Kretschmer & Locher’s Rückläufiges Wörterbuch, “of sea-purple, of true purple dye”.

It derives from ἁλουργά which is attested in the Byzantine encyclopaedia Suda and is a synonym. A related expression may possibly be seen in SPP XX 85.1 by restoring ἁ[λική].

Common purple

The colour purple includes various hues and shades depending on the dyestuffs and dyeing recipes used. The colour spectrum reaches from reddish to a bluish purple. Such diversity is pictured in different terms, as we have seen already. Sometimes we encounter a specific kind of purple, but it is impossible to visualize the actual colour hue. This is the case for a garment of common purple (κοινοπόρφυρος), which is mentioned in the marriage contract SPP XX 31.17 = CPR I 21.17 (AD 13th of August 230; Ptolemais Euergetis).

Rose-coloured and splendid bright purple

A kind of purple, of which we get at least an impression of its hue, may be described as ροδινοπόρφυρος, rose-coloured purple. The term is well known from Roman literature: in the famous carmen 64 on the marriage of Peleus and Thetis, Catullus describes the purple coverlet on the marriage couch (Catullus c. 64.47–49):

Pulvinar vero divae geniale locatur sedibus in mediis, Indo quod dente politum tincta tegit roseo chonchyli purpura fuco.

Catullus uses colours and their striking characteristics for creating his unique dramatic effects, especially in this ekphrasis being very important for the plot.

With roseus fucus (ϕῦκος) a reference to the plant orchil, a species of lichen, may be given. In documentary papyri, a kind of purple designated as rose-coloured is attested and clearly distinguished from other colours, especially other reds. The γνῶσις ἱματίων SPP XX 245, an account of clothes from the 6th century of unknown provenance, lists various clothes (Fig. 2). Many are ticked off, which can be seen by the ‘x’ on the left serving as a checkmark. One rose-coloured purple shirt, καμίσιον ῥοδινοπόρφυρον, is registered (l. 11). This account, yet difficult to decipher and to understand due to its preservation, names particularly outstanding garments and textiles. Even three καμίσια βλάττια were registered, shirts made of a high quality purple, which will be discussed below. Yet, Catullus and our papyrus are separated by six centuries in chronology. Assuming that orchil lichen as dyestuff was implied by this kind of purple, it seems plausible to distinguish it from other purple coloured textiles, particularly in an account.

26. See n. 8.
27. Kretschmer & Locher 1944, 480.
29. As suggested by Worp 1997, 58, n. 3.
30. Following Johannes Diethart all composita end as –πόρφυρος, see Diethart 1991, 234, No. 46.
31. Regarding the form of the adjective see Diethart 1991, 234, no. 46.
32. “But see, the royal marriage bed is being set for the goddess in the midst of the palace, smoothly fashioned of Indian tusk, covered with purple of the shell tinged with rosy stain” (text and translation: Cornish 1988, 101).
34. This was not implied by Blümner 1892, 203. Cf. Plin. NH 26.10; on orchil lichens see Cardon 2007, 495-503: It seems likely, that several species of Roccella were used in ancient times, as there are different qualities attested as well.
Fig. 2. SPP XX 245 (6th century; unknown provenance).
© Austrian National Library.
On an ostrakon, a list of dyes is preserved: O.Ashm. Shelt 197 = SB I 2251 (4th century AD; Oxyrhynchus). The amount of πορφυρό | ῥοδίνου λαμπροῦ, a bright rose coloured purple (l. 7–8), is clearly differentiated from of previous colour, κοκκίνου (l. 6). The latter implies a red obtained from kermes scale insects, which would have been distinguished from any other dyestuff.

The adjective ὀξυπόρφυρος might refer to a special bright variety of purple, a splendid bright purple.36 In P.Laur. III 82 (late 3rd century AD; unknown provenance), which is the account of Isidor, λόγ(ος) Ἰσι(δώρου), ὀξυπόρφυρος is listed amongst κόκκινα (l. κόκκινα), ῥόδινα, σαντύκινα, ποίξινα and other textile related goods. The editio princeps explains it as “di color porpora brillante, splendente”. But is ὀξυπόρφυρος a mere hue or is it even a specific type of purple?

In order to find an answer, we need to crosscheck the term with other relevant sources. In Diocletian’s Edict the 4th kind of purple is called ὀξυτυρία, a Greek term which is only attested there. According to Gerhard Steigerwald, ὀξυτυρία is the equivalent to the Latin oxyblatta, a term used in the legislation of the 4th century and obtained by a combination of different purple dyestuffs.37 This can be clearly seen in the Edict, as the purple ὀξυτυρία is followed by ἁπλίος πόρφυρος, different types of single-dyed purple.

It seems likely that the term ὀξυπόρφυρος in the documentary papyri dating from Late Antiquity,38 implies an explicit kind of purple, which is further attested in the contemporary Imperial legislation.

**Purple from specific origin and local purple**

In some cases, the colour purple is specified by toponyms. Well known is the Tyrian purple, color Tyrius, on which Pliny the Elder and other authors provides us valuable information (Plin. NH 9.135-137; e.g., Strabo 16.2.22-23). In addition, Pliny links different kinds to their manufacturing centres and lists them according their qualities: “The best Asiatic purple is at Tyre, the best African at Meninx and on the Gaetulian coast of the ocean, the best European in the district of Sparta” (Plin. NH 9.127).39

In his Natural history Pliny the Elder relies on other sources, one is king Juba II, who discovered the almost legendary Gaetulian islands, where he installed dye workshops producing the so-called Gaetulian purple (Plin. NH 6.201). The location of these purple-islands remains unclear: some assume that they lay off the Moroccan coast at Essaouira, c. 350 km southwest of Casablanca.40

In the documentary papyri from Egypt there might be an attestation of ‘Tyrianthine’ purple in P.Hamb. I 10.23 (2nd century AD; Theadelphia, Arsinoites;). It is a submission on stolen goods, amongst which clothes are listed. The adjective used is τυριαντίνην (l. τυριανθίνον).

Apart from Tyre, we find a shipment of two ounces of purple from Berenice, διόνυκταινον (l. διούγκιον) πορφύρας Βερενίκης, in a private letter P.Oxy. XX 2273.10 of the end of the 3rd century AD (Hermopolites?). The translation of the papyrus according its editio princeps is:

To my lady mother Theonis and to my lord brother Ascle … greetings. Before all things I pray to the gods with whom I am sojourning, that you are well … I sent to you a cruse of oil, which I had bought for six hundred drachmae, for I have heard that oil is dear with you, also some …, I also have dried figs; and you will give 150 of them to my brother Cornelianus — and two ounces of purple wool41 from Berenice in order that you thus make, please,

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38. Additional attestations of ὀξυπόρφυρος can be found in SB XXVI 16511.7 (6th century AD; Hermopolis).
41. According to Worp 1997, 59 (= BL XI, 160) two ounces (c. 55 g.) would be rather purple-dye than purple-wool, as translated by the editor. However, we might use some caution in this matter, as already pointed out before (cf. n. 8).
the frocks and two veils... Be pleased to send me my raven-black veil and my shawl, and shake my other dress without fail to prevent it spoiling. I will send you some money if you send back to me the linen cloths which you have made. Let me know what you have received from Dioascorion, Isidorus, and Castor also called Polydeuces, who has once ..., in order that I may know. Receive everything that I send to you....

The editor of P.Oxy. XX 2273 was unsure, which Berenice was actually meant. Indeed, in the Lexicon of the Greek and Roman Cities and Place Names in Antiquity we find Berenice nine times recorded, four of them are located in Egypt alone.\(^{42}\)

Another kind of purple designated by its origin name is mentioned in a summary of prices declared by a cooperation of goldsmiths: P.Oxy. LIV 3765 (AD 327; Oxyrhynchos). In the 3rd column (ll. 16-20) the items listed in Table 1 are shown.

Nicaean purple is also attested in the marriage contract P.Strab. III 131.7 = SB V 8013.7 (AD 363; Arsinoites). Unfortunately, the respective textile is lost, which is designated as being ἄπο νικαεινῆς πορφύρας.\(^{43}\)

Besides the papyrological evidence, there is a parallel in Diocletian’s Edict, more than 60 years earlier: the eighth item is determined as Νεικανή κοκκηρά (§ 24.8).\(^{43}\) Κοκκηρά from κόκκος means literally the berry from the kermes oak (Quercus coccifera L.), but obviously refers to the kermes scale insect, from which a scarlet, crimson red colour was obtained. Therefore, Gerhard Steigerwald interprets the Nicaean κοκκηρά as purple achieved by the kermes insects as dyestuff.

This interpretation of the Imperial Edict, however, does not apply one-to-one to the previous papyrus text of P.Oxy. LIV 3765, as in ll. 19-20 two qualities of kermes-dye are recorded. It does not seem plausible, that two kinds of kermes-dye are subsequently registered by the name κόκκος, if Nicaean purple was (merely) obtained from kermes insects. Considering all the evidence, we might wonder, if there is another possible explanation for the term Nicaean purple.

The third column of this declaration is even more interesting for our purpose, as – following the Nicaean purple – the price for so called local purple, πορφύρα ἐντόπιος, is recorded. This kind is attested even from earlier times, \(i.e.\) in P.Oxy. VIII 1153 (1st century AD; Oxyrhynchos). This papyrus is a private letter from the father Apollonius to his son Apollonius, who was — according to the address on the verso — staying at Alexandria at that particular time. With the letter he attaches some purple as sample for a garment and in the last sentence, he remarks that “We are going to use local purple” (ll. 26–27: ἐντοπίᾳ δὲ χρήσασθ(αι) μέλλομεν).

The price for local purple is once more given in the declaration P.Harr. I 73.40 = SB XVI 12626.40 (AD 329-331; Oxyrhynchos). In the same column, following local purple, two grades of kermes-dye are recorded, as previously in P.Oxy. LIV 3765. As mere suggestion, respectively idea, based on dye-analyses of preserved Roman textiles, local and Nicaean purple may not be dyes derived from kermes insects alone, but it could refer to a mixture of dyestuffs.\(^{44}\)

| Table 1. Summary of prices declared by a cooperation of goldsmiths: P.Oxy. LIV 3765 (AD 327; Oxyrhynchos) |
|-------------------------------------------------|-----------------|-----------------|
| Νικαϊνῆς (νικαϊνης) papyrus | λίτρας α τάλαντα \(\pi\) | Nicaean (purple) | 1 lb. tal. 80 |
| ῥίζεινης (l. ῥιζίνης) | λίτρας α τάλαντα \(\gamma\) | Root (purple) | 1 lb. tal. 3 |
| πορφύρης ἐντόπιος | λίτρας α τάλαντα \(\beta\) | Local (purple) | 1 lb. tal. 2 |
| κοκκίνου a | λίτρας α τάλαντα \(\eta\) | Scarlet, 1st grade | 1 lb. tal. 8 |
| β κοκκίνου | λίτρας α τάλαντα \(\beta\) | 2nd grade scarlet | 1 lb. tal. 2 |

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42. Zahariade & Bounegru 2013, 1692-1705 s. v. Berenike.
44. The combination of mollusc-purle dyestuff with kermes has been proofed in archaeological textiles from small Roman fortresses, praesidia, in the Eastern Desert of Egypt; cf. Cardon 2006, 55-56. Further Zvi Koren demonstrated the clever use of double dyeing with red and blue dyes or even spinning together separately dyed red and blue fibres in Roman textiles from ‘En Rahel. As dyestuffs the combination of madder with indigo, or kermes with indigo has been detected: Koren 1999.
combination would also be applicable for Νεικανή κοκκηρά in Dioecletian’s Edict.

In brief, the toponyms in connection with purple may indicate the origin of the colour and the place where it was manufactured. It also specifies the quality of the colour, as seen in Pliny’s text.

**Further terms with the meaning ‘purple’**

Besides πορφύρα other terms are clearly connected with the highly esteemed colour purple. Some of them attested in documentary papyri are listed in the following:

**Blatta-purple**

The Greek βλάττα is a loanword from Latin blatta, purple, which is linked with the shellfish-dyestuff. Blatta for purple is used in Dioecletian’s Edict for the first three kinds of purple as μεταξάβλαττα, βλάττα, and ύποβλάττα (§24.1–3), which are the top qualities and the far most expensive dyes. 

Μεταξάβλαττα is composed of metaxa and blatta. As metaxa in Latin refers from the 2nd century AD onwards to raw silk, it means the purple-dyed raw silk. 

Βλάττα is distinguished from μεταξάβλαττα by the material used, i.e. wool. The term blatta and its meaning have led to some confusion in academic understanding. Blatta is seen as purple-dyed, unspun wool, similar to metaxablatta.

Gerhard Steigerwald demonstrated that originally blatta was used as a term for insects. But from Late Antiquity onwards, blatta meaning a kind of purple is associated with the image of clotted blood as can be found in glossaries. Of course, it is not blood, which is obtained from the sea snails, but the hypobranchial gland, from which the dyestuff is obtained. He identifies blatta with the color Tyrius and the dibapha Tyria of Pliny’s *Naturalis historia* (Plin. NH 9.135). The ancient city of Tyros is generally seen as point of origin for shellfish-purple. This does not exclude the use of mollusc-dyestuff elsewhere, and the term Tyrian purple could also refer to the specific quality of the dye.

Considering blatta as equivalent for Tyrian purple we might get a description of the hue from Pliny the Elder: *Laus ei summa in colore sanguinis concreti, nigricans aspectu idemque suspectu refulgens* (Plin. NH 9.135).

In his study, Gerhard Steigerwald particularly draws attention to Cassiodorus’ second letter of Theoderic to Theon, a *vir sublimis*, in his *Variae* (537/538 AD), where the matter of the purple-production from molluscs is discussed (Cassiod. Var. 1.2). There, clearly the production of blatta-purple is the issue, which is obtained from sea snails (“[…] adorandi muricis pretiosissimam qualitatem. […] conchylia […]”). The purple hue is described as obscuritas rubens, blushing obscurity, and nigrendo sanguinea, an ensanguined blackness, a description which meets Pliny’s precisely.

In the Edict, the third quality of blatta-purple is ύποβλάττα, which is specified by its prefix ύπο. In terms of colours the Greek prefix ύπο as well as the Latin sub is used for lighter hues. This seems plausible as the various kinds of purple are sorted according their qualities.

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45. Steigerwald 1990, 223-224; μεταξάβλαττα “purple silk”; cf. Aelius Marcianus, Dig. 39.4.16 §7 (c. AD 200); Cod. Theod. 10.20.13 (AD 406); Cod. Theod. 10.20.18 (AD 436).

46. W. A. Schmidt describes it as double-dyed (Schmidt 1842, 128), whereas K. Schneider interprets it as single-dyed purple: RE 23 (1959) 2000-2020, esp. 2013 s. v. purpura (K. Schneider). W. A. Schmidt has written an elaborate commentary on purple dyeing: Schmidt 1842, 96-212.

47. Steigerwald 1990, 232.

48. Steigerwald 1990, 224-237 as βλάττα “purple”.

49. Gerhard Steigerwald refers to the passage in Sidionius Apollinaris’ *epistulae* (Sid. Apoll. Epist. 9.13.14-19), which shows that purple was obtained from murex and not insects: Steigerwald 1990, 228.

50. Cf., e.g., Sid. Apoll. Carm. 5.48: *Tyrus blattam fert*; but also Plin. NH 9.135 or Strabo 16.2.22-23.

51. “Its highest glory consists in the colour of congealed blood, blackish at first glance but gleaming when held up to the light” (Text and translation: Rackham 1956, 255-256).


14. Purple and its Various Kinds in Documentary Papyri

Besides Diocletian’s Edict, the term *blatta* is not that often attested in written sources. Much later we find the term *blatta* in documentary papyri from Egypt. In SB XXII 15248.3 (7th century; unknown provenance\(^54\)), the account of the most magnificent lord Damianos (γνώσις τοῦ μεγάλοπρεπεττάτου κυρίου Δαμιανοῦ), lists 1 ounce 5½ grammata of *blatta*-purple (Fig. 3). In this case the diminutive of *blatta*, *blattion* (βλαττίον) is used. The account SPP XX 245.10 (6th century; unknown provenance) for the already mentioned γνώσις ἱματίων specifies καμίσια βλάττια γ, three shirts with purple decoration\(^55\) besides other cloths.

A possible third attestation for *blatta*-purple in papyri was suggested for P.Leid.Instr. 13.19 (7th-8th century; unknown provenance), where σκέπασμ(α) ὀθώνι(νον) (L. ὀθόνι(νον)) λέυκοβ(?) λάττι(ον) or even λέυκον (καί) βλάττι(ον) can be read.\(^56\)

So far the papyri confirm clearly the use of the purple kind *blatta* in late antique Egypt, however, they do not yield any specific information on the dyeing-process or on the hue of the colour. All three papyrological documents are much later than Diocletian’s Edict, where the term *blatta* marks high-quality dyes. It has to be noted, that SPP XX 245 and P.Leid. Inst. 13 were only possible to decipher because of the clear attestation of *blattion* in SB XXII 15248. This has been achieved by Johannes Diethart, who showed special interest in athesaurista and rarely attested Greek terms.\(^57\) Therefore a repeated examination of papyri in light of textile production may yield further results.

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\(^54\) Johannes Diethart suggests as provenance either Arsinoites or Herakleopolites based on a handwritten account of Carl Wessely in the Viennese Collection of Papyri (Diethart 1993, 70).

\(^55\) Actually it says three purple-coloured shirts, but as we have seen that *blatta* is a high quality purple obtained by molluscs, I tend to translate it rather as purple-decorated. An idea, how cloths were decorated with purple, might be seen in Fig. 1.

\(^56\) Diethart 1993, 73.

\(^57\) Diethart 1989, 113-114; Diethart 1993.
Besides blatta other terms used suggest the use of mollusc-purple as dyestuff. In Vitruvius De Archi-tectura we hear of ostrum, as seen in the Latin text above. In Greek it is δόστρων and its adjective ὀστρῖνος which is used for describing mollusc-purple. This is the case in an inventory P.Oxy. I 109 (end of 3rd or early 4th century AD; Oxyrhynchos), where one purple κολόβιον is registered amongst other textiles and household goods (l. 5).

This term and its related forms were in use for much longer, as it can be seen in the private letter from Ptolemaic times (BGU VI 1300 = C.Ptol. Sklav. II 237). Besides πορφύρα and sea-purple, Te-tos used the term ὀστρῖνος in her shopping list of luxury items.

Obviously terms deriving from κόγχη, mussel, indicates the use of mollusc-purple as dyestuff. In the papyri the colour appears in the list PSI Congr. XVII 18 (4th century AD; Oxyrhynchites?) where three oz. of κοχυλιών (FrB l. 26) are recorded. A remarkable and outstanding contract regarding the work of three κοχισταί, purple-dyers, is preserved as P.Grenf. II 87 = Sel. Pap I 23 (AD 23rd May 602; Hermopolis). The contract regulates the work of the dyers, the κοχιστική | τέχνη (ll. 14-15, 19-20), which was carried out in the contractor’s workshop. Such an explicit designation as purple-dyers indicates their specialisation on this colour, i.e., mollusc-dyestuff. This seems plausible, as the supply on dyestuffs and its various uses become larger, as we also may see from the papyrological evidence so far.

Hysginum and madder: purple from plant dyestuffs

As already seen above, the colour purple was obtained from other dyestuffs than mollusces in Antiquity. In ancient literature this is described: *Fiunt etiam purpurei colores infecta creta rubiae radice et hys-gino, non minus et ex floribus alii colores* (Vitr. De arch. 7.14.1).\(^5\) Hysginum (ὑσγίνον) is regarded as equivalent with the biblical tekhelet, a bluish violet obtained mainly by the species Hexaplex resp. Murex trunculus.\(^6\) But also the mixture of murex-purple with kermes, two most precious dyestuffs, is identified with the ancient term hysginum.\(^6\) These two statements show a conflict in the hue of hysginum, which could be either a bluish, violet or reddish purple.

Considering written documents, we may not get clear evidence either: in a letter of the caring father Cornelius to his son, P.Oxy. III 531 = W.Chr. 482 = C.Pap. Hengstl 83 (2nd century AD; Oxyrhynchus), one topic concerns clothing. Cornelius writes to his son that he will send τὸ ἄλλο ζεῦγος τῶν ὑσγείνων (l. ὑσγίνων), “the other pair of scarlet clothes” (l. 17). LSJ seems quite misleading by suggesting a vegetable dye, perhaps kermes, which is apparently contradictory.\(^6\) If we check our other written sources, we find in Pliny’s *Naturalis historia* a helpful remark (Plin. NH 9.140): *quin et terrena miscere coccoque tinctum Tyrio tinguere ut fieret hysginum*.\(^6\) There we find a combination of coccus with Tyrius, i.e., kermes scale insects with mollusc-dye.

However, the addition of kermes scale insects seems less meaningful for the four ἰσγίνη-purples listed in Diocletian’s Edict (§24.9-12). For these items Gerhard Steigerwald suggests the use of plant dye-stuffs, such as sea orchils, as basis for the dyeing.\(^6\)

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58. The dyeing recipe P.Leid. X 94 also refers to the production of the κοχυλιών colour as purple (Halleux 1981, 106).
59. “Purple colours are also made by dyeing chalk with madder and hysginum. Other colours also are obtained from flowers.” (text and translation: Granger 1970, 127-128).
62. LSJ 1904, s. v. ὑσγίνον.
63. “[...] and also a method to blend minerals, and dye with Tyrian a fabric already dyed with scarlet, to produce hysgine colour” (text and translation: Rackham 1956, 258-259).
64. Steigerwald 1990, 264-274. According to Dominique Cardon, lichens growing by the sea were used in Antiquity; only since the Middle Ages the dyeing “industry” turned more to sea orchils (Cardon 2007, 495).
Despite these contradictory views, we may at least sum up that the term *hysginum* designates a combination of various dyes, in order to obtain purple colour. Whether kermes or plants were used, may come to light in future research.

Madder, as mentioned by Vitruvius as *radix rubiae*, gives another highly esteemed red colour. The plant either refers to the cultivated madder (*Rubia tinctorum* L.) or the wild madder (*Rubia peregrina* L.), both species were used in ancient textiles.\(^\text{65}\) We already came across the term in the inventory list of P.Oxy. VII 1051 in connection with ‘false purple’.

### Conclusion

Purple is generally perceived as luxury item, as status token and as prerogative of royalty. The Greek term *πορφύρα* designates several varieties and qualities of purple. Also the colour purple encompasses various hues ranging from bluish to reddish violet.

As written source papyrological documents reveal further information. Throughout the centuries we find several kinds of purple in use: true and false purple, sea-purple, common purple, rose coloured and splendid bright purple, purple from specific origins including local purple etc. Besides *πορφύρα* other Greek terms were used for purple, which is not only seen in literary sources, but also in the documentary papyrus texts from Egypt.

Papyrus texts, especially documentary papyri, record the daily life of Egypt and sometimes allow us insights into private communication viz. relations. We learn of a widespread use of the colour purple, regardless of gender and even among private persons. At all times purple was constantly and highly esteemed. Papyrological documents, in particular inventories, show the clear use of Greek terms for colours. The manifold attestations of purple can also be seen in the preserved textiles from Egypt. In other words: the various terms attest the great variety of actual dyed textiles in ancient times. By comparing the papyrological evidence with other written sources, and by considering preserved textiles from Egypt, we encounter a more sophisticated branch in textile production: the dyeing workshops.

In a few cases we may be able to identify the dyestuff(s) used, but in many cases we still remain unsure and can only make suggestions. This applies further for the dyeing methods used.\(^\text{66}\)

Future research may be able to pursue these issues and thereby demonstrate the skilled labour, the profound knowledge as well the highly developed technology of ancient dyers.

### Abbreviations


Other abbreviations used are:

- **APapyrol** Analecta papyrologica.
- **ByzF** Byzantinische Forschungen: internationale Zeitschrift für Byzantinistik.
- **MBAH** Münstersche Beiträge zur antiken Handelsgeschichte.
- **ZPE** Zeitschrift für Papyrologie und Epigraphik.

\(^{65}\) Cardon 2007, 107-124.

\(^{66}\) See the term *πενταβάφος*, five times dyed, which appears in connection with *πορφύρα*: P.Coll. Youtie II 85 (6th-7th century AD; unknown provenance).


Reese, D. S. (2010) Shells from Sarepta (Lebanon) and East Mediterranean Purple-Dye Production, Mediterranean Archaeology and Archaeometry 10/1, 113-141.


Zur Textilterminologie auf römischen Bleitäfelchen: Probleme der Lesung und Interpretation

Herbert Graßl


15. Zur Textilterminologie auf römischen Bleitafelchen

Den entscheidenden Schlüssel dazu liefert ein litterarischer Text aus dem späteren 4. Jh. n. Chr., der in Oberitalien oder Südgalien entstanden ist, die so genannte Cena Cypriani.\(^{12}\) In dieser Bibelparodie oder besser Parodie der Bibelauslegung werden in Anlehnung an die Hochzeit zu Kana die Gäste des Königs, Personen aus dem Alten und Neuen Testament, für diesen Anlass neu eingekleidet. Katalogartig werden 37 speziell gefärbte, aus diversen Rohstoffen hergestellte, besonders zugerichtete oder für eine bestimmte Verwendung vorgesehene Kleider aufgelistet. Da dieser spätantike Text bislang von der Textilforschung, insbesondere der Textilfarbenkunde, erstaunlicherweise nicht ausgewertet wurde, soll er in seiner vollen Länge vorgestellt werden (Cena 44-66):

\[\text{Tunc rex respiciens invitatos suos sic ait:}\]

\[45\text{ »Quisque vestrum voluerit, veniat in vestiarium meum et dabo singulis singulas cenatorias vestes.«}\]

Tunc aliqui ierunt et acceperunt.


Da blickte der König zu seinen Gästen und sprach:

\[45\text{ »Jeder von Euch, der will, möge in meine Kleiderkammer kommen, und ich werde euch einzeln ein Speisekleid geben.«}\]

Da gingen manche hin und erhielten ein Kleid. Und so empfing als erster von allen Zacharias ein weißes Kleid, sodann Abraham ein sperlingsgraues, Lot ein schwefelgelbes, Lazarus ein Leinenkleid, Jona ein meerblaues, Thekla ein feuerrotes, Daniel ein löwenfarbenes, Johannes ein Kamelhaarkleid, Adam ein fellenes, Juda ein silberfarbenes, Rahab ein scharlachrotes, Herodes ein rotes, Pharao ein meerfarbenes, Henoch ein himmelblaues, Achar ein buntes, David ein saitenes, Liya ein luftiges, Eva ein Baumfarbenes, Ijob ein zweifach umgeschlagenes, Jesaia ein in die Mitte gewendetes, Maria ein langes Frauenkleid, Susanna ein züchtiges, Moses ein purpurfarbenes, Abel ein blutrotes, Levi ein rötliches, Tamar ein farbiges, Asarja ein Battistkleid, Aaron ein gelbraunes, Judit ein hyazinthfarbenes, Kain ein rostbraunes, Abiram ein schwarzes, Hanna ein dunkelblaues, Isaak ein ungefärbtes, Paulus ein strahlend helles, Petrus ein Arbeitsgewand, Jakob ein rötlich schimmerndes, Jesus ein taubengraues.

(Übersetzung nach Modesto)


(Zeile 65) in Siscia,\textsuperscript{13} ceruleus (Zeile 50) in Siscia\textsuperscript{14} und Feltre,\textsuperscript{15} coccineus (Zeile 53) in Siscia,\textsuperscript{16} am Magdalensberg,\textsuperscript{17} und in Moosham/Lungau,\textsuperscript{18} conchilinus (Zeile 59) in Carnuntum,\textsuperscript{19} ferrugineus (Zeile 63) in Siscia,\textsuperscript{20} purpureus (Zeile 60) in Siscia,\textsuperscript{21} Flavia Solva,\textsuperscript{22} Kalsdorf,\textsuperscript{23} Carnuntum,\textsuperscript{24} Zillingdorf,\textsuperscript{25} sulphurinus (Zeile 49) in Siscia,\textsuperscript{26} Kalsdorf,\textsuperscript{27} Flavia Solva\textsuperscript{28} und Štrbinci (wohl Certissia in Pannonia Inferior).\textsuperscript{29} Schon diese Liste zeigt, dass der literarische Text aus der Spätantike und die inschriftlichen Gebrauchstexte aus dem 1. bis 3. Jh. n. Chr. sich weitgehend entsprechen. Wie die Cena Cypriani zeigt, gehören die abgekürzten Farbbezeichnungen auf den Bleitesserae zum gebräuchlichen sprachlichen Repertoire der Textterminologie,\textsuperscript{30} die Fachsprache hat somit Eingang in die Literatursprache gefunden. Auf die Bezeichnung (vestis) myrrina (Zeile 63) sei noch speziell hingewiesen.\textsuperscript{31} In den Bleitesserae finden wir die Abkürzungen MVR in Siscia,\textsuperscript{32} MOR in Aelium Cetium,\textsuperscript{33} Flavia Solva\textsuperscript{34} und Kalsdorf,\textsuperscript{35} MORINVM in Virunum\textsuperscript{36} und MVRIN in Zillingdorf.\textsuperscript{37} In Concordia (Oberitalien) begegnet der Ausdruck MYR(R) INI mit Gewichtsangaben.\textsuperscript{38} Zur Deutung wurde eine Verbindung zu morus, der schwarze Maulbeerbaum, hergestellt,\textsuperscript{39} dessen abgekochte Blätter in der Antike als Ausgangsstoff für ein Färbermittel, allerdings ausschließlich für die Haare dienten. Doch dieser Baum wächst in raueren Klimazonen nicht und auch sprachlich sind keine davon abgeleiteten Farbbezeichnungen bekannt. Die Farbe murinus (von mus, die Maus), also mausgrau, wurde nur bei Tieren (Pferden, Eseln oder Mauleseln) verwendet.\textsuperscript{40} Als

Auch die Abkürzung AMAR, z.B. in Kalsdorf, dürfte mit dieser Praxis zu tun haben; eine Ergänzung zu amaracinus (mit Majoran behandelt) gilt als wahrseheinlich. Für die Abkürzung MVR wurde auch die

42. Ov. met. 15, 399; Prop.4,8,22; André 1949, 160; André 1956, 215; Vons 1999, 837.
43. Theophr. de odor. 58; 69; vgl. Alexis F63K. zum Besprenkeln der Kleidung mit Salböl.
44. Plut. symp. 1, 6.
49. Plin. NH 12,43; 12,45; vgl. Diosc. 1,7-8.
50. Römer-Martijnse 1990, 216; 218-219; 224; Zur Verwendung dieses Duftstoffes Theophr. de odor. 28; 31,33; 38; 42; 55; Lucr. 2,847; Edict. Dioec. 78; dazu Reger 2005, 255; 275; Parfums 2008, 296; Squillace 2012, 236.
Ergänzung zu *murteus* oder *myrteus* vorgeschlagen,\(^1\) da myrtenfarbige, grünliche Kleider in der antiken Literatur mehrfach bezeugt sind.\(^2\) Da aber diese Bedeutung nur bei einer differenzierenden Ausdrucksweise verständlich war, finden sich in Siscia dafür die Abkürzungen MVRT, MVRTIO oder MVRTEO-LUM.\(^3\) In Nemausus (Nîmes) findet sich die Angabe MVRTA.\(^4\)

Abschließend sei noch die Abkürzung GRV angesprochen, so z.B. in Kalsdorf.\(^5\) Da der Lautwandel von o zu u in provinzialen Texten sehr häufig ist, kann man darin die Abkürzung für den Terminus *grosso* in der Bedeutung von dick sehen. Diese Eigenschaft von Kleidungsstücken ist in der Literatur häufig bezeugt.\(^6\)


**Bibliographie**


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\(^1\) Radman-Livaja 2014, 73.

\(^2\) Ov. ars 3, 181; Petron. 21,2; vgl. Colum. 10, 238; dazu André 1949, 190-191.

\(^3\) Radman-Livaja 2014, 73.


\(^5\) Römer-Martijnse 1990, 216; 219; 224.

\(^6\) ThLL VI/2 2337 s.v.*grosso*. 
15. Zur Textilterminologie auf römischen Bleitäfelchen


Pley, J. (1911) *De lanae in antiquorum ritibus usu*. Gießen.


Observations on the Terminology of Textile Tools in the *Edictum Diocletiani* on Maximum Prices

Peder Flemestad, Mary Harlow, Berit Hildebrandt, Marie-Louise Nosch

The *Edictum Diocletiani et collegarum*

The so-called Edict of Maximum Prices was issued in AD 301 as part of a comprehensive administrative and financial reform released in the reign of the Roman emperor Diocletian.1 Diocletian came to power in AD 284 after a period in Roman history traditionally understood as a time of ‘crisis’, produced by a series of inter-related factors:2 a frequent turnover of emperors; problems with the economy in terms of production and coinage; incursions by various tribes on the edges of the empire; internal unrest; the rise of Christianity and periodic persecutions. Diocletian’s actions were arguably pragmatic responses to the situation he found the empire in on his accession. The Edict should be seen alongside a number of reforms during his reign and is regarded by some scholars as the most important inscription of Late Antiquity.3 Several editions and translations have been published thus far. In addition to the continuous publication of new finds of the text itself, commentaries on different aspects of the Edict abound.4

1. Noethlichs 2010, s. v. *Edictum Diocletiani*. The term ‘Edict’ is generally thought to have been coined by Theodor Mommsen, who referred to *dicunt* in the preface of the text; however, it should be noted that W. M. Leake had already used the term in 1826 (Leake 1826). In the text itself *lex* (law) and *statutum* are used, demonstrating that we are dealing with a law that was supposedly valid and, at least according to its own standard, enforced throughout the empire, in the East as well as the West (*Lex: Ed. Diocl. praef. 15; Statutum: Ed. Diocl. praef. 15, 18, 19, 20*). In the case of any violation (including superelevated prices, illegal negotiations between sellers and buyers as well as the hoarding of goods), transgressors were threatened with capital punishment. The Edict was produced in the names of the two Emperors C. Aurelius Valerius Diocletianus and M. Aurelius Valerius Maximianus and their intended successors Flavius Valerius Constantius and Galerius Valerius Maximianus, but is traditionally named after Diocletian alone. The 18th *tribunicia potestas* of Diocletian mentioned in the text suggests that the Edict was issued between 21 November and 31 December AD 301, according to Coreoran 1996, 206, or between 20 November to 9 December, according to Speidel 2009, 497, note 43. Translations of literary passages are adapted from the relevant Loeb volumes.

2. Recent scholarship questions notions of crisis, recognising that not all of these factors affected all of the empire, all of the time: see *e.g.* Potter 2013; Hekster 2008.


The main purpose of the Edict, at least according to its own preface, was to fix maximum prices for a wide range of services and products that had constantly been jeopardized by the avarice of some merchants and traders who were known to ask for prices up to 8 times the usual amount. According to the text itself, the main beneficiaries of the Edict were the soldiers of the Roman army with a fixed salary that would not have allowed them to purchase the above-mentioned products and services at such excessive prices. The prices mentioned regard transportation, food, wages for craftsmen as well as special goods such as marble and numerous clothing items and textiles. All in all, around 1300 items, wages, and services are mentioned. In detail, studies on specific materials mentioned in the Edict, like glass and marble, are well covered as are those on the different areas of production, services, and costs.

5. Ed. Diocl. praef. 97. The purpose of the Edict and the question of whether the law and its price regulations was ever understood as binding by the population or whether it should rather be considered a more symbolic demonstration of imperial power, remain a matter of scholarly dispute. It is, however, indisputable that the Edict was accompanied by a fundamental reorganization of the tax system and two further edicts regulating coinage. One of the major problems faced by the emperors of the late principate was the dramatic rise in inflation. The second Coin Edict was probably issued on the 1st of September in AD 301, a few months before the Price Edict (Erim 1971). The consequences of this might have been a general increase in prices that demanded quick counteraction. Burkhard Meißner has suggested that there may have been additional factors that made the Edict of Maximum Prices a necessary initiative, in particular the military reforms also undertaken by Diocletian (Meißner 2000, esp. 79-84). As the number of recruits steadily increased and the frontiers of the empire were more intensely fortified, local demand on markets could increase enormously and cause prices to soar. Meißner therefore suggests that the Edict was intended as an ad hoc measure aimed at stabilizing prices, especially in the most militarised regions of the empire (Meißner has been contradicted by Brandt 2004, see below). That the Edict could also be perceived as a measure taken for the welfare of all (as frequently stressed in the praefatio) is confirmed by an inscription commenting on the purpose of the Edict found in the province of Caria and Phrygia (Meißner 2000, esp. 91-94). There, the provincial commander, Fulvius Asticus, added an explanation that the Edict was meant to establish adequate prices. He does not explicitly single out the military, as does the praefatio, but claims instead that the Edict was issued for the welfare of the whole provincial population. Meißner has taken this addition as an indication of the different areas of concern of the provincial governors. He still assumes, however, that the province of Caria and Phrygia was affected by inflation caused by the presence of the military. Hartwin Brandt contradicts this by pointing to inscriptions that give proof of soldiers plundering the houses of civilians, especially in Lydia and Caria and Phrygia. In Brandt’s opinion, an edict aimed to maintain the purchasing power of soldiers with a fixed salary could not have satisfied the people that had been their victims, but, quite the contrary, would have aroused resistance and anger (Brandt 2004, 50-51). Michael Speidel offers yet another interpretation: he assumes that the Edict was motivated by the Emperors’ concerns regarding their solvency, especially towards the soldiers, and their interest in keeping the soldiers content and supportive of their power (Speidel 2009).

6. Noethlichs 2010 argues that soldiers were especially affected by this because they had to spend a considerable amount of their salary on food, clothing and related items. Some researchers deny the impact of Diocletian’s Edict altogether (Meißner 2000, esp. 79-82). They refer to the contemporary of Diocletian, Lactantius, who states that the Edict had to be abrogated (Lactantius, De mort. pers. 7,6f.). Lactantius claims that the Edict did not succeed and that after a short time goods were said to have disappeared from the market as a direct reaction to it, so that it had to be annulled. The hypothesis that Diocletian did not succeed is, however, not confirmed by recent scholarship: the Edict appears to have succeeded in slowing down inflation (Noethlichs 2010). In 1989 Alexander Demandt argued that the maximum prices of the Edict were sometimes well above the market price, as shown by comparisons with prices in papyri and other inscriptions (Demandt 1989, 56-57, cit. by Brandt 2004, 47; for a discussion of the papyri see Mickwitz 1932). Therefore, he concluded that the main intention of the Edict was to stabilize prices, because the margin was not always exhausted. Both Bagnall and Corcoran note that transactions would occasionally adhere to prices stipulated of the Edict, even after the Edict itself had been annulled; this is best documented in connection with military clothing (Corcoran 1996, 233; Bagnall 1985, 69, esp. on the three identical sets of prices in 302, 314 and 323).

for transport. Some aspects of ancient textile technology and clothing have been treated in greater detail, such as the different types of purple mentioned, wool, clothing and cloth, as well as specific terminological questions related to clothes. Despite this interest in the range and types of clothing, scholarship has not yet focussed on the textile tools mentioned in the Edict. This contribution proposes to fill part of this gap.


Greek or Latin original

The Edict is written in Greek and Latin, and the question of the original language of the Edict is seemingly straightforward. As a law promulgated by an emperor of the Western part of the empire, it was undoubtedly Latin. The elaborate preface of the inscription is so far only known from Latin versions of the Edict, not in the Greek versions. The Greek text(s) that survived cannot be traced back to a single official master document. As Marta Giacchero suggested, local authorities seem to have been rather at liberty to translate the Latin text according to need. This seems to be corroborated by the observations of E. G. Turner. He argues, based on papyri from the reign of Diocletian, that Diocletian did not pursue an active language policy to enforce the use of Latin in Egypt, and that he only imposed very narrow measures to limit the use of Greek through the introduction of “a quasi-Roman municipal and taxation system, Roman coinage, and Roman dating by consuls and by indiction” in order to promote the gradual increase in the use of Latin language and terminology. While an interest in political and administrative terminology is understandable, it is, however, unlikely that one would have stipulated any precise terminology for (items of) trade, except in very general terms. This has to be kept in mind when dealing with questions of tool terminology which might have been influenced by, for instance, misunderstandings by the copyist, misspellings and other factors.

Textile tools in the Edict

Textile tools as a case study

This investigation of textile tools provides some insights into the use and production of textiles and their producers and consumers and thus allows glimpses at economic implications and the practical application of the Edict in everyday life. It also highlights key aspects of ancient technology invisible in literary sources. Indeed, since the relevant chapters concerning textile tools are preserved in both Greek and Latin, we are offered, in addition, an invaluable bilingual source for textile terminologies for both more common as well as more specialised tools.

The fragments of the Edict related to textile tools

The preserved fragments of the Edict testify to several textile tools. Some tools are directly attested by name, others only indirectly through craft terminology and occupational designations. Among the tools explicitly mentioned are needles, pins, spindles, whorls, combs and looms. In this contribution, we focus on the items that are mainly attested in two parts of the Edict so far: chapters 13 and 16. Their translation and interpretation varies widely in philological literature and thus merits a reassessment. The chapters are preserved in both Latin and Greek fragments (Fig. 1). Not all fragments have their bilingual counterpart nor are fully...
attested in even one language. Some lines are attested only once/in one fragment in each language, others more than once in several fragments, others again are missing in both languages, while others are missing only in one language and can sometimes be reconstructed by using their Latin or Greek counterpart.

Of the Latin version we have one fragment of chapter 13 (ll. 1-10) and two fragments of chapter 16 (ll. 12-14). Of the Greek version three fragments have been found of chapter 13 and one fragment of chapter 16. We therefore have 4 fragments of chapter 13 (of which one is in Latin and three are in Greek) and three of chapter 16 (of which two are in Latin and one is in Greek: see Fig. 2 for an example). Two of these fragments (Aezan. IV and Aphr. XXIX) postdate the edition of Siegfried Lauffer\(^\text{12}\) that is still fundamental for studies of the Edict, but i.a. change the line numbering of the chapters that are treated in this contribution. We therefore in general follow the edition of Marta Giacchero,\(^\text{13}\) who was able to include the new finds, and have modified our analysis with reference to later scholarship.\(^\text{14}\)

\(^{12}\) Lauffer 1971.

\(^{13}\) Giacchero 1974. Additional information in German and Italian in the following footnotes is taken from Lauffer and Giacchero.

\(^{14}\) E.g. Crawford & Reynolds 1977; see also Barański et al. 2007; Rouéché 1989, 281.
The attested textile tools in chapters 16 and 13

Chapter 16:

16,12\[De\] Acu
12a Acus sartoria sive subfiscalatoria suptilissima X IV
13 Formae secundae X II
14 Acus ciliciaria sive sagmaria X II

The brief chapter 16 is headed De acu and does not mention any other tools than acus in the preserved fragments. The Greek title is badly damaged, but the restoration [Περὶ βελον]ῶ[ν] is unproblematic since in the following lines only the term βελόνη is mentioned\[16 which corresponds to the Latin acus. Both terms are commonly translated as ‘needle’, which seems to match the meaning of the chapter very well.

15. = 16, 8-10 Lauffer.

Fig. 2. The Synnada fragment of chapter 16, adapted from Macpherson 1952, Plate X 1.

The chapter starts with an acus sartoria, whose translation as ‘sewing needle’ is unproblematic.\[17 Immediately after the mention of this sewing needle both the fragment from Synnada and the (slightly more damaged) one from Aphrodisias give the information sive (acus) subfiscalatoria suptilissima, “or a very fine subfiscalatoria-type needle”.\[18 Both cost the same, 4 denarii each. However, the meaning of subfiscaloria is unclear. It could, analogous to

\[15 = 16, 8-10 Lauffer.

\[16 Loring (1890, 320) notes that the restoration [Περὶ βελον]ῶ[ν] is conjectural, but fairly probable, because “headings are pretty abundant in this part of the inscription”.

\[17 Sartorius, ραφικός ‘für den Schneider’, cf. 7, 48.

sartoria, indicate the use of this needle, but it could also indicate the material of the object. For the interpretation, one has referred to the noun fistula, which would refer to a needle in the shape of or (originally) made of a tube or stalk. The term acus thus presumably distinguishes here either two different uses of the same needle or two distinct needles, distinguished by use and/or material that were sold for the same price. The Greek text is fragmentary but gives ῥαφική for sartoria and ἰσχνοτάτη that matches the Latin suptilissima, but there is no Greek term corresponding to subfiscalatoria. The question remains open as to whether these needles were similar enough to be grouped together for reasons other than their identical price.

A clue to their interpretation may be found in the next line where the needle is termed formae secundae in Latin, δευτέρας φώρμης in Greek, i.e. of ‘second-grade quality’. This type of needle only costs half the price of the subfiscalatoria-type needles, 2 denarii. Needles of the second quality are therefore presumably contrasted with those of the subfiscalatoria-type that seem to be of ‘first-grade’ quality (forma prima), being finer (suptilissima/ἰσχνοτάτη).

In the last line, we meet a similar phrasing in the first line, an acus ciliciaria sive sagmaria which costs 2 denarii, like the second-grade quality needles in the previous line. This probably denotes a single type of needle that is used for two distinct purposes: first, for rougher textile qualities, the Latin adjective cilician pointing to so-called ‘Cilician’ fabrics that were originally made of goat hair; and the corresponding Greek word σακκοράφη pointing to bags made of a rough fabric; second, sagmaria for saddle-cloths, confirmed by the Greek σαγματική, with sagma-, according to one editor, referring to a pack-saddle, but which is probably a saddle-cloth. With regard to σαρκοράφη, Loring notes that the stone clearly reads σαρκοράφη, but that this is a mistake; he adds that since it was a large needle, and used for sacking, it was probably a packing-needle.

These kinds of acus may be interpreted as needles in the modern sense of the word, as sharp and pointed objects made of metal (or another hard material that could be formed into a very thin needle), with an eye at one end. They might have been used to stitch fabric together or to apply decorative objects (including pearls, metal ornaments and thread) on fabrics. This interpretation seems to be corroborated by finds of metal needle hoards in different regions of the Roman world. One set of 17 “badly rusted” needles comes from Dura Europos in modern-day Syria, dating probably to the middle of the 3rd century AD, very close in time to the Price Edict (Fig. 3). According to the publication, they were made of iron and tucked into a fragment of undyed wool cloth. Their length varied from 5.2 to 6.0 cm, and the average diameter is 0.15 cm.

19. Lauffer: sufsclatorius = suffisculatorius ‘rohrförmig’ (fistula, ‘Rohr, Halm, Hohlnadel’), cf. Plin. NH 17,100: sutoriae simili fistula; Corpus Glossariorum Latinorum III 10,48 συριστής, fisculator; V 248, 14 tenui havena fistula vulgo fiscla dicitur. CIL VI 4444,4 fistulatori. Perhaps we are dealing with a situation similar to English ‘weaver’s reed’. Macpherson (1952, 73), discussing the Synnada fragment, notes that sufisculatoria could be derived from the form fisculus or from fistula; he furthermore adduces Corpus Glossariorum Latinorum II, 580 for the form fisculator, and Plin. NH 17,100 for the word fistula, referring to a shoemaker’s tool (sutoriae simili fistula); and Festus (308-309 Müller) for suffiscus.


21. Loring (1890, 320) understands the σαγματική in line 14 as another large needle, perhaps a saddler’s needle, σάγμα being a ‘pack-saddle’.


23. Loring 1890, 320.

24. Pfister & Bellinger 1945, 60, cat.no. 293.
Another set of needles was found in Magdalensberg in Austria, ‘Old Virunum’, and might have been produced for trade (Fig. 4). The settlement flourished in the period 50 BC to 50 AD. The ruler in the photo of the publication shows that some of the needles were actually 14 cm long and probably meant for heavy duty sewing. However, we have to keep in mind that finer needles are presumably less likely to be preserved than thicker ones, which might have distorted the statistics of the hoard finds.

While chapter 16 is relatively straightforward, chapter 13 poses several terminological problems. These regard both its internal structure that seemingly does not match the headline; the interpretation of the
Chapter 13: On pin-beaters

13, 1  De radiis textoribus
1a  Radium buxeum numero vac. I  [X XIII]
2  Radia promisquae materiae vac. N I[I]  [X XXX]
3  Pectinem textorium buxeum  [X XII]
4  Pectinem textorium promisquae materiae  [X XIII]
5  Fusum buxeum cum verticillo  [X XII]
6  Fusum cum verticillo alterius materiae  [X XV]
7  Pectinem muliebrem buxeum  [X XIII]
8  Acus osseas muliebres N IIII  [X XII]
9  Acus testudines I  [X IIII]
10  Acus sucinea I  [X ?]

13,1  Περὶ κερκίδων
1a  κερκίς ποξίνη α’  X ιδ’
2  κερκίδες β’ ἐκ διαφ(όρων) ξύλ(ων)  X λ’
3  κτένα ποξίνων  X β’
4  κτένα ἐκ διαφόρων ξύλων ἵς πήν(ην)  X ιδ’
5  ἄτρακτος ποξίνως μετὰ σφονδύλου  X β’
6  ἄτρακτος μετὰ σφονδύλου ἐξ ἑτέρων ξύλων  X ἴε’
7  κτένιον γυναικεῖον ποξίνων  X ιδ’
8  κνήστρον ὀστάινον γ]υναικεῖον  X β’
9  κνήστρον χελώ[ινον  X δ’
10  κνήστρον σούκινον  X [—]

different items mentioned; and finally the translation of the terms from Latin to Greek and vice versa. The Latin text is only attested in one fragment that was found in Aizanoi, while the Greek version (containing the lines corresponding to acus) is preserved in two fragments from Geronthrai in Laconia and Aidepsos on Euboia.26

Chapter 13 is headed with De radiis textoribus/Περὶ κερκίδων. The terms κερκίς and radius are consistently translated in both literature and dictionaries as “(weaver’s) shuttle”. However, research since in the 1930s has at regular intervals noted and stressed that this is a highly problematic and anachronistic translation. The term textoribus suggests that we are dealing with weaving tools but the chapter does not limit itself to its own headline (this is not unusual in the Edict).27 Instead, after listing several radia/κερκίδες specified according to material, it goes on to list combs; spindles with whorls; items specified as “women’s items” – among which are another small comb and also a different kind of needle or pin or tool that has been interpreted as “scraper”, but which is probably better

25. The Latin text follows Crawford & Reynolds 1977, the Greek text Giaccher 1974, 165.
26. Aizanoi IV. This fragment was published by F. Naumann, after Lauffer’s edition, but, as noted by Crawford & Reynolds (1977, 125), the ed.pr., published with admirable speed, was susceptible to improvement in some places, we therefore follow the readings of Crawford & Reynolds. Both Greek fragments of the chapter (Aedeps. and Ger. II) are unfortunately badly preserved. Different interpretations, depending on editorial choices of the texts, have not, however, been the subject of sufficient scholarly discussion.
27. See Doyle 1976, 91: “as often in the Edict, covers only one of the items listed”, although he assumes that “the shuttles, spindles, combs, and scrapers, (are) all doubtless made traditionally in the same shop”.

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translated as “scratcher” if the function is to be emphasised. Prior to the discovery of the Aizanoi fragment, chapter 13 was only known in Greek.

As already mentioned, the headline is usually translated as concerning “shuttles”. According to John Peter Wild, an early advocate against this common interpretation, the shuttle was unknown to the Romans; and Elizabeth Barber hypothesises that the shuttle only came to the Mediterranean area around the 10th century AD. Since the instrument is specified as a weavers’ instrument (textoribus), the solution may be to term it “(weaving) pin”, i.e. a pointed instrument, not necessarily with an eye/hole, that was multi-functional and could serve as: a “weft-carrier/spool” to pass the weft through the warp threads, and as a weft-beater (and even as a hairpin – see below). This interpretation also has the advantage that a pin – in contrast to a shuttle – could be used on different kinds of looms, e.g. warp-weighted, ground, and two-beam looms, which might have been useful in an inscription that was supposed to regulate the prices of tools in a vast empire with different weaving traditions.

It is interesting to note that the Latin headline specifies de radiis textoribus “on pin-beaters for weavers”, while the Greek headline merely states περὶ κερκίδων “on pin-beaters”, perhaps because the tool’s use for weaving was the predominant sense of the Greek word. Crawford and Reynolds note that the form of the adjective textoribus for textoris is “curious”, referring to textorium in lines 13,3 and 13,4. Naumann even assumes that textoribus is an error for textoris, but there is no fundamental problem in reading textoribus, i.e. “radia for weavers”, instead of “weaving radia”. It should be noted that radius (13,1a) and radia (13,2) are the uncommon neuter forms of the word. While they may be in the nominative, the accusative case is of course equally possible, which would conform to lines 3-7 that are in the accusative, making all items listed in lines from 13,1a-7 accusative.

After the heading, the chapter starts with a pin-beater of boxwood, which was the cheapest material for textile tools (buxeum, πύξινος), presumably due to its prolific and widespread availability. One pin-beater costs 14 denarii. Boxwood textile tools are consistently indicated apiece, perhaps as a point of reference or default category; conversely it could be due to the fact that boxwood is singularly useful for textile tools: it is smooth and light, and good for working with raw material such as wool, because it does

31. Cf. Crawford & Reynolds 1977, 149: “That the radii listed here were for weaving was regarded as self-evident by the Greek copyists who use κερχίς unqualified.”
34. Crawford & Reynolds (1977, 150) merely note that its gender is “another grammatical mistake”.
35. The Thesaurus Linguae Latinae is, to our knowledge, the only dictionary to mention the neuter form radium. That the neuter was also in use is, however, clear from the premonition of the grammarian Flavius Caper (GL VII 102,1): “hic radius, non hoc radium”. Moreover, Charisius (GL 1.71) includes the word among the words that are masculine in Latin, but feminine in Greek. Outside this passage it is attested e.g. in Corpus Glossariorum Latinorum III 195, 53, where it translates certides (=cercides), and in the Vindolanda tablets (II 309,7), where its meaning is ‘spokes’.
36. Of course radium may also be interpreted as a masculine accusative singular, but radia in the subsequent line makes this improbable.
37. For πύξινος cf. 13,1a;3;7; forma, φόρμα cf. 8,1a.
not splinter. In the following line the pin-beaters are made of other kinds of wood, a category subsumed by the generic expressions *promisquae* or *alterius materiae* and διαφόρων or ἑτέρων ἔλεγχοι. The number of *radia* in the Latin text is partly restored, but the Greek equivalent (that also gives the plural: κερκίδες) specifies two that cost 15 *denarii* each. That all wood other than boxwood could be lumped into one category confirms the hypothesis that boxwood was a kind of “default material” for this type of textile tool.

This pattern is repeated in the next two lines that list weavers’ combs (thus deviating from the pin-beaters in the headline and first two lines). First one made of boxwood for 12 *denarii* is listed, then one made of any other wood than boxwood at 14 *denarii* each. We do not know what these combs looked like, but, with reference to these lines (13,3-4), Reynolds and Crawford note that “[t]he Roman weaving comb had a wide head and very small teeth (Wild 1970, 67)”. They observe that in this light, it is curious that it has the same price as the above-mentioned *radius* (or a *fusus*, spindle, see below), as it requires more skill to make it, and it would presumably be larger. They further note that in line 13,4 the Greek fragment from Geronthrai “adds ἰς πήνην, ‘for weft’, *i.e.* for beating up the weft – perhaps a paraphrase of the Latin *textorius*”. It should be noted that ‘combs for raising the nap on woollen cloth’ are mentioned elsewhere in the Edict: 40

\[
pêctines lanari[i... c. 21.. X sê]tingentos
quinquagin[a]
[pectin]em? m[... c.28..] X quadraginta vacat
\]

In chapter 13, the following two lines (13,5-6) conform to the pattern of the list that was established for the previous items: They list spindles, first one made of boxwood with a whorl, for the price of 12 *denarii*, then one made of other wood than boxwood, also with a whorl, for the price of 15 *denarii*. While spindles were made of wood, spindle whorls could be made of many types of material: wood, bone, clay, stone, lead. Even if the price for the spindle also covers the cost of the whorl, whose material is not indicated, the prices of 12 and 14 *denarii* seem extravagant, given the cheap materials presumably employed. All the tools from chapter 16 mentioned so far conform to one pattern, *i.e.* were made of boxwood *vs.* other woods: pin-beater, comb, and spindle (with whorl). It is curious that pin-beaters of wood other than boxwood are counted in pairs. Otherwise, all are textile tools, and even if they do not fit closely under the headline of ‘pin-beaters’ as a whole, one can comprehend them being listed in this category since they are wooden tools belonging to the textile profession.

The evidence becomes much more idiosyncratic with the following lines. It is rather intriguing that after the weavers’ combs in line 13,3 and 13,4 (both *textorium*), there are two lines which mention spindles, but line 13,7 again mentions a comb. However, this time it is specified as *pectinem muliebrem buxum*. Crawford and Reynolds translate it as ‘woman’s comb of boxwood’, noting that “double-sided boxwood combs were relatively common in the Roman world”. Both Greek passages confirm this reading with κτένιον γυναικείον πύξινον. This comb seems to be distinct from the one mentioned in line 13,3 since it is explicitly characterized as a ‘woman’s’, and termed by the diminutive κτένον in the Greek text, not κτένα like the weaving combs. It is not, however, differentiated as being smaller in the Latin text. It should also be noted that although both one sort of ‘weaving comb’ and the ‘woman’s comb’ are made of (relatively cheap) boxwood, the latter is two *denarius* more expensive than the boxwood weaving comb.
(or as expensive as a weaving comb made of ‘other’ wood). This suggests that, although it was perhaps a smaller item, it may have been more elaborately worked (e.g. with two rows of teeth) or have an altogether different function. Still, we are left without an explanation as to why the composer of the list should have found it necessary to mention a ‘woman’s comb’ under the headline ‘pin-beaters for weavers’.

The text goes on with another item that is qualified as *muliebris* or γυναικείον (‘for women’ or ‘women’s’): an *acus* in line 8. At first glance, *acus* leads us to believe that we are dealing with a term that has the same meaning as the *acus* that we have already encountered in chapter 16: needles in the modern sense of pointed, sharp objects, presumably with an eye for a thread. The adjective would not affect this interpretation, since one could imagine a needle that was, for example, used to execute delicate work that was associated with or carried out by women. On closer examination, this explanation does not stand up to scrutiny. One of the reasons is the Greek translation of the term *acus*. *Acus* is never translated in the Edict by ῥαφίς; however, in contrast to chapter 16 where *acus* is consistently translated as βελόνη, it is translated as κνῆστρον. The root κνη- signifies to scrape, scratch, grate or itch, therefore the most plausible translation would be a “scratcher” rather than a needle (see below). The term has thus caused some confusion. The passage could be seen as inconsistent, or the text as flawed, and perhaps the κνῆστρα as unrelated to the other textile items, but a closer look at the etymology and inner structure of the chapter provides some clues.

The other reason why a straightforward translation as ‘women’s needles (sc. for textile work)’ is difficult, is that textile implements made of these materials (bone, tortoise shell, and amber) are not as frequently attested as one may expect in the archaeological record. Bone tools are attested where the soil conditions allow it, but other materials are much more rare than the Edict would suggest. A crucial discrepancy between chapter 16 and chapter 13 is that the latter emphasises the material of the objects rather than their function, while chapter 16 specified their function and use and never mentioned their material. We now turn to the question of how to translate κνήστρον, then discuss the different materials mentioned, and finally consider how these items may fit under the headline of the chapter.

The text regarding *acus*/κνήστρον in 13,8-10

The Latin text as preserved on the fragment from Aizanoi initially lists 4 *acus osseas*, i.e. made of bone, that were used by women (*muliebres*); the price is unfortunately lost. The next line gives *acus testudines*, i.e. made of tortoise shell, and lists a price for one piece, but again the price is lost. The final line gives *acus sucinea*, i.e. made of amber, and again indicates one piece and a price that is not preserved. The Greek term for amber, σούκινος, is a Latin loanword.

The exact reading of the Greek texts regarding lines 13,8-9 is, however, problematic. Both Greek fragments of the chapter (Aedeps. and Ger. II) are unfortunately badly preserved, but from what can be read and conjectured, the Greek texts differ slightly from the Latin. For line 13,8 in the Aidedesos fragment, Doyle reads κνῆστρον ὀστάïν[ον, for ὀστέïνον(?), tentatively translating it as “a scraper made of bone or with a bone handle?” Line 13,10 mentions a κνῆστρον σούκινον, but the price is lost. Doyle translates this line as “an amber scraper or a scraper with amber handle?”. It is noteworthy that the diminutive form κνηστρίον published by Lauffer only appears in the last line related to amber, and has no equivalent in the Latin text that only speaks of *acus*, not *acucula*.

The diminutive form κνηστρίον is, however, found in both lines 13,9 and 13,10 in the Geronthrai
fragment. A further problem is also posed by the adjectives in this fragment. Line 8 is badly preserved and the first edition was erroneous. As it turned out, the suggestion of Doyle proved to be right (later confirmed by Lauffer (app. crit.)): ‘κνήστρον ὀστᾶν[ον, for ὀστεῖνον(?), since it does in fact read ὀστεῖνον, followed by γονακεῖον so it matches the muliebres in the Latin text, and gives a price of 12 denarii, again like the Latin text, but does not provide the information that the price is for 4 pieces. Lines 9 and 10 pose another major problem: they have been read as ‘κνήστριον ἰχθύων’, translated as fish scraper, and as ‘κνήστριον σκυτῶν’, translated as leather scraper.48 These interpretations were questioned by Bingen who read the respective terms as χελώνινον and σούκινον.49 It is, however, noteworthy that both tools are specified as smaller than the bone item in the Geronthrai fragment, but until this is re-edited, no detailed discussion of terms can rely on it. Our argument will thus focus on the fragments from Aidepsos and Aizanoi.

κνήστρον and its variants

We now proceed to the question of how to interpret the Greek name for the tool that matches the Latin acus: the κνήστρον that is attested in both Greek fragments of chapter 13 and thus cannot be dismissed as a simple mistake of either a modern reading of the fragments, or an individual misunderstanding on the part of the translator or engraver. As stated above, the root κνη- signifies to scrape, scratch, grate or itch. The mention of these ‘scratchers’ in chapter 13 rather than under the ‘needles’ in chapter 16 also suggests that they should be understood as distinct from the βελόνων. Modern scholarship seems still unaware of this issue, for example, Giacchero translates acus with ‘ago’ (needle) and does not discuss the problems of the Greek term. Crawford and Reynolds, on the other hand, consistently translate acus in lines 13,8-10 as pins (bone-pins for women/tortoise-shell pins/amber-pins). They state that: “the nature of the materials quoted suggest that the acus were ladies’ hairpins, not another type of weaving implement. They may have been made of a single piece of bone, tortoise-shell or amber; alternatively, they may have had wooden or bone shafts with ornamental heads (...).”50 As noted above, Doyle suggested that they may have been handles.51 Still, the question of how the Latin and the Greek term can be matched terminologically remains unanswered. There are two main hypotheses in trying to determine the potential meaning of the Greek word and the tool that it designated:

1. to assume that it is closely related to textiles since it is listed under the heading of “pin-beaters for weavers” and the other items mentioned in this chapter are also textile-related52

2. to assume that it is part of the female sphere since it is characterized as such and follows the item “comb for women”, and that the Latin acus might give an idea about its shape which was, presumably, a sort of pin.

Let us begin by considering the first hypothesis. Beekees53 (following Chantraine) connects κνήστρον to κνήσων (translated by Beekes as ‘scratcher’) which is found in an inscription from Delos, also in a textile context;54 there is also the Latin loanword

49. Cf. also Bingen 1965, 176, n.5: “De même, dans le texte, où aux articles 13 et 10 (l. 14 et 15 de la 1re colonne), il ne peut être question de lire ni κνήστρον [ἰ]χθύων, ni κνήστριον σκυτῶν, qui ont reçu les honneurs suprêmes du Liddell-Scott-Jones. Je proposerais sous toute réserve d’après ma copie sur place et mon estampage: κνήστρον χελώ[νινον et κνήστριον σούκ̣ιν̣ον̣, grattoir d’écaille et grattoir d’ambre. Ce qui me ferait suggérer que le OCT du mystérieux article 13 8 appartient sans doute à un κνήσων Λ.Α.στ[έινον].”
52. We cannot a priori assume that acus and κνήστρον (vel sim.) can be regarded as textile tools (but neither can we exclude it) since their characterization as muliebris/γονακεῖον might be their main distinguishing element.
54. ID 1444Aa37: “ἐν τῷ κιβωτίῳ κυῳδόνας? τρεῖς”. Cf. also an inscription from Attica, mentioning a silver κνήστρις in a temple inventory, interpreted by the editors as a variant of κνήστριον IG II² 4511, 9. ἱκνήστριον ἄργυρο[ν = = = = ] (=IG II/II² 4511).
cnāsō ‘aiguille pour gratter’ in Paul. ex Fest (cnaso-
nas (acc.pl.): acus, quibus mulieres caput scalpunt\(^{55}\)). Chantraine translates κνηστρίον as ‘instrument qui sert à racler’;\(^{56}\) while LSJ translates it as ‘scrap-
er’. Another thought is that it might have pointed to a certain type of tool material, since κνέωρος / κνήστωρ\(^{57}\) (both words derive from the same root) designate a kind of wood, the so-called “stinging plant”, which was in fact also termed κνήστρον by some. This should, however, be dismissed since the κνήστρον is already qualified by adjectives denoting their material: bone, tortoise shell, and amber. If their main component had been “other wood than boxwood”, this would probably have been indicated, as with other items.

κνηστρίον as hairpin

Joseph Maurer treated pins and needles in an article in 1951, where he argued that pins and needles were one and the same to the Greeks and Romans, and that the nouns βελόνη, ῥαφίς, acus, aculea, ac-
ula signified a needle, when the object had an eye for a thread, and a pin when it had a knob, small globe, or other ornamental termination.\(^{58}\) We would argue the contrary, that Greek could distinguish between the senses of Latin acus by the use of two terms.

In 2008, Janet Stephens, a professional hair-
dresser and researcher into the hairstyles of the Greeks and Romans, reconsidered the nature of Ro-
man hairpins and arrived at some differing functions for hairpins and needles that have implications for interpreting the Edict.\(^{59}\) She argues that commenta-
tors on the techniques of Roman hairdressing dem-
onstrate modern biases that lead to anachronistic speculation, based on a faulty understanding of the technical possibilities of the tools available to Ro-
man hairdressers. According to Stephens, the so-
called single prong hairpin (which she terms ‘hair bodkin’) cannot have been used in many contexts and she proposes that Roman women used sewing-
needles (with eyes) to stitch together the elements of a hair-style (e.g. rows of plaits) when they were no longer using vittae\(^{60}\) – linen or wool ribbons used to tie the hair together when arranging it – perhaps around 50 BC.\(^{61}\) Stephens carefully defines the terms of ancient Roman (and modern) hairdressing, not-
ing correctly that the Latin acus is often used to de-
fine – in her opinion – three similarly-shaped but distinctly different hairdressing tools: namely the ‘hair bodkin’,\(^{62}\) the ‘needle-and-thread’,\(^{63}\) and the

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56. Chantraine 2009, 525 (κνηστρίον as read by Lauffer).
58. Maurer 1951, 161.
60. She adduces Isid. Etym. 19.30.4; Ov. Am. 3.6.56, Ars. Am. 1.31, Met. 1.477, Pont. 3.351, Rem. Am. 386; Pl. Mil. 792; Prop. 4.11.34; Tib. 1.6.67; Val. Max. 5.2.1; Verg. Aen. 7. 403. According to Stephens (2008, 111, n.5) the vittae can be seen in both Etruscan sculpture and the Hellenistic art of Southern Italy and the nodus hairstyle epitomised by Livia was presumably the most influential in promoting hair-sewing, after which the vittae became associated primarily with ceremonial (i.e. bridal) and hieratic (i.e. Vestal) hairstyle.
62. Stephens 2008, 112; their basic design being similar to modern knitting needles and made in various lengths; they are mentioned in ancient sources as made of gold and silver and decorated with precious stones (cf. Ulpian. Dig. 34.2.25.10: acus cum margarita, quam mulieres habere solent “acus set with pearls which women are accustomed to have”), but most surviving Roman hair bodkins are made from bone. Also termed discerniculum, cf. Varro LL 5.29.129.
63. Needle-and-thread: Stephens defines a ‘needle’ as a rod-shaped object “pointed on one or both ends and drilled through with one or more small, circular or elongated holes (eyes)”, designed to carry the thread. Furthermore, a needle must, by Stephens’ definition, “have a hole meant to carry thread, and it cannot have an enlarged head meant to inhibit its passage through the material to be sewn”. This does not accord with current archaeological evidence, where bone sewing needles with enlarged heads have been found (E. Andersson Strand, pers. comm.).
‘curling iron’. According to Stephens, the definition in Festus, *acus dicitur, qua sarcinatrix vel etiam ornatrix utitur* "acus refers to the tool used by the cloth-mender as well as the hairdresser", indicates that ‘sewing needle’ is the “default definition of the unmodified noun *acus*.” Thus, this is another example of textile technology used in a non-textile craft. In both textile craft and hairdressing, a needle with an eye is used for the same function (sewing).

The hair bodkin can have an enlarged (and decorative) head in order to maintain adequate isometric tension in the hairstyle. They could also add glamour to finished hairstyles, if they were made of precious metals, gems, ivory, or bone; and the tortoise shell and amber mentioned in the Edict could very well denote decorative heads on such hair bodkins.

To return to the problem of κνῆστρον: Stephens makes the pertinent and rarely (never?) observed comment that the hair bodkin would probably also have been used as a “genteeel head-scratcher, which could reach deep into elaborate styles where fingers could not reach”, conforming to the statement of Festus: *cnasonas acus quibus mulieres caput scalpunt*. As stated above, the *cnasonas* of Festus reflect the same root as κνῆστρον. We also have evidence that the root *kna-/*kne-* could be related to a pin-shaped object that was driven into something and that was called a κνηστίς. The *acus* of the Edict translated by κνῆστρον makes perfect sense in comparison to the κνηστίς mentioned in a passage of Plutarch and to a gloss in Hesychius:

Plutarch (Plut. Ant. 86.4): τὸ δὲ ἀληθὲς οὐδὲς ἐπεὶ καὶ φάρμακον αὐτὴν ἐλέχθη φορεῖν ἐν κνηστίδι κοίλῃ, τὴν δὲ κνηστίδα κρύπτειν τῇ κόμῃ.

Both texts confirm that a κνηστίς or κναστήριον is an object that was ‘driven into something’, in the case of Plutarch’s text, into the hair. It is noteworthy that Hesychius speaks of a Laconian word, and that the inscription from Geronthrai is also from Laco-nia, while Aidepsos is situated on Euboia where one could perhaps rather expect an Ionian term. Regardless of any potential Laconian basis for the term, it seems safe to claim that ‘pin’ would be an appropriate translation both for Plutarch and Hesychius, and that the κνηστήριον in the Edict is etymologically related and might refer to pins, which can also be used as scratchers.

If we accept that one of the functions of the κνηστήριον in chapter 13 could be as a hairpin (bodkin) which could also act as a scratcher, then we need also to add this to the functionality of the Latin *acus*. Even if in chapter 16 the use of *acus* and its translation as “needle” (matching Greek βελόνη) in the modern sense seems to be justified, we have to be aware that there can also be other possibilities of translation and use of the word. The *Thesaurus Linguae Latinae* (s.v.) proposes the following distinctions in the term *acus* (noting that it is equivalent to Greek ῥαφίς and βελόνη):


68. Stephens 2008, 117, Festus 52.17 (Müller).

69. The term κνηστίς (note the accent) denotes a cheese-grater.

70. ῥαφίς does not occur in the Edict, but so does the adjective ῥαφική in 16,12a, qualifying βελόνη, and translating *sartoria*, cf. below. The root is also attested in ῥάπτης/ὑποραφή/ὑπόραψις (7,48-51).

These all have in common that they are ‘sharp’ or pointed instruments. *Acus* are also used for putting up and ornamenting the hair. The problem of understanding the semantic field is perhaps influenced by/connected to the modern sense of the term ‘needle’ which indicates a very sharp and pointed pin-like metal object.

**Materiality of the acus and archaeological finds**

That our “pins” in chapter 13 are of a different quality than the “needles” in chapter 16 might also be confirmed by the materials they are made of. With the exception of tortoise-shell objects (which might not be preserved) we have archaeological finds of pin-shaped objects made of bone and of amber.

**Evidence of bone pins**

The “bone pins for women” in chapter 13 might find a match in the archaeological evidence. A set of bone pins comes from the Roman settlement at Magdalensberg in Austria. These objects have rounded and/or decorated heads and are interpreted as spindles and distaffs and show, according to the excavators, signs of use. These objects are sometimes elaborately decorated. One could well assume that they might have been multifunctional: perhaps used by women as a decorative item, e.g. as hairpins, and pins that held garments together.

Finally, a bone pin might also have been good for working with soft threads and tapestry weaving since the smooth surface does not damage the thread. As Eva Andersson Strand points out, bone needles do not leave a hole in certain types of woven woollen fabrics when used. Thus the “bone pins for women” might indeed refer both to pins used by women in textile work (spindles, distaffs, spools and pin-beaters) or decorative items like hairpins, or pins that held clothing in place. In the so-called Tomb of the Embroideress, dating to the late 5th-7th century, a wonderful array of textile tools was found. These include weaver’s combs, spindles with whorls and spun thread attached and a series of spools with linen thread still wound round them, and some similar shaped ‘pins’ which are wooden and ivory rods tentatively identified as weaving implements, but also perhaps as *styloi*.

**Amber**

Archaeological evidence may also attest to the *acus sucinea*, amber pin. We know amber distaffs (or rather distaffs that were made of metal and had amber elements) from Etruscan tombs in Verrucchio. Amber spindle whorls were found in Magdalensberg, and Pliny notes the use of such whorls in Syria. While there are examples of amber tools, they are dated much earlier than the Edict; however, they do attest to the fact that there were pin-shaped textile tools made of amber. Whether the amber pins were merely status symbols that were put into the graves, or whether they were used in life, remains a matter of dispute. Their practical use would depend on the task since amber is a very soft material (that would on the other hand also be very gentle with fine textile fibres). This might actually match the characterization of the amber *acus* as “small” (or: more delicate)

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72. Gostenčnik 2010, 76. See also Trinkl 2007, 81-86, for a discussion of textile tools from Roman Imperial times in Ephesus, including bone needles (fig. 13.4) and finely decorated bone distaffs (fig. 13.7).

73. Eva Andersson Strand, pers. comm.


75. Gostenčnik 2010, 73.

76. Plin. NH 37, 11, 37.

77. See the Etruscan amber spindle or distaff from Grave 43, Verrucchio, in Ræder Knudsen 2007, 110, fig. 17.14.
in both of the Greek fragments, since a small amber pin for e.g. tapestry weaving might have worked well, but a longer tool fully made of amber might have been too soft and fragile for heavier work like sewing or spinning (not to mention the price for such a piece – unfortunately none of the fragments of the Edict have preserved any numbers regarding amber so far).

_Tortoise shell_

Unfortunately we do not know of any archaeologically attested pin-like items made of tortoise shell, but as already stated, this may also be due to the preservation conditions in the Mediterranean areas where fragments of the Edict were found. The use of the tortoise shell pins might have resembled that for amber (also because these _acus_ are mentioned in the diminutive in the Greek texts), since the material seems equally unsuitable for the heavier tasks of textile production. But they might have worked as smaller decorative items like hairpins that might as well have been a specifically female form of adornment.

_Gold_

Precious metals are not listed among the materials in the Edict, but it should be mentioned that according to literature golden _acus_ were used as adornment for the hair. Thus a certain extravagance in hairpins like amber or tortoise shell ones (or elaborate bone pins) fits well into the historical context.

_Wood_

The chapters discussed here refer to at least two types of wood: boxwood that seems to have been a kind of standard material for textile tools and that was used both for pin-beaters and other textile tools, and other types of wood. As with pin-beaters, spindles are subdivided into those of boxwood and those of other kinds of wood, those of boxwood being three _denarii_ cheaper, _i.e._ 12 _den_.

The same varieties in wood are repeated regarding combs, where we have two items that are explicitly qualified as weaving combs in Latin (_pectinem textorum_; only the second one is so termed in Greek: _κτένα ἰς πήνην_). The last variety is a comb, made of boxwood, which is termed _muliebrem_. We cannot be sure whether this last item is in fact a textile tool. It may also simply be the first item in a list of female accessories, which brings us to another interpretation of lines 7-10 in chapter 13 of the Edict.

_'muliebris'_

Concerning the group specified by the adjective _muliebris_ that is used for _pecten_ and _acus_ made of bone (_osseas_), it is doubtful whether they were used as textile tools. The subsequent _acus_ made of tortoise shell and of amber are not specified as _muliebris_ respectively, but they could well fit into the category anyway, since the Edict often lists items of the same kind or different qualities in subsequent lines. An amber or tortoise shell _acus_ could presumably well be conceived of as a hairpin (especially since, like a bone pin, it could be worked very smoothly and thus would not hurt the scalp), and the material might also have been specifically connected with female adornment like in the case of amber, and thus accrue the qualification _γυναικεῖα_.

_The prices of textile tools_

The price of the textile tools from the most expensive to the cheapest are shown in Table 1. The pricing of the different items in the Edict is not easy to follow. This is to a large degree due to problems with the preservation of the inscriptions.

79. See Stauffer 2008, 12, fig. 4, for late antique wooden _acus_ with yarn still wound around them.
80. Whorls are in both cases sold with the spindle (13, 5; 6).
82. The qualification _γυναικεῖος_ recurs in three further sections of the Edict: 7,54; 9,21; 13,8. _γυναικεῖος_ cf. 13,7.
The materials of the needles in chapter 16 are left unspecified, the only possible exception being sufiscalatoria in line 12a which may denote reed. However, it seems cogent, judging from the uses specified in the text itself, to strictly relate them to sewing, which might, of course, also have implications for the material they were made from.

As Crawford and Reynolds note: “The formula numero I, II etc. (lines 2, 8, 783, 10 [in the Latin version of chapter 13]) is reproduced in the Greek as simple α’ and β’ in lines 1a and 2, but is missed out elsewhere.” Crawford and Reynolds’ statement that “the pricing policy is hard to interpret” also stems from the fact that they assume certain qualities of material to be better than others, without the text corroborating it. This is the case, for example, for boxwood. Crawford and Reynolds state: “The best sort of radius, in boxwood, cost 14 denarii each; but in ordinary wood they cost 30 denarii for 2, or 15 denarii each! Similarly, a weaver’s comb of boxwood was cheaper than a comb of ordinary wood (lines 3 and 4) and a boxwood spindle was cheaper than its ordinary wood counterpart (lines 5 and 6).” To explain the price differences of the supposedly cheaper “other wood”, they come to the conclusion: “It may be that the boxwood tools were smaller than those for everyday use.” They do not take into consideration that boxwood might have been the cheaper material as opposed, for example, to walnut wood, which is mentioned for beds in the Edict.86

Crawford and Reynolds’ criticisms of the Greek version of the prices for pins in chapter 13, however, are justified. In the Latin fragment the numbers of pins that cost a certain price (that is unfortunately lost) are indicated (4 bone pins, and 1 tortoise shell). Table 1 shows the prices of textile tools from the Edictum Diocletiani.

<table>
<thead>
<tr>
<th>Price</th>
<th>Tool</th>
<th>Material</th>
<th>Specification</th>
<th>Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 den. each</td>
<td>Pin-beater</td>
<td>Other wood</td>
<td>-</td>
<td>13,2</td>
</tr>
<tr>
<td>15 den.</td>
<td>Spindle</td>
<td>Other wood</td>
<td>Including whorl</td>
<td>13,6</td>
</tr>
<tr>
<td>14 den.</td>
<td>Pin-beater</td>
<td>Boxwood</td>
<td>-</td>
<td>13,1a</td>
</tr>
<tr>
<td>14 den.</td>
<td>Comb</td>
<td>Other wood</td>
<td>For weaving</td>
<td>13,4</td>
</tr>
<tr>
<td>14 den.</td>
<td>Comb</td>
<td>Boxwood</td>
<td>Women’s</td>
<td>13,7</td>
</tr>
<tr>
<td>12 den.</td>
<td>Comb</td>
<td>Boxwood</td>
<td>For weaving</td>
<td>13,3</td>
</tr>
<tr>
<td>12 den.</td>
<td>Spindle</td>
<td>Boxwood</td>
<td>Incl. whorl</td>
<td>13,5</td>
</tr>
<tr>
<td>4 den.</td>
<td>Pin?</td>
<td>Tortoise shell</td>
<td>Small (maybe also women’s item)</td>
<td>13,9</td>
</tr>
<tr>
<td>3 den. each84</td>
<td>Pin?</td>
<td>Bone</td>
<td>Women’s item</td>
<td>13,8</td>
</tr>
<tr>
<td>No price</td>
<td>Pin?</td>
<td>Amber</td>
<td>Small (maybe also women’s item)</td>
<td>13,10</td>
</tr>
<tr>
<td>Chapter 16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 den.</td>
<td>Needle</td>
<td>-</td>
<td>sartoria sive sufiscalatoria suptilissima/ῥαφικὴ ἱσχυστάτη</td>
<td>16,12a</td>
</tr>
<tr>
<td>2 den.</td>
<td>Needle</td>
<td>-</td>
<td>Second grade</td>
<td>16,13</td>
</tr>
<tr>
<td>2 den.</td>
<td>Needle</td>
<td>-</td>
<td>ciliciaria sive sagmaria/σακκοράφη ἢτοι σαγματική</td>
<td>16,14</td>
</tr>
</tbody>
</table>

83. The materials of the needles in chapter 16 are left unspecified, the only possible exception being sufiscalatoria in line 12a which may denote reed. However, it seems cogent, judging from the uses specified in the text itself, to strictly relate them to sewing, which might, of course, also have implications for the material they were made from.

84. I.e. 4 for 12 den.
85. I.e. 9.
86. Chapter 12,29a. What is the distinction between promisquae (materiae) and alterius (materiae)? It is noteworthy that not only is this distinguished in the Latin fragment, but also both Greek fragments that attest these lines (Aidepsos and Geronthrai) are uniform in using ἐκ διφόρων ξύλων (of different types of wood) in lines 13,2 and 13,4, but ἐξ ἑτέρων ξύλων (of other types of wood) in line 13,6.
and amber pin respectively). The Greek texts do not mention the numbers of items, only the price: 12 *denarii* for 4 bone pins, *i.e.* 3 *denarii* for each, and 4 *denarii* for one tortoise pin.\(^{87}\) But, as Reynolds and Crawford observe: “one would expect a tortoise-shell *acus* to cost more, not less, than one of bone [NB: that was actually cheaper, but only when one knows that the bone pins came as a set of 4]!”\(^{88}\)

With regard to the prices listed in chapter 13 in the fragment from Aidepsos, Doyle notes that the price listed in 13,2, for two κερκίδες, is α…ʹ (1) in this fragment, but that the price λ´ (30) of the Geronthrai fragment makes better sense; the price in line 13,4 for combs of wood other than boxwood is η´ (8) in Aidepsos, but τô´ (14) in Geronthrai; in 13,6, referring to spindles with spools made of wood other than boxwood, he states that again the Aidepsos price, α´ (1), makes no sense, referring to Geronthrai, which has ιε´ (15); in 13,7 the Aidepsos price for a small comb for women made of boxwood is β´ (2), while Geronthrai has ιδ´ (14); in 13,9, referring to the tortoise shell pin, Doyle states that the price δ´ (4) is too low to be credible (also noting that Mommsen & Blümner read κνῆστρον ἰχθύων *i.e.* in the very same Geronthrai fragment)].\(^{89}\)

It should, moreover, be noted that if we leave aside the amber and tortoise shell *acus* whose price cannot be established with any certainty, at least the bone *acus* are approximately equal in price to the needles mentioned in chapter 16. As already stated, the bone *acus* cost 3 *denarii* each and they are sold in sets of 4. This suggests that they are either used in larger numbers or that they are more likely to wear and get disposed of or be lost, a point which is corroborated by the archaeological evidence of bone pins with traces of use. They might have been used, for example, for tapestry weaving, or spinning. The needles in chapter 16 range from 4 *denarii* for a very fine sewing needle (16,12a) to 2 *denarii* apiece for so-called second grade needles (16,13),\(^{90}\) and 2 *denarii* apiece for needles for the sewing of coarser items such as sacks and packsaddles (16,14), necessitating a much stronger needle. Their material is not mentioned, but archaeological finds seem to indicate that they were most likely made of metal.

The most expensive items are pin-beaters, spindles and combs, which might have been related due to their size. The (probably also smaller) bone and tortoise-shell pins come at the end of the list. We have to take into consideration that certain kinds of wood may have been much more precious than commonly assumed in an Empire that spanned desert regions where wood was extremely scarce, but needed for tools of indispensable everyday tasks like textile production.

**Conclusion and further perspectives**

A survey of the textile tools in chapters 16 and 13 of the Edict has yielded the following with regard to terminology: headlines do not always mirror the entirety of items listed below them, as already noted by Doyle. While chapter 16 exclusively deals with needles, as it states in its headline, chapter 13 does not only comprise the pin-beaters of the headline, but goes on to other textile tools and even, in lines 7-10, to items that may be only vaguely related to the above-mentioned tools, because they were made in the same or similar workshops. The texts mention different kinds of textile tools, of which the term *acus* posed the biggest challenge because it was translated differently in the two chapters treated here. In chapter 16 of the Edict where Latin *acus* is translated into Greek as βελόνη, these tools are:

- qualified by function and by quality
- presumably monofunctional
- presumably referring to a pointed (metal?) object with an eye that would fit the definition of a modern "needle"

87. It is a problem that the prices here are all supplemented from the Greek; there are no prices attested in the Latin fragment.
89. Doyle 1976, 91.
90. They are presumably still fine needles, as they follow immediately after line 16,12a.
In chapter 13 of the Edict where Latin *acus* is translated into Greek as κνῆστρον, these tools are:

- qualified by material that varies considerably, even in textile tools
- presumably multifunctional (not merely pin-beaters or hairpins etc.)
- presumably pointed objects without an eye.
- not to be interpreted as scrapers, but rather as scratchers.

The term *acus* in the Edict thus denotes two distinct objects:

- when it corresponds to Greek βελόνη, it can be interpreted as a ‘needle’ in the modern sense, *i.e.* as a pointed pin-like tool made of metal, maybe even with an eye.
- when it is translated into Greek as κνῆστρον, it can be interpreted as a ‘pin’ that might have served different functions depending on its actual use, ranging from female hair adornment, to spindles, distaffs and maybe even tapestry spools.

Looking into texts on the uses of needles, we can state that an *acus* in the sense of Greek βελόνη was used for

- a) sewing and stitching (even repair), and as a needle for a tailor, as indicated by the adjectives in chapter 16 itself;
- b) decorating, probably tapestry, taquête and maybe even embroidery, though the latter technique was much scarcer in antiquity than the first two mentioned.91 There is one passage in the Edict (7,53) where the use of an *acus*/βελόνη is attested to ornate garments, in this case a centuclum, a blanket. The Latin text reads: *C*entuclum primum ornatum ab acu ponderis supra script[1], the Greek text: κέντουκλον πρωτεῖον κεκοσμημένον ἀπὸ βελόνης λ(ιτρῶν) γʹ. The crucial terms are ornatus ab acu/κεκοσμημένον. If the Greek term βελόνη is related to a sharper, needle-like tool as in chapter 16, the technique referred to here might very well have been embroidery and not tapestry weaving. Of course, this assumption rests on a consistent use of βελόνη.

The *acus* in the sense of a pin was probably, if used as a textile tool, rather a spool both for tapestry and taquêêté weaves (*in lieu* of a “shuttle“).92 Famous passages for tapestry weaving use the terms *acus pingere*,93 *e.g.* Ovid in his Metamorphoses where he tells the story of the famous weaver Arachne, who dared to enter into a weaving contest with the goddess Minerva and was turned into a spider:

\begin{quote}
Nec factas solum vestes, spectare iuvabat / tum quoque cum fierent (tantus decor adfuit arti), / sive rudem prinos lanam glom erabat in orbes, / seu digitis subigebat opus repetitaeque longo /vellera mollibat nebulas aequantia tractu, / sive levi teretem versat hab pollice fusum, / seu pinge bat acu: scires a Pallade doctam. (Met. 6, 17-23)
\end{quote}

“And it was a pleasure not alone to see her finished work, but to watch her as she worked; so graceful and deft was she. Whether she was winding the rough yarn into a new ball, or shaping the stuff with her fingers, reaching back to the distaff for more wool, fleecy as a cloud, to draw into long soft threads, or giving a twist with practised thumb to the graceful spindle, or to paint with her acus: you could know that Pallas had taught her.”

This technique is also employed by the plumarii, interpreted as tapestry weavers by Wild and Droß-Krüpe.94 Lucan describes Cleopatra’s splendid palace furnishings as a backdrop to the seduction of Caesar, but does not mention which tools were used to create the stunning effects in the fabric:

\begin{quote}
strata micant, Tyrio quorum pars maxima / fuco / cocta diu virus non uno duxit aeno, /
\end{quote}

91. See also Droß-Krüpe & Paetz gen. Schieck 2014 on terms for and the rare examples of embroidery in antiquity.
93. See also Droß-Krüpe & Paetz gen. Schieck 2014.
The coverlets were shining bright, most had long been steeped in Tyrian dye and took their hue from repeated soakings, while others were decorated in the “feather-technique” with bright gold(-thread), and others blazed with scarlet, as the Egyptian manner is of mingling threads in the web.

The question arises as to why the Latin text used only a single seemingly indistinct term like acus. Future studies may reveal whether we can determine a chronological development in the terminology of acus, and whether we are dealing with a development that was confined to certain areas and only spread because the term was used in an imperial inscription.

Finally, the question of regional linguistic and functional variations of terms in the Edict arises. The Latin texts seemed quite standardized, at least in the fragments discussed, and can with a good degree of probability be traced back to a single document issued by a central imperial authority. The Greek versions, however, might have been subjected to several iterations and deviations, depending on the ability of copyists and engravers who might have misread and misinterpreted the template. Last, but not least, it would be interesting to look further into the question of how language and terminology correspond to the multifunctionality of textile tools in different regions and epochs.

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Listening for *licia*: A Reconsideration of Latin *licia* as Heddle-Leashes

Magdalena Öhrman

The semantic field of Latin *licium* and its plural form *licia* is undoubtedly wide,¹ with the term applied to thread both generally and in specific legal, medical and magical usage as well as in relation to weaving,² and this paper does not aim to survey Latin usage of this term comprehensively. Rather, it focuses on one of the uses of *licia* in Latin literary sources, namely those where *licia* appears to denote heddle-leashes.³ Two much-discussed passages occur in Augustan poetry where *licia* may be used in this sense: Vergil’s *Georgics* 1.285 and Tibullus elegy 1.6.79. Both passages have been subject to considerable discussion in the past, and in both cases, ambiguity still remains. In the case of sources from late Antiquity, such as the fifth appendix to Claudian’s *Carmina minora* and Isidorus’ *Origines* 19.29.7, there is wider agreement that *licia* is indeed used to describe heddle-leashes, but scholars have hesitated to allow such late evidence influence the interpretation of earlier, poetic passages.⁴

The readings proposed below credit Latin authors with greater technical understanding of weaving than has sometimes been assumed, suggesting that their tacit knowledge of textile production has influenced the artistic presentation of their descriptions of such work in ways hitherto little considered.⁵ My readings are heavily influenced by observation of weaving experiments conducted at the Centre for Historical-Archaeological Research and Communication at Lejre by staff from the Centre for Textile Research in Copenhagen and at the Department of Aegean Archaeology in Warsaw, marrying results gained in

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1. The work on this paper was made possible by support from the Welsh Strategic Insight Programme (SIP) and the Pasold Research Fund. I am grateful to colleagues at the University of Wales Trinity Saint David (Lampeter) and the Centre for Textile Research (Copenhagen), who have generously offered feedback on earlier drafts, and to colleagues who have enabled me to observe and make sound recordings during ongoing weaving experiments: my thanks especially to Eva Andersson Strand, Ida Demant, Marie-Louise Nosch, Anna Rosa Tricomi, and Agata Ulanowska. I am also much indebted to Gerassimos Bissas for the drawings illustrating technical details.
2. OLD s.v. *licium*; ThLL s.v. *licium*.
3. This has implicit connections with the interpretation of other passages, where *licium* or related words potentially refer to types of cloth woven with multiple heddle-rods, e.g., Luc. 10.26; Plin. *NH* 8.196. Cf. Walbank 1940, 101-104.
5. The notion of correlation between work processes of textile production, particularly weaving, and literary expression and form has received more attention in relation to Greek texts. Key investigations touching on sound-play, metre and weaving are Nosch 2014; Tuck 2006; Tuck 2009.
experimental archaeology to philological analysis. I will show that analysis of the rhythm and sound-play of the relevant passages suggests that even relatively short passages in literary sources carefully and knowledgeably reflect (parts of) historical working processes; this is, as I will indicate, true of early and late sources alike.

Tibullus’ elegies make a particularly obvious starting point for exploring the usefulness of such a methodology, as Tibullus himself explicitly mentions the sounds created by weaving in Tib. 2.1.65-66. There, clay loom weights⁶ are said to sing as they clink and clatter during weaving:

\[ \text{hinc et femineus labor est, hinc pensa colusque,} \\
\text{fusus et adposito pollice uersat opus:} \\
\text{atque aliquu adsiduae textrix operata mineruae} \\
\text{cantat, et a pulso tela sonat latere.} \]

“Hence [from the countryside] also comes the woman’s work, hence the daily allotment of wool and the distaff, and hence the weaver singing as she busies herself with constant craft, and hence it is that the loom sings as the loom weights are struck [together].”

The assumption that Tibullus would seek to mimic such sounds in his own descriptions of weaving is readily made. If we also assume that there is a level of accuracy in such literary mimicking of sounds occurring while weaving, we gain another tool to assist us in determining the passage-specific meaning of a multi-purpose textile term such as licium. It is the purpose of this paper to test the usefulness of this methodological approach. As we might expect literary and stylistic artifice of this type to occur more frequently and in a more pronounced way in poetic texts, my discussion focuses on three passages: the fifth appendix to Claudian’s Carmina Minora, Vergil’s Georgics, and Tibullus’ elegy 1.6.

**Hedding and its soundscape**

Interpretations of Verg. Georg. 1.285-286 and Tib. 1.6.79 have centred on two different elements of setting up a weave on a warp-weighted loom: affixing warp-threads to the loom frame and hedding, that is, organising already-suspended warp-threads in alternating sequences so that the weaver can change between a natural and at least one artificial shed.⁷ A brief consideration of what these work elements involve, and their relative complexity, is necessary before investigating whether one or the other better corresponds to the context and sound-play present in the selected texts.

On the warp-weighted loom (such as explicitly mentioned in Tibullus but likely the type of loom referred to in all three passages under consideration),⁸ warp-threads were affixed to the loom frame by means of being interwoven into a starting border (from which the warp-threads emerge), which is sewn onto the cloth-beam of the loom frame.⁹ While the preparation of the starting border itself is a multi-step operation requiring both technical skill and experience in calculating how much warp will be required for the desired weave and what density of warp-threads is required,¹⁰ the task of fastening the starting border to the cloth-beam is relatively uncomplicated.

Loom weights would, in most cases, be attached to the warp-threads only in a subsequent step, once the starting border was fastened and the warp-threads hanging vertically.

Whether done on a warp-weighted loom or on a vertical two-beam loom, heddling is one of the most difficult elements of preparing a weave. On the warp-weighted loom, it is done with the warp suspended from the cloth-beam and loom weights attached to its bottom end. In a tabby, the warp is divided into two parts, hung either in front of or behind a low-set bar (shed-rod) crossing the loom frame. The opening thus created between front and back layer of warp-threads is the natural shed. A detachable and higher-set heddle-rod is used to create one or more artificial sheds as loops or leashes are made to connect the warp-threads suspended behind the shed-rod, so that these can be pulled forward through the front-most part of the warp, thus creating a new opening between the two parts of the warp. Interestingly, this is the element of preparing and setting up the warp that has the most influence on what type or pattern of weave will be created; more complex weaves, such as diamond twill, require detailed planning and considerable attention in order to achieve the correct sequencing of warp-threads. Even for a tabby weave, some care is needed when separating warp threads and selecting which ones need to be tied to the heddle-rod; any mistakes or imprecisions will be visible as irregularities in the woven cloth.\footnote{Hoffmann 1964, 163. Cf. Wild 1970, 64. For the impact of the arrangement of heddles in relation to the width of the warp, cf. Mårtensson, Nosch, and Strand 2009, 386.}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure1.png}
\caption{Detail of the heddling process: Heddle leashes are looped around individual warp-threads and attached to the heddle-rod. Drawing by Gerassimos Bissas.}
\end{figure}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure2.png}
\caption{Detail of weaving on the warp-weighted loom in progress: Heddles attached to the heddle-rod pull warp-threads forward towards the weaver to create the artificial shed opening. Drawing by Gerassimos Bissas.}
\end{figure}
17. A Reconsideration of Latin licia as Heddle-Leashes

Two differences relevant to my discussion of individual text passages below emerge: firstly, I argue that heddling is by far the more complex operation and more likely to be experienced as a demanding work element with a risk of errors. Secondly, we may assume a distinct difference in the sound created by these processes: clattering of loom weights would be a regular feature of the heddling process, but only when the starting border is sewn onto the loom.

Claud. Carm. Min. App. 5.45 (also known as Epithalamium Laurentii)

The Epithalamium Laurentii contains an eight-line long description of the bride’s female virtues illustrated through her knowledge of textile work: fibre preparation and spinning (5.41-43) and weaving (5.44-48). The passage is complex both syntactically and through its use of specialised terminology. Much more could be said about this passage and its use of textile terminology; I will limit myself to comments on 5.45. There is reasonable scholarly consensus that licium is used to denote heddle-leashes. Other sources from the same period provide good parallels for this usage.

compositas tenui suspendis stamine telas, quas cum multiplici frenarint licia gressu traxeris et digitis cum mollia fila gemellis serica Arachneo densentur pectine texta subtilisque seges radio stridente resultat.

“You suspend with fine thread the prepared warp, and when, as the leashes hold it in multiple course, you have pulled the fine thread [through it] with twin fingers, then the silken weave is pressed together with a wool-comb like Arachne’s and subtle fruit arises from the whistling rod.”

The use of freno (lit. ‘bridle’) to describe the function of the licia is highly appropriate given how heddle leashes are looped around individual warp-threads and direct them to move forward or fall back when the heddle-rod is moved. This is similar to how a rider may control the movement of a horse by means of bit, bridle, and reins. The equestrian metaphor is integral to the line: multiplici gressu, here describing alternations of the weaving shed and the shift between natural and artificial shed(s), is used elsewhere for types of gait, step or tread. Once the new shed has been opened, the weaver pulls the weft-thread through the warp (traxeris mollia fila, 46). This passage,

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12. The Epithalamium Laurentii is transmitted with Claudian’s Carmina minora but in all likelihood written by a different author. Dating suggestions range from the 4th to the 6th century AD; the poem appears to have been known and cited in the 7th century AD. Cf. Horstmann 2004, 251-289 with extensive bibliography.

13. Previously, suspendis compositas telas has been taken as reference to the fixing of the warp to the cloth-beam (Walbank 1940, 98 n. 1, but cf. also Horstmann 2004, 266 with the rather peculiar translation of “hängst du die entworfenen Gewebe an den zarten Grundfäden (des Webstuhls) [i.e. stamine tenus] auf”)). I suspect suspendis compositas telas could, perhaps, also be seen as referring to the fixing of the heddle leashes to the heddle-rod, as this involves a lifting movement and results in the warp-thread being suspended between their natural position and the heddle-rod, but there is no need to press this interpretation here. Similarly, the distinction between pecten and radius in 5.46-47 would merit further discussion.


15. Serv. Andr. 911; Isid. Orig. 19.29.7 5. In Ennod. Carm. 2.2.8, licia is used in a transferred sense which presupposes that the word can be used to describe heddle-leashes.

therefore, differs from Verg. *Georg.* 1.285-286 and Tib. 1.6.79 (discussed in detail below) in that it does not only describe the setting up of the weave but also includes the weaving itself.

The sound-play of the line I am concerned with here corresponds well to sounds produced when changing the shed.\(^{17}\) The lifting and replacing of the heddle-rod against the loom frame makes a distinct clattering noise. The movement of the warp generates a clattering of the loom weights, which may be repeated if the weaver needs to touch the warp-threads either by hand or by means of a tool in order to adjust the new opening of the shed. This is mirrored in 5.45 (describing this element of work) by a series of harsh, consonant sounds clustered in two groups, falling in either half of the line: *quās cūm multiplicē* frēnārīnt liciā grēssū (which, when the leashes hold it in multiple course…). The initial spondee (*quās cūm*) illustrates the deliberate clunking noise of the heddle-rod being moved, whereas the dactylic *multiplicē* resembles the smaller, clattering sounds of individual loom-weights both in terms of rhythm and in terms of sound. The weaver’s pause to test the shed by hand is mirrored in the two spondees taking up the middle of the line (*-īfrēnārīnt*). It is tempting to assume that the r-sounds clustered in this part of the line mimic minute sounds of warp-fibres being pulled apart, with the final dactyl and k-sound of *licia* mirroring the sounds made as the loom weights fall into their proper place.\(^{18}\)

I argue that in this passage, sound-play, metre, and metaphors contribute to the artistic-literary representation of weaving, adding a perhaps surprising level of accuracy. If one accepts that the author of the epithalamium incorporates the soundscape of weaving into his poetic description, one must also assume that he had some familiarity with weaving, having seen and heard weavers at work in some setting, whether domestic or commercial. This makes his use of a technical term such as *licium* for ‘heddle-leash’ all the more plausible.

**Vergil Georg. 1.285-286**

At the centre of the discussion on whether *licium* denotes heddle leashes in earlier Latin stands Vergil’s mention of the setting up of a loom in the first book of the *Georgics* (Verg. *Georg.* 1.285). Just like Hesiod, Vergil mentions the start of a weaving project in the context of a list of days favourable for different activities:

> septima post decimam felix et ponere uitem et prensos domitare boues et licia telae addere. [...]

> “The seventeenth day is lucky both for setting a vine, roping and breaking steers, and for fixing the heddle-leashes on a loom.”

The three activities mentioned here (planting a vine, breaking in steers, and – as I hope to show – heddling) all represent the start of long-term tasks important to the agricultural economy. Interestingly, the line, which first mentions *licia*, involves an increased emphasis on the challenges associated with the very start of such work: the oxen need to be reined in (*prensos*) before they can be broken in (*domitare*) and subsequently trained to perform their task. It is worth noting that *prensos* derives from *preno*, the *intensivum* of the more commonly used *prehendo* (seize, take hold of).\(^{19}\) The choice of an *intensivum* stresses the

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17. Though a late and difficult to date text, the use of quantitative verse and high degree of syntactic complexity indicates that the *Epithalamium* has a generally conservative linguistic preference, which may well extend to pronunciation. I therefore tentatively assume a pronunciation of *licium* without palatalization, *i.e.*, with a k- rather than a ts-sound for “ci”, although the latter is otherwise frequently attested in (often non-literary) contexts from the 5th century AD onwards, Clackson and Horrocks 2007, 274. Cf. Adams 2011, 273-274 and Clackson and Horrocks 2007, 294-295 on texts continuing to aspire to standardised Latin when writing highly literary texts.

18. Even assuming a pronunciation where palatalization has taken place, the harsher, clunking sounds of *quās* and *cūm* remain in the first half of the line, mirrored in the second half by the g- of *gressu*, and correspond to the sound of the movement of heddle-rod and loom-weights subsequently falling back into place. The potential ts-sounds in *multiplicē* and *licia* may then be taken, like *frēnārīnt*, to mimic the minute sounds arising when the weaver adjusts warp-threads by hand.

difficulty of even this initial element. I will explore
below whether the phrase \textit{licia telae / addere} may be
thought to increase this emphasis, thus creating a cli-
mactic tricolon.

In a widely influential article, Walbank argues that
Vergil is using \textit{licia} as meaning ‘warp’ in this pas-
sage.\footnote{Wild 1967; Mynors 1969; Maltby 1999; Maltby 2002 all build on Walbank’s interpretations.} Walbank’s argument is based on a perceived
need to understand \textit{tela} as ‘warp’ in order to ac-
commodate the specific meaning of \textit{licia} as ‘heddle
leashes.’ Finding only few parallels for such a use of \textit{tela}, Walbank instead prefers to take \textit{telae} in \textit{Georg. 1.285} as referring to the loom itself and \textit{licia} as warp-
threads.\footnote{Walbank 1940, 95-96.} He proposes the following translation of the phrase \textit{licia telae / addere}: “to attach the warp-threads
to the loom”.\footnote{Thomson 1988, 117 does suggest the translation “to put loops on the warp”.}

While I agree that \textit{tela} may refer to the loom rather
than the warp, I find Walbank’s reading of \textit{licia} as ‘warp-threads’ problematic for two reasons: first, be-
cause there is no absolute need to understand \textit{tela} as
warp in order to be able to translate \textit{licia} with ‘heddle-
leashes’ here.\footnote{The use of the general ‘loom’ (\textit{telae}) would be easily understood as a synecdoche, referring to the whole of the loom instead of specifically to the heddle-rod.} The well-paralleled use of \textit{tela} as ‘loom’ fits equally well. As I have indicated above, heddle-leashes are looped around the warp-threads but
fixed to the heddle-rod before weaving begins. To the
weaver, the heddle-rod is an integral – if detachable –
part of the loom, without which mechanised weaving
is not possible.\footnote{Cf. Ciszuk and Hammarlund 2008, 122.} Furthermore, the heddle-rod may be
perceived as an integral part of the loom also because it
does not need to be changed or altered as a different
weave is mounted, whereas the heddle leashes are tied
specifically for each, individual set-up.\footnote{Maltby 1999, 243 on Tib. 1.6.79 also appears to overlook the element of hedding in preparing a weave, stating that “[attaching the warp-threads to the cloth-beam] was the first task of the weaver before beginning the actual weaving process by passing the hori-
zontal weft-threads through them by means of the shuttle.”}

The second reason for rejecting the reading sug-
gested by Walbank is that it does not fully take into
account the importance of hedding as an initial,
complex element of setting up a weave. Instead, Wal-
bank’s reading places an unwarranted emphasis of the relatively straight-forward procedure of fastening the
warp-threads to the cloth-beam.\footnote{Cf. e.g., Wild 2009, 471-472.} Here, Walbank appears
to overlook that an ancient weaver would use a
starting-border to organise the warp on the cloth-
beam.\footnote{For \textit{exorior} and \textit{exordium} as referring to a starting-border, cf. \textit{ThLL} s.v. \textit{exordium} IA1 and (e.g.) Paul. Fest. p. 185 and Non. p. 30.32.} This becomes clear as he states that the tech-

ical term “\textit{exordiri} (or \textit{ordiri}) signifies to fasten the
warp-threads to the loom, that is to attach to the beam
at the top of the loom the separate threads of the warp
[...].” [My italics].\footnote{Admittedly, handling individual warp-threads in this manner would make the fixing of
warp to the loom a more painstaking task (and more
suitable to be singled out in literary representation),
but it does not correlate with what we do know of an-
cient weaving practice as far as the warp-weighted
loom is concerned.} Such a reading also overlooks the fact that mis-
takes in the hedding will have effects throughout the
weave. This impact of hedding on the appearance
of the finished piece of cloth makes it all the more
likely that one would consider undertaking this task
on a beneficial day of the month, in the way that Ver-
gil recommends.

If one accepts that \textit{licia telae / addere} in \textit{Verg. Georg. 1.285-286} does indeed refer to the prepara-
tion of heddle-leashes, it remains to be seen whether sound-play or metre can be used to support such an
interpretation in a way similar to what I have argued
for in the case of the \textit{Epithalamium Laurentii} (Claud.
is admittedly considerably shorter than the other pas-
sages I discuss in this paper and thus leaves less room
for such poetic artistry to come to the fore. However,
two points merit attention: first, this passage, too, is rich in consonant sounds: c, t, and d. Secondly, the description of heddling is divided into two parts, taking up the two final, metrical feet of 1.285 and the initial foot of 1.286. Enjambment, i.e. the division of a syntactical unit over two or more verses, is by no means uncommon in Vergil, but here, it matches and vocalises the content of the lines concerned in an interesting way. The k-sound of licia and the initial t of telae in 1.285 might resemble the tinkling of loom weights as the leashes are fastened. As the hexameter line ends, a pause ensues. Then follows the dull thunk created through the d- and r-sounds in ad-dere, stressed through the word’s initial position. It is tempting to consider this as an auditory representation of the weaver’s first shed-change as weaving begins.

**Tib. 1.6.79**

The final passage to consider is Tib. 1.6.79 and its snap-shot portrait of an elderly, female textile worker. The interpretation of this passage has been significantly influenced by Walbank’s analysis of Verg. *Georg.* 1.285f and by his comments on Tibullus' use of licium in the sense of warp’ in the same article.29 Having previously rejected the use of tela for ‘warp’,30 Walbank argues that Tibullus, too, uses it in reference to the loom itself.31 As in the case of Vergil’s passage, however, this does not preclude the use of licia for ‘heddle-leashes’ as these are in fact tied to the loom, albeit to the heddle-rod, one of the loom’s detachable parts. I will propose a simpler reading, where licia is taken as ‘heddle-leashes’.32 Once more, I draw on analysis of metre and sound-play in the text to support this reading.

In order to deter the narrator’s beloved from infidelity, Tib 1.6.77-80 describes the hard work to which a – now penniless and elderly – faithless woman must recourse to support herself. Commentators have viewed the passage as reflecting three steps of cloth production: first, spinning (78), second, weaving (79), and finally, scouring of wool (80).33

> at quae fida fuit nulli, post uiicta senecta
ducit inops tremula stamina torta manu
firmaque conductis adnectit licia telis
tractaque de niueo uellere ducta putat.

“But she who was faithful to none, once overcome with age and destitute, draws out the twisted threads with trembling hand, and ties firm leashes to a rented loom, and she scours the teased wool pulled from snow-white fleeces.”

29. Walbank 1940, 97-98 and 101. Walbank’s reasoning has been followed by Maltby both in his recent commentary on Tibullus (cf. Maltby 2002, 278) and in an earlier article dealing specifically with technical language in Tibullus, Maltby 1999. The *ThLL* also follows Walbank’s classification of Verg. *Georg.* 1.285f and Tib. 1.6.79.

30. Walbank 1940, 101 rejects the use of tela for warp and licia for heddle-leashes in Tib. 1.6.79 specifically.

31. Walbank 1940, 97-98 furthermore understands the participle construction conductis telis (Tib. 1.6.79) as a reference to the loom having been assembled and thus ready for the warp to be attached to the cloth-beam. To my mind, it is preferable to understand the phrase as referring to a rented loom (cf. Flower Smith 1964, 322; Maltby 2002, 278, thus connecting to the motif of poverty-stricken old age.

32. This parallels the translation given by Postgate in the 1912 Loeb edition, Cornish, Postgate, and Mackail 1912. Cf. also Thomson 1988, 117.

thinking it far whiter than it is.34 At the same time, the text holds out another possible understanding of the final line, drawing on Tibullus’ specific use of technical terminology in the previous part of this warning example, which I will now examine in detail.

Throughout, the sound-play of the passage enhances the depiction of craft processes. We are invited to dwell on the trembling grip (tremula manu) of the old woman on the spindle by the placement of the ablative tremulā just before the diairesis in the pentameter line (78). The pause created by the diairesis furthermore corresponds to the careful pulling-out of wool from globule or distaff prior to the twisting of the spindle mentioned in the second half of the line. Despite the mention of her hands trembling, the organisation of the second half of the line nonetheless betrays the woman’s skill at her work with a pair of quick dactyls (stāminā tōrtā mānu). Thus, Tibullus successfully marries the typical design of the pentameter line, which, like here, normally has a dactyl in the penultimate foot, with the working rhythm of the spinner described in this line.35

Similarly, it is the skill of the old woman as a weaver that comes to the fore in the following line. On her rented loom, she fastens licia firma, i.e., heddle-leashes that are consistent and strong, and will therefore allow her to produce an even weave. Syntactically, firma most likely describes the licia used, but its initial placement, in parallel to the two previous lines, both opening with their focus on the old woman as the sentence’s subject, also allows its connotations to be attached to the woman herself.

The clattering of the loom weights, occurring as the warp-threads distending them are pulled back and forth to be bound by leashes to the heddle-rod, is represented series of k- and kt-sounds spread across the whole line: firmaque conductis adnectit licia telis. The metrical pattern of the line, too, mirrors the working rhythm of someone heddling: a quick reach into the warp for the correct thread is represented by an initial dactyl (firmaque), the slower work element of looping the thread used to create leashes around the heddle-rod and the selected warp-thread is described in three spondees filling the middle section of the line (conductis adnectit). When the leash is finished and the warp-thread, now held in sequence by the leash, is allowed to fall back and rest in its place, this is illustrated by a dactyl (licia) followed by a final spondee (telis) at the end of the line.

firmaque conductis | adnectit licia telis

As highlighted above, the most specific element of the process, the tying of the leash, is emphasised due to its position immediately following the penthemeral caesura.

In a return to the initial stages of preparing wool for spinning and weaving, the following line deals with scouring wool. Maltby explains this by suggesting that the woman is involved only with preparatory tasks, rather than with completing the weave, in order to show clearly her status as hired help rather than a mistress of her own house.36 Here, the distribution of content across the line is perhaps more illustrative of working processes than the sound-play used. A key element of cleaning wool would be to pull it gently apart in order to attempt to shake out dirt and plant matter stuck in the fleece, either by hand or by combing.37 The light-handedness necessary for this procedure may have an expression in the fast pace of the line, which contains the maximum number of dactyls permissible in the pentameter. The text hints at such

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34. For the old woman as able to “exert control only over the loom”, cf. Lee-Stecum 1998, 202. Throughout the passage, Tibullus taps into elegiac descriptions of old women as hags or witches, horror images of what the elegiac mistress herself might become in old age, when she can no longer rely on her beauty to support her desired lifestyle. The implied loss of eyesight affecting the old weaver is particularly relevant as the elegists frequently connect the puella’s ability to attract and manipulate her lover(s) with her eyes and gaze. The importance of eyesight and the gaze as a means of communication between lovers in elegy – or indeed a means for the elegiac beloved to exert control – is programmatically stated in Propertius’ first poem: Cynthia prima suis miserum me cepit ocellis (Prop. 1.1.1), e.g. Fredrick 2014. Cf. on old women in elegy, James 2003, 53-65, also Richlin 2014, 73-74.

35. The placement of the reference to the twisting of the spindle and thread in the second and fastest half of the pentameter line is paralleled in Tib. 2.1.64. Cf. Maltby 1999, 243.

36. Maltby 1999, 244.

37. Varro Rust. 2.2.18 distinguishes between washing of the wool (lavare) and cleaning it by hand (putare). Cf. also Col. 12.3.6.
a pulling motion by placing the word used for wool (tracta) at the opening of the line and the participle agreeing with it in the penultimate position (ducta). Through this hyperbaton, the wool is literally pulled apart over the length of the line. Finally, putat (she scours) stands at the end of the line, illustrating the completion of the work element.

Conclusion

Based on the textual interpretations presented above, I argue for taking licium in Verg. Georg. 1.285 and Tib. 1.6.79 as referring to heddle-leashes used on the warp-weighted loom. I hope to have shown that an understanding of the reconstruction of ancient textile production processes, such as heddling, may contribute to an improved interpretation of Latin textile terminology used as well as a more firmly contextualised appreciation of the passages themselves.

Drawing on results from experimental archaeology, I also argue that the use of sound-play and rhythm may be fully integrated in the stylistic expression of poetic descriptions of textile work. Examination of such features is of course subject to some limitations: our appreciation of the niceties of quantitative poetry is likely to be less finely honed than that of the ancient audience, and, as noted in the discussion of the Epithalamium Laurentii above, Latin pronunciation changes substantially over time, at a pace and in a fashion not always easy to pinpoint conclusively.

Given the tendency of Latin towards multi-purpose technical terms, however, I would suggest that such readings may prove fruitful. It appears that, at least in some cases, analysis of such sound-play, in combination with more traditional philological methodologies, can help determine specific usages of multi-purpose textile terms such as licium.

Bibliography


38. Interestingly, such artistic integration of sound-mimicking of textile work processes in poetry suggests a surprising tacit understanding of at least some aspects of textile production on the part of Latin poets, something which in turn may contribute to our understanding of the spread and localisation of textile production in Roman society.


Textile Terminology in Old High German between Inherited and Loan Words

Roland Schuhmann

A particular language consists of course not only of words inherited from its respective parent language but contains also a certain amount of loan words (however, this amount differs depending on the respective language). This universal principle then also holds true for the speakers of the Germanic languages. The vocabulary of the Germanic languages includes not only the lexicon inherited from Proto-Indo-European but a range of languages later on heavily influenced it. In the times before the documentation of the Germanic languages, the two most important sources that influenced the Germanic lexicon were Celtic and (prolonged) Latin. Influence in the lexicon is found in nearly every part of the daily life vocabulary, ranging from words for food and beverages via commercial products to Christian terminology. These borrowings of words in the most cases took place together with the objects or concepts themselves. The research paradigm that investigates these kinds of correlations between words and the underlying objects or concepts is best summarized under the term ‘Wörter und Sachen’.

One of the fields, where (due to e.g. new techniques, materials, temporary fashions) a priori a high amount of borrowings of objects (and concepts) is to be expected, is the lexical field of textiles and the terminology used for textile production. A detailed analysis of the vocabulary used for textiles and the techniques in the older Germanic languages is largely missing. In the following, a survey of the vocabulary that denotes textiles in the Old High German language will be carried out in order to answer the following questions:

1. It is not the place here to discuss if there was also an influence on the Germanic lexicon by one (or more) unknown substrate language as often is suggested. According to the advocators, about one third of the Germanic lexicon is of non-Indo-European origin and therefore stems from one (or more) substrate language (cp. the examples given in Vennemann 2003, 1-7).
2. Exceptions are words like Old High German *koufo* ‘merchant, trader’, Old English *cēpa*, *cēpa* ‘merchant’, Old Icelandic *kaupi* ‘buyer, customer’, Runic Swedish (personal name) *Kaubi*, Old Swedish (personal name) *Køpe* borrowed from Latin *caupō* ‘publican’ (cp. *EWA* 5, 727). Of course, merchants were known in the Germanic world.
4. An exception is the outdated volume three of Heyne 1899-1908. Recently Hofmann 2013 published a study on the Old Frisian textile vocabulary.
• What is the proportion between inherited and borrowed terms for clothes and fabric in Old High German and in which areas are the respective groups mostly concentrated?
• In what time can the highest influence be found and from which origin is this influence?
• In what lexical fields are the loanwords found?
• Can the integration of different loanwords in Old High German be determined?
• Are there examples of several inherited and borrowed words for the same concepts and how do they compete?

Working steps

In order to answer the aforementioned questions, it was necessary to go through the Old High German dictionaries because specialised lists that comprise the terms denoting textiles (both the underlying material and the final products) do not exist. Since a sufficiently large word group was needed for this investigation, a fairly wide textile concept was applied, including the materials and all objects that could have been made out of them. However, some types of words were not included: Neither verbal expressions for the material production or fabrication were taken in (like nāen ‘to sew’), nor were adjectives derived from attested nouns (like filzīn ‘felt…’ to filz ‘felt’); in contrast, a word like bissīn ‘linen’ was integrated in the list because no underlying noun is present. This resulted in a list of in total 511 words denoting textile material and their potential products. Included in this list were thus also products that could have been made out of textile material although that is not in every case clear (like hūgurtīl ‘purse’ or būtil ‘bag, purse’ – they could of course also have been made out of leather or another material). They were taken in because in most cases a deepgoing semantic analysis is not possible for the simple fact that many words are transmitted in glosses, thus without any further Old High German context. To state it clearly, the very detailed semantic analyses found in, e.g., *Althochdeutsches Wörterbuch* are in fact based less on the information that can be extracted from the Old High German words and their context. Rather they rely more on the analyses of the underlying Latin words they translate. Their inclusion into the list of textile words was even more unproblematic, because in the end they did not seem to change the overall picture.

This unstructured, merely alphabetical list was afterwards sorted according to different aspects that were relevant for this study: inherited versus loanwords, first occurrence of the single words, semantic fields and derivational affiliations.

Difficulties in determining borrowed words

In this list of 511 words, 154 potential loanwords can be detected, which would result in a proportion of 30.1% of loanwords in the textile terminology of Old High German. However, the exact determination of what is a loanword is not exactly easy. Obviously words like humeraile ‘humeral veil’, kussi ‘cushion, pillow’, purpura ‘purple (robe)’ or tunihha ‘tunic, garment’ can without any further problems be classified as loanwords but there are more difficult cases, cp. e.g. the following three examples:

a. Old High German kozzo ‘blanket, dress, skirt, coat, cowl’ has its only counterpart in Old Saxon kott (also Latin-Old Saxon cottus, cottis), seemingly continuing a Proto-Germanic *kutta(n)-. Old French cot(t)e, Old Provençal cota ‘small garment with sleeves’ are often thought to be borrowed from an unattested Old Dutch *kotto that is assumed to be also the basis of Middle Latin cottus ‘cloak, coat’. However, it cannot be ruled out that the Germanic words are borrowed from Middle Latin cottus ‘cloak, coat’. In this list of 511 words, 154 potential loanwords can be detected, which would result in a proportion of 30.1% of loanwords in the textile terminology of Old High German. However, the exact determination of what is a loanword is not exactly easy. Obviously words like humeraile ‘humeral veil’, kussi ‘cushion, pillow’, purpura ‘purple (robe)’ or tunihha ‘tunic, garment’ can without any further problems be classified as loanwords but there are more difficult cases, cp. e.g. the following three examples:

b. Old High German līn ‘linen garmen, wick’ has counterparts in all Germanic languages, cp. Runic *liina-, Gothic lein, Old Saxon, Old English līn, Old Dutch, Old Frisian līn-, Old Icelandic liin, continuing Proto-Germanic *läina- ‘wick’. From Germanic the word was apparently already quite early borrowed into the Finnic languages as liina.

5. For that purpose the following dictionaries were used: Schützeichel 2012; Köbler 1993; Splitt 1993.
A comparable form is found in Latin *līnum* and Old Irish *lin* ‘flax, wick’. Besides these forms with a long stem vowel also words with a short stem vowel are found having the same meaning: Greek Mycenaean *ri-no-*/*lino-/, Greek *līvov*, Old Church Slavonic *līnъ* (deduced from the adjective *līněnъ*), Lithuanian *līnaĩ*, Latvian *līnī* and Old Prussian *lylno*. These words reflect the ablauting forms Proto-Indo-European *leyno-* and *līno-*. It is sure that the Albanian word *lî* was borrowed from Latin. However, it is unclear whether the Celtic and the Germanic words also represent borrowings from Latin, as it is often assumed based on general historico-cultural reasons. From a purely linguistic point of view, this matter must rest undecided, even more because the cultivation of flax reaches back into the Neolithic.


Inherited vs. borrowed words

This uncertainty in determining what is a loanword and what can be a loanword should be kept in mind when answering the question of the distribution of loanwords through time. For this analysis, the Old High German period was divided into the respective centuries. It should be noted that only the first attestation of a word was taken into account as being relevant. That means that when a word has two or more attestations, only the first one is counted. The others are neglected. This is done for each word, regardless if it is inherited or borrowed. However, every lexicographer is listed. So, when for example *mantal* occurs for the first time in the 11th century and the compound *fehmantel* ‘coat’ in the 13th century, of course both are listed separately.

It is perhaps important to say something about the later centuries mentioned here. It is true that according to the standard view – which is not doubted here – Middle High German displaces Old High German somewhat in the midst of the 11th century. Therefore, in fact it would be necessary to stop at that time. However, there is a lot of Old High German or better Old High German like material from later times, namely material consisting out of copies from older material or manuscripts that are assumed to stand in an Old High German tradition. Of course, this means that a part of the later material is overlapping with words also found in Middle High German.

The results of this analysis are displayed in Table 1. Of course, the percentage in the last line must be taken with a pinch of salt. Nevertheless, an increase through the centuries can definitely be detected. This tendency is also confirmed by what is known from Middle High German; here quite an enormous influence from Old and Middle French can be seen.

Donor language(s) of the loanwords

If these three examples would turn out to be inherited words and not loanwords, the overall numbers would be decreasing dramatically because of the derivations of these three words. In this case there would be a total number of one hundred and twenty-one loanwords, so a percentage of 23.7%.
The question of the donor language or languages on the Old High German textile terminology can be answered quite easily. Only two can be identified: on the one hand Latin (ranging from Classical Latin via Vulgar to Middle Latin), and on the other hand Old French. In the vocabulary for textiles and their products, no Slavonic words can be detected, differing for example from the lexical field of animal skin processing. In this field Old High German *kursin(na)*, *krusina* ‘coat made of pelt’ is found from the end of the 10th century (cp. also Old Saxon *kursina*, Middle Low German *körsen[e]*, Middle Dutch *corsene*, Old Frisian *kersne*, Old English *crūs[e]ne*). It was borrowed from Proto-Slavic *kъrzьno* ‘coat made of pelt’ (continued e.g. in Old Russian *кързьно*).12

From Classical Latin comes for example the words *līn* ‘linen garment, wick’ (if it is really borrowed from Latin *līnum*), *pfelluvi* ‘pillow’ from *pulvīnus* ‘little cushion, small pillow’ or *pflūmāri* ‘weaver of damask’ from *plūmārius* ‘id.’. From Vulgar Latin words like *oral* ‘cloth’ and *orare* ‘veil’ were derived. The Middle Latin influence is the strongest during the Old High German period. One example may suffice here: the word Old High German *kugulla* ‘hood, cowl’ was borrowed from Middle Latin *cuculla* ‘id.’. In Middle Latin the feminine form nearly completely replaced the older, Classical Latin, masculine form *cucullus* ‘id.’. This replacement can be seen in the Romance languages too, where the masculine form *cucullus* is only continued in Italian *cocollo*, Sardinian *cucudhu*, *cugudhu*13 and Rumanian *cucuiu*, whereas continuants of the feminine *cuculla* are far more widespread, cp. Italian *cocollo*, French *coule*, Provençal *cogulla*, Spanish *cogulla* and Portuguese *cogula*. The Middle Latin feminine form is also underlying the loans in the other Germanic languages, cp. Old Saxon *kugula*, Middle Dutch *kogele* and Old English *kugele*.14

The Old French influence on Old High German starts in the 11th century and is found in only three loanwords, namely in *bōnit* ‘tiara, diadem’ from Old French *bon(n)et* ‘material for headgears’, in *kussīn* ‘cushion’ borrowed from Old French *co(i)ssin* ‘id.’ and in *zindāl* ‘silk’ coming from Old French *cendal* ‘id.’.

So apparently textile terminology entered the Old High German language area only from the West and perhaps South.

**Semantic fields of the loanwords**

The semantic fields of the Old High German loanwords concerning textile terminologies are in some parts well defined:

1. A first group represents specific materials and the products made out of them. It comprises words like *bambas* ‘cotton dress’, *bissīn* ‘linen’, *bokkerat* ‘rough linen’, *bōnit* ‘tiara, diadem’, *līn* ‘linen garment, wick’, *pfelli* and *pfellōl* ‘garment made of silk’, *pflūmlīh* ‘brocaded’, *polomid* ‘colourful garment made of damask’, *purpura* ‘purple (robe)’, *saban*, *sabano* and *sabo* ‘cloth, linen, linen-cloth’, *serih* ‘silk’, *sīda* ‘silk’, *zindāl* ‘silk’.

2. A second group comes from the special clothes worn by clerics. In this category fall amongst others: *alba* ‘alb, cassock, headband’, *fezitraga* ‘altar-cloth’, *finkūn* ‘monk’s shoes’, *humerāl* and *humerāle* ‘humeral veil’, *kasul* ‘chasuble’, *rāginna* and *rezina* ‘garment of a monk’, *stōla* ‘priestly stole’, *umbrāl* ‘humeral veil’, *zistella* ‘pilgrim’s bag’.

13. The Sardinian words were kindly pointed out to me by Dr. Salvatore Gaspa.
3. A third group covers the semantic field of cushions. This group comprises in fact only two words, namely kussīn and pfuluwi. These two will be treated into more detail below.


Finally, some words remain that do not fall into a homogenous category.

**Integration of the loanwords**

The question how well loanwords in the lexical field of textiles were integrated in Old High German cannot be answered on the basis of which words prolonged in Middle or even New High German because this procedure would lead to wrong results. Cp. e.g. a case like Old High German armilo ‘sleeve, fetter’ that was not a productive word but survived into German.\(^{15}\) In the following, the adopted approach will rather rely on the productivity in Old High German itself. In other words, the answer to the question of how ‘alive’ loanwords in the language were, is based on derivational patterns and the possibility to be chosen as parts of compounds.

For comparison the group around inherited Old High German wāt ‘garment’ can be taken. From wāt two derivations do exist, namele girwāti and the as a simplex unattested *wāti. Whereas wāt itself is only attested as a simplex, the derivation *wāti is attested in three compounds: bēttiwātā, dingwāti and līnwāti.

The attested simplex girwāti is even attested in eight compounds: beingwāti, bēttiwigwāti, dinggīwāti, ingiwigwāti, mūzgiwigwāti, sidgiwigwāti, wantalgiwigwāti and wībgwāti. So all in all, the wordgroup around Old High German wāt seems to be quite productive.

Under the loanwords for textiles there are of course several that under this definition were not integrated at all because they do not take part in derivations and compounding. Examples for them are alba ‘alb, cassock, headband’, amit ‘shawl’, balz ‘belt, baldric’ or polomīd ‘colourful garment made of damask’.

However, also the complete opposite is found. The two words for ‘cushion, pillow’ can serve as an example for that. In Old High German the words pfuluwi ‘pillow’ borrowed from Classical Latin pulvinus ‘little cushion, small pillow’ and kussīn ‘cushion’ borrowed from Old French co(i)ssin ‘id.’ exist. As is shown by the donor language the time of the borrowing lies far apart from each other.

The word pfuluwi is attested in the 8th century and shows in Old High German three different derivations: pfuluwīn attested in the 9th century, pfuluwīlīn in the 10th century and pfuluwō in the 12th century (all three with the meaning ‘pillow’). So during the whole Old High German period it is possible to create new derivations to pfuluwi. The word pfuluwi is also found in the compound houbītpfuluwi ‘pillow’ in the 9th century. The later derivation pfuluwīn is present in the compounds houbītpfuluwīn ‘pillow’ in the 10th century and stulpfuluwīn ‘stool pillow’ in the 11th century.

Therefore, it is clear that the word group around pfuluwi was quite well integrated in the Old High German language. The rate of productivity is not that high but it is in fact constant.

Even if pfuluwi seems to have been quite well integrated in Old High German this is even more the case with the later borrowed kussīn ‘cushion’. The word was adopted on the turn of 10th to the 11th century and is first attested in the compound wangkussīn ‘pillow’. In the 11th century it becomes very productive. There are two derivations: kussi ‘cushion’ and the diminutive kussīlī/kussīlīn ‘small cushion’. The word appears also in two further compounds, houbītkussīn and wangkussīlīn ‘pillow’. In the 12th century two further compounds are found, namely ērōkkussīln ‘little pillow’ and ērōkussīn ‘pillow’ showing that the derivation was still in use.

So the integratedness of kussīn ‘cushion’ seems to have passed off much more quickly than it was the case with pfuluwi ‘cushion’. This may have

15. Cf. EWA 1, 338.
been the reason why the latter one was replaced by kussin ‘cushion’ later on in the history of the German language.

Inherited and borrowed words denoting the same concept

To round up this short overview on textile terminologies a look may be taken at some cases where in Old High German both inherited and borrowed words are transmitted for the same concept:

a. ‘belt’: There are some inherited words denoting belts: bruohhah, fazilo, gurt (together with the derivations gurtil, gurtila and gurtilīn; also widespread in compounds), umbisweif and windica. In the 10th century the word balz ‘belt, baldric’ appears that is borrowed from Latin bal-teus ‘belt, girdle’.16 This word is not attested in derivations or compounds, was in other words not integrated in Old High German. It disappeared in the further history of German where the already in Old High German most widespread word gurtil asserted itself.17 The situation is opposite to the one in English, where belt is nowadays the most common word while girdle was driven back.

b. ‘coat’: The semantic field of ‘coat’ is already in Old High German beginning to be dominated by borrowed words. Inherited words are hulla, lahhan, ludilo, skekko and trembil. Of these, hulla is used for every kind of wrap, lahhan is used to denote every kind of floating garment and ludilo refers in fact to the material the coat is made of, so only skekko and trembil truly denote coats. Only lahhan is productive in the sense mentioned above. The borrowed words are kozza/kozzo, mantal, rok and rosa. Of these four, the first three are very productive in Old High German, both in derivations and compounds. It does in fact not astonish that of these nine words only the productive ones are continued in later language stages. However, lahhan stopped to be used as a word that could designate coats, which is not astonishing because more apt words were available. Koza/kozzo, mantal and rok continued to be existent in later language stages. Of these, only mantal is the word for ‘coat’ in the standard language, whereas koza/kozzo and rok are used dialectally.

c. ‘sleeve’: In Old High German there is one inherited word for the sleeve, namely armilo that has no productivity whatsoever. There are also two borrowed words, menihha and menihhilo that come from Latin manica and probably manicula ‘sleeve’. The unproductive armilo could only hold up well because the connection with the derivational basis arm ‘arm’ was at no time lost. Against this connection the loanwords stood no chance.

d. ‘hair-lace’: One of the most surprising semantic wordgroups in Old High German is that for the hair-lace. There are quite many inherited words to denote this object: Besides the simplex rīsil, that is more commonly used in the meaning ‘veil’, compounds are found, which have as first member either fahs or hār ‘hair’: With fahs the compounds fahsreidī, fahsreita, fahsreitī, fahssnuor, fahswalko and fahswinta are found, with hār the words hārskeida and hārsnuor. There is also one compound found that has a borrowed element in it, namely fahswitta with witta ‘band’ from Latin vitta ‘band, ribbon’. The borrowed word did not stand a chance – perhaps not so much, because -witta did not make it, but rather because fahs got out of use.18 For ‘hair’ only Old High German hār was continued19 but also these compounds came into disuse (German *Haarschnur would perhaps still be understandable). German Haarband replaced these words, although interestingly no corresponding compound with -band is found in Old High German.

Conclusion

This short overview of textile terminologies showed that quite a large amount of the Old High German words in this lexical field is borrowed. The borrowings only come from the West (or South) into Old High German, so from Latin and its continuant Old French. Between the 8th and 12th century there is a gradually rising amount of loanwords. Three semantic fields can clearly be distinguished, namely special, unknown materials and their products, garments for clerics and cushions. The integration of the loanwords reaches from ‘not at all’ to ‘very good’. Although integration is an important element for the continuing use of borrowed words, it is definitively not the only reason.

It is obvious that this study here is only a first small step towards a detailed analysis of the textile terminology in Old High German. The latter must not only deepen the type of analysis presented here but also include a semantic study of the words used as well as the verbs and all derivations. In a second step, the historical and archaeological evidence should be subjoined.

Abbreviations


Bibliography

With regard to ancient textile terms, dictionaries could potentially generate a false sense of security. Their formal accuracy might let us think that we are, without doubt, provided with the term that corresponds perfectly with a particular expression from an ancient Greek and/or Latin document. However, translations in dictionaries are almost exclusively based on reading and interpreting ancient literary sources and tend to neglect documentary evidence. But documentary sources, such as papyri, are a valuable and unique resource for research, referring to manifold aspects of social and economic history. Above all, they offer an insight into the minutae of individual lives, an aspect of ancient history that is rarely available to current research. These kinds of sources significantly deepen the understanding of the ancient world – compared to information retrieved only from literary sources.

The present contribution derives from a research project made possible by the Pasold Research Fund. It focuses on ancient marriage documents from the province of Egypt with its abundance of papyrological evidence as a case study on the terminology of everyday dress in Roman Imperial times.

Source material: Dowry contracts from Roman Egypt

Before paper and parchment were common writing materials, people used wooden tablets, papyri or potsherds (ostraca) for private correspondence as well as for official documents. Especially the abundance of papyri and ostraca broadens our perspective on antiquity from literary sources. Mainly originating from Egypt, these documents provide a direct and unfiltered view of real life circumstances for ancient marriage arrangements.

1. ‘Everyday dress in Graeco-Roman Egypt (1st-6th century AD) according to papyri – an analysis of dowry contracts’ (carried out with Yvonne Wagner/Salzburg). I am very grateful to the Pasold Research Fund for enabling our research. I also wish to thank the conference organisers, Marie-Louise Nosch, Cécile Michel and Salvatore Gaspa, for their invitation, and the participants for providing a very stimulating climate of debate. I am indebted to Andrea Jördens/Heidelberg and Deborah Weisselberg-Cassuto/Ramat Gan for valuable comments on linguistic details of this paper and to Virginia Geisel/Marburg and Jane Parsons-Sauer/Kassel for correcting my English. All papyrological editions as well as corresponding literature for papyri, ostraca and tablets are listed in the ‘Checklist of Editions’ (5th edition) which is available online: http://library.duke.edu/rubenstein/scriptorium/papyrus/texts/clist_papyri.html (last accessed December 2014).
all classes of population in this region. After Alexander III (‘the Great’) had conquered Egypt and introduced the Greek language in this part of the Mediterranean in 332 BC, it was used for official documents. Until the Arab invasion in 640-642 AD, the Greek language also played an important role in private correspondence. Thus most papyri and ostraca were written in Greek. The majority of Greek papyri and ostraca date back to the first three centuries AD, when Egypt was a province of the Roman Empire. They consist of a variety of documents – works of literature, letters, horoscopes, accounts, receipts, tax registers, declarations, contracts, and more. Making the individual tangible, they let us explore an ‘individual micro-history’ and bring administrative trading records to life. Their evidence provides an unfiltered view of real-life circumstances of all population classes. With regard to the economic procedures of Roman textile production, they allow for a more detailed analysis.

Marriage and dowry arrangements are of particular value for research on female dress of the Roman period. “One of the main purposes for the composition of a marriage document was to record the delivery of a dowry, its value and contents, and to regulate its position both in the course of the marriage and after its dissolution.” The detailed description of every item of the dowry was very important because, in case of divorce, it enabled the woman to enforce her right of regaining this dowry within a short time. However, some contracts record the overall value of the dowry rather than its original components. In these cases, which mostly date back to Augustan times, the husband could possibly dispose of dowry components without any special restraints as long as he was still capable of returning the total value.

However, in later marriage documents the components are usually listed in great detail. A typical dowry from the first three centuries AD in Roman Egypt usually includes clothing, along with cash instalments, jewellery and household implements. The typically high level of detail offers a unique chance to learn about women’s garments which were actually worn in everyday life in this part of the Roman Empire. We can discover details about the terminology of female garments, their colours and sometimes even the value of an actual garment.

It is necessary to keep in mind that marriage was important and common in ancient times. Analysing census declarations, Roger Bagnall and Bruce Frier could prove that in Roman Egypt at least 93% of the women aged between 26 and 35 years were married, already divorced, or widowed. Thus marriage was a very common phenomenon in Imperial Egypt. Nevertheless it must be borne in mind that, although dowries were common, dowry contracts were not obligatory. Especially in earlier times, this written form of arrangement was often composed without any official supervision by a public organ. The contract served to create security for bride and groom in the – not unlikely – case of a later divorce and to secure the women’s financial resources, but for a valid marriage arrangement, the dowry contract was not by all means necessary.

Because the contracts come from varied socio-economic backgrounds, the overall value of documented dowries varies a lot – which is not surprising, considering the high percentage of married women. The type and number of items often indicate the socio-economic status of the bride’s family. By analysing the garments these women possessed and wore in everyday life we are able to explore the links between clothing and wealth, fashion and status – not just of upper class women but of brides from very different social strata of the multicultural society in the Roman province of Egypt.

2. Challenging the paradigm of Egypt as a special region of the Roman Empire, which circumstances are contrary to all other regions, consequently encourages the study of the available documents of this province. This backdrop moves the significance of papyri into the focus of ancient economic history research.
5. For a general introduction in this source material see Yiftach-Firanko 2003.
Textiles in Roman dowries

Of the approx. 100 surviving (and edited) dowries dating back to Roman Imperial Times, 46 mention textiles. This shows the importance of textiles as part of a woman’s belongings and highlights the connection between garments, gender, and social status. In contrast to mummy portraits, painted shrouds, statues, reliefs or archaeological textiles obtained from graves, the dowries represent a portrait of actual life. It rather depicts the way a woman was seen on the street than how she wanted to be remembered after her death. Idealisation is insignificant for this kind of source material: we are not facing the ideal concept of a local elite, but everyday dress of women from very different social strata.

This is of particular importance for analysing the terminology used for the garments in dowries. The documented name for an individual garment was the name which was actually given to this very garment by its female wearer, the adjectives used to describe its colour correspond with the woman’s own colour impressions. The combination of name and colour enabled her to identify that very garment in case of divorce. This explains quite well why we are rarely facing general terms like “female garments” (ἱμάτια / ἱμάτια γυναικεῖα) but usually detailed descriptions.

Common garments

A closer inspection of dowries and their garment terms suggests that women in Graeco-Roman Egypt did not possess a very broad range of garments. 11 different types of garments appear in the entirety of all dowries from Imperial times. A χιτών (or tunic) is listed in a vast number of dowries. Its colours are manifold and range from purple, mulberry red, sandalwood red, chrysanth yellow, sulphur yellow, safflower yellow to milk white and white, but interestingly never any shades of blue or green. Another very common garment, the πάλλιον is most often said to be χρωματισμός, colourful, without giving any details about individual colours. These mantles could have had several colours, probably in patterns. Striped and checked textiles are indeed documented in the archaeological records. Although we often cannot reconstruct the design of a certain garment, these textile fragments may represent mantles. In summary: χιτών and πάλλιον are to be considered the most common female dresses to be found in almost each and every wardrobe in all parts of Egypt during the entire Imperial period. Obviously, these terms were part of a widespread ‘standard dress terminology’ of that time.

Besides these two very common and clearly defined garments we are presented with others, for example the στολή: This type of garment appears exclusively in dowries dating to the 1st and 2nd century AD and seems to be uncommon during later times. The σουβρικοπάλλιον is very likely a typo for σουρικοπάλλιον, a Syrian πάλλιον. It does not appear in the early marriage documents, but from the 2nd century onwards. We also learn about garments called δαλματική and μαφόρτης / μαφόριον. These two terms are particularly interesting as they are listed individually and combined, most likely meaning an entire female costume. They only appear in dowries dating from the late 2nd and the 3rd century AD.

δαλματική and μαφόρτης / μαφόριον

Handbooks and dictionaries offer descriptions and definitions for garments. Whereas the most common dictionary of ancient Greek, Liddell-Scott-Jones, calls the δαλματική just a “robe” without any further
specification, we are informed elsewhere that a dalmatic / δαλματική is “[a] T-shaped tunic with wrist-length tight sleeves cut separately from the main part of the tunic and sewn on, popular in the later Roman Empire, especially the 3rd and 4th centuries AD. Originating in the Illyrian provinces or further east, it was worn by men and women: men’s versions could have coloured and patterned bands and roundels – especially on the shoulders; women’s – shown on many female figures in catacomb paintings – were longer (just above the ankles), worn unbelted and often had contrasting stripes and borders.” A deeper insight into the source material for this precise assumption shows that the most detailed description can be found in an etymological encyclopaedia compiled by the Christian bishop Isidore of Seville in the 7th century AD. It says that a δαλματική / dalmatic is a bright white tunic for priests with a purple border (clavus). According to the Liber Pontificalis, the dalmatic was introduced as a priest’s garment by Pope Silvester in the 4th century AD. We also learn that its use attracted attention, for example when worn by Roman Emperors such as Commodus and Heliogabalus during the high Empire. However this information derives from the Historia Augusta, a late Roman collection of biographies of Roman Emperors – a source in which fictional or inaccurate information is deliberately combined with historical material and which is therefore considered unreliable. The same Historia Augusta characterises the above-named emperors, allegedly wearing a dalmatic, as effeminate, extravagant and generally inappropriate rulers. Every other detail regarding this type of garment is either assumed from considerably later Christian sources or is based on the iconographic record. The question remains: If the appearance of the garment named δαλματική has not changed at all over the centuries – are we really in a position to identify a visual representation of a dalmatic or δαλματική, if the only definite information we have is the one mentioned by Isidore and the Historia Augusta? This is highly questionable.

In the dowries, this type of garment is mentioned five times in three arrangements, all dating from Dura Europos in Syria or the Arsinoite nome in the 3rd century AD. When specified, its colour is κόκκινος (scarlett), λευκός (white) or σαπφείρινος (l. σαφφείρινος [sapphire]).

As a second example a mafortium / μαφόρτης is presented in the dictionaries to be a “veil, head-dress of women and priests”. Elsewhere it is described as “[a] short palla, worn by women, found in later Latin sources”. Again, it is interesting to note the discrepancies in the definitions that indicate a semantic change of the term. It is of semitic origin, most likely deriving from the Hebrew תרופה (ma‘afaret), meaning vestis lintea or mantum. It is mentioned as both a female garment and an element of a male priest’s dress. Considering this, we ought to admit that we do not know what these garments actually looked like. We maintain an illusion of knowledge without questioning these persistent and self-amplifying definitions.

10. LSJ, s.v., 368.
11. Cleland et al. 2007, 46. Cf. also Schrenk 2012, 197-200. See also Mossakowska in this volume.
12. Isid. orig. 19,22,9: Dalmatica vestis primum in Dalmatia, provincia Graeciae, texta est, tunica sacerdotalis candida cum clavis ex purpura.
13. Lib. Pont. 34,7: [Silvester] constituit ut diacones dalmaticas in ecclesia uterentur et pallae linostema leva eorum tegerventur. Until today the dalmatic is the outer liturgical vestment of the deacon.
14. HA Comm. 8; HA Pertinax 8 (again referring to Commodus’ garments); HA Heliog. 26.
15. CPR 1/21 [= SPP 20/31], 230 AD, Ptolemais Euergetis; P.Dura 30, 232 AD, Dura Europos; P.Tebt. 2/405, 3rd cent. AD, Tebtynis.
16. LSJ, s.v., 1085.
20. Cassianus, de institutis coenobiorum 1,7.
This type of female dress appears in four imperial dowry contracts – one of them mentions two garments of that kind. Its colour is usually described as πορφύρεος (purple; twice), σαπφείρινος [sapphire] and κόκκινος (scarlet).

Three of the dowries containing a δαλματική also list a μαφόρτης. According to P.Dura 30, originating from the vicinity of Dura Europos in Syria and dating to the 3rd century AD, Aurelia Marcellina’s dowry contained a combination of a δαλματική and a μαφόρτης, thus a sapphire δαλματική and a purple mafortium. We can clearly detect that both garments were considered as an ensemble, as they are connected by the use of the word καί (and) and share a common value. P.Tebt. 2/405 lists a purple and a scarlet μαφόρτης as well as a sapphire δαλματική. Other dowries, such as P.Oxy. 10/1273 from the 3rd century AD, even join both terms into a new phrase which represents the ensemble: δελματικομαφόρτης. This dowry also contains, among other items, a silver δελματικομαφόρτης (besides, the most valuable garment documented in all marriage contracts [260 drachmai]), a turquoise δελματικομαφόρτης as well as a white and a purple δελματικομαφόρτης.

The fact that μαφόρτης and δαλματική form a compound word suggests that these garments were usually two parts of an entire female costume. The term also appears in the Price Edict of Emperor Diocletian, dating from the early 4th century AD. This type of costume is most likely of eastern origin, as the Price Edict only lists production sites in the Eastern provinces of the Roman Empire, a fact which is supported by its appearance in Egyptian and Syrian papyri.

The fact that the term σύνθεσις appears in several dowries, but never concurrently with μαφόρτης or δαλματική, might lead to the assumption that it represents the very same ensemble of garments. According to LSJ, σύνθεσις means “putting together, combination; combination of parts so as to form a whole; set (e.g. collection of clothes)”.

Other textile dictionaries define a σύνθεσις as a dinner robe for men and a religious dress for (male) priests, a concept which derives from Roman literary sources like Suetonius and Martial. A closer look into these sources reveals that a σύνθεσις was apparently worn during dinner (which does not define it as a dinner dress per se) and was not regarded as appropriate for a Roman emperor in public (possibly because the garment, or rather combination of garments, could also be worn by women). On the other hand, according to Martial, the σύνθεσις seemed to be an attribute of Roman elites such as senators and knights (equites) as well as priests. Here the σύνθεσις is described as a decent and probably rather luxurious garment.

Overall, based on these contradictory statements from sources with little reliability, we cannot get a clear picture as to how a certain dress actually looked like. The question is: Was there a common understanding for a certain type of garment at all, or were some literary sources simply not interested in precisely specifying the textile terms? In any case,
although documentary sources provide valuable details like names, colours and value of individual garments, acquiring an impression of their common design still proves to be difficult.

**Conclusion**

Roman marriage documents from Imperial Egypt provide a unique possibility to detect the characteristics of clothes within social reality – as they were actually worn. They enable us to learn about textile tastes and visualize the wardrobes of women in their time. They provide detailed descriptions as to design and colours and give insights into the everyday life of women. Thus, these documentary sources significantly broaden the perspective presented by literary sources or the iconographic record. Combined with the values of textiles which is often additionally provided, we get a better understanding of the taste of Roman women – at least in the parts of the Roman Empire that provide us with papyrological evidence. Their analysis gives insight into the commonness of garments and their owner’s taste in colour. The dominance of reddish and yellowish shades is overwhelming. A garment which is described as ‘colourful’ (especially in the case of tunics) might be interpreted as ‘patterned’– or maybe in some cases being at taqueté decoration or tapestry weave.32 δαλματική and μαφόρτης appear independently from one another or together, are connected with καί, or form a joint term which describes a complete female costume. It is conceivable that the term σύνθεσις which – at least in the dowries – occurs rarely, but never together with either δαλματική or μαφόρτης, was probably used as a synonym for this costume.

**List of abbreviations**


**Bibliography**


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32. Cf. Wild & Droß-Krüpe in this volume.
Ars polymita, ars plumaria: The Weaving Terminology of Taqueté and Tapestry

John Peter Wild and Kerstin Droß-Krüpe

In Roman Egypt papyrologists and archaeologists sometimes seem to inhabit two different, if parallel, worlds, each apparently unaware of the treasures to be found in the other. This paper, however, is a co-operative venture between an ancient historian with papyrological interests – Kerstin Droß-Krüpe – and an archaeologist – John Peter Wild. In the research field of textiles we overlap, and we want to offer you insights from each of our worlds.

At some point in the later 2nd century AD an unnamed magnate in the territory of the Lingones in central Gaul dictated a will in which he stipulated that a number of his prized possessions should be cremated with him on his funeral pyre. Among those listed are vestes polymitae et plumariae. What do these two textile terms mean? And what did the textiles themselves look like? The images in Figures 1 and 2 are our provisional suggestions. The two items shown here are of wool – they are actually from Roman Egypt – and at first glance they look in decorative terms rather similar to one another; but the textile in Figure 1 is in taqueté – vestis polymita, we argue – mechanically woven – while the piece in Figure 2 is in tapestry weave, vestis plumaria, and hand-woven.

The structures of the two weaves can be characterised as follows:

Tapestry weave, made famous by the Gobelin workshops in Paris, is essentially a mosaic in coloured wool yarns, constructed free-hand, and concealing the underlying warp. The weaver has available on individual spools a selection of dyed yarns which he or she interlaces with the warp threads according to the requirements of the pattern. A distinctive feature of tapestry is the oblique lines or even vertical slits where weft yarns in different colours meet one another and turn back (Fig. 3). Across an area, an accomplished weaver can achieve the subtle, gradual, changes in colour visible in the highest-quality floor and wall-mosaics and in wall painting.

1. For a welcome recent exception see Palme & Zdiarsky 2012.
2. CIL XIII, 5708; Le Bohec 1991, 46 for dating; Le Bohec 2003. The inscription is only recorded in a 10th-century manuscript now in Basel.
3. The relevant part of the text as established by P. Sage ap. Le Bohec 2003, 354 reads: volo autem omne instrumentum ... mecum cremari ... et vestis polymitae et plumariae ... quidquid reliquero.
4. Fig.0.1: Wild & Wild 1998, 223, Fig. 10-1; Fig.0.2: Schrenk 2004, 447; compare Trilling 1982, 98 no. 108, Pl. 8 (taqueté) with ibid. 31 no.1, Pl. 1 (tapestry).
Fig. 1. Detail of a Late Roman wool textile in *taqueté* from the Roman port of Berenike on the Red Sea coast of Egypt (BE96 0227). On-site photo: J.P. Wild.

Fig. 2. Detail of a wool textile in tapestry weave from Egypt, now in the collection of the Abegg-Stiftung, Bern, showing a bunch of lotus flowers (Inv. Nr. 5345). Photo by courtesy of the Abegg-Stiftung, CH-3132 Riggisberg.
Taqueté, also known as ‘weft-faced compound tabby’ and in German Leinwandsschusskompositbildung, aims for a similar decorative effect, but rarely in more than two colours. It is created mechanically by means of a complex planned sequence of different sheds on the loom, which the weaver memorises. The overall decorative scheme is constructed by repeating a single pattern unit, sometime in mirror image. The weave structure can be recognised by the fact that a weft thread in one colour disappears to the reverse side of the cloth behind an adjacent thread in a different colour as the pattern changes, only to re-appear on the obverse again later when it is required (Fig. 4).

A variety of ancient sources can be deployed to inform discussion and argument about textile structure and terminology.

Roman inscriptions and papyri in Greek and Latin are crucial documents, but tend to be laconic: both the writer and the reader knew exactly what was meant by a given technical expression, but we are left in the dark. Authors of classical literature write at greater length, and at first sight more helpfully; but their reliability is variable and often difficult to check. Poets, for example, treat of technical matters with artistic licence, especially when the vocabulary does not fit the metre. Scholars who consult another much-quoted source, the late Roman and early medieval encyclopaedists and glossators like Hesychius and Isidore, are well advised to exercise caution: for such compilers may simply be guessing.

Ancient art, particularly funerary art, is a rich source of textile images, but, taken alone, the latter usually lack the necessary detail for precise technical identification. Surviving archaeological textiles are a relatively new and growing resource, and one might expect to find examples of vestis polymita and plumaria somewhere in the extant textile corpus. Both techniques are described explicitly as woven-in, and not decoration added afterwards, so that narrows the range of possibilities.

Vestis polymita

I (JPW) need to start by revisiting, and recanting, what I wrote in 1967 about the ars polymita. I argued then that it meant ‘tapestry weaving’; but I now accept that it refers to weaving taqueté, weft-faced compound tabby, as Grace Crowfoot, Donald King and others suggested long ago.

Commentators often begin with the passage in Pliny’s Natural History where he claims that Alexandria invented the weaving of polymita, with plurima licia, ‘multiple threads’. The Greek mitos and the

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9. Crowfoot & Griffiths 1939, 47; King 1981.
10. Naturalis Historia VIII, 196 (c. AD 77-79).
Latin *licium*, however, are *generic* terms, and their specific sense depends on the context in which they are used. They could refer to warp or weft threads, for instance, or to the heddle cords for opening sheds on the loom.\(^{11}\)

In 1967 I was misled, I now think, by a key passage in a letter (of about AD 395-397) from Jerome to Fabiola in which he is describing the sash of the High Priest in Jewish ceremonial.\(^{12}\) He says that it was woven in the form of a tube, 4 digits (c. 7.4 cm) wide, like a cast-off snake-skin. It had scarlet, purple and blue weft, but linen (or at any rate plant-fibre) warp, with flowers and gem motifs ‘woven in the *ars polymita* that you would think were not woven by a craftsman’s hand but added’, *i.e.* embroidered. Linen warp with polychrome patterned weft in a tubular format sounded to me in 1967 much more likely to be tapestry weave than mechanically woven *taqueté*, and I opted for tapestry, noting some flat-woven tapestry sashes in the archaeological record.\(^{13}\)

So far, however, no direct archaeological evidence has been found for either *taqueté* or tapestry in tubular form; but Dominique Cardon has published from Maximianon and Krokodilō in the Eastern Desert of Egypt a group of early Roman tubular textiles in 2/1 herringbone twill weave with multi-coloured plied warp.\(^{14}\) The existence of a tubular form of *taqueté* therefore cannot be ruled out. On the other hand Jerome’s phraseology echoes the Latin of his translation of the Hebrew text of the Book of Exodus; he may have been unaware (or chose to ignore) that *taqueté* was not known in Old Testament times. It would probably be unwise to place too much weight on his words.\(^{15}\)

Petronius,\(^{16}\) Pliny\(^{17}\) and Martial\(^{18}\) mention *polymita* in the 1st century AD. A dearth of archaeological finds of *taquetés* at that early date, which seemed to me an obstacle in the 1960s, has recently been alleviated by finds of early Roman *taquetés* at Berenike (Fig. 5),\(^{19}\) Mons Claudianus,\(^{20}\) Maximianon and Krokodilō\(^{21}\) and Masada.\(^{22}\) There are today several hundred Late Roman wool *taquetés* from Egypt.\(^{23}\)

*Polymita* was used for covering beds, couches and pillows according to both Martial and documentary papyri.\(^{24}\) In Roman Egypt there are several finds of feathers still adhering to *taqueté* upholstery covers,\(^{25}\) and we have noted at Berenike that wool textiles in *taqueté* have had only one side exposed to strong daylight.

Another recent development is the recognition and recording of the *zilu* loom still in use today in parts of Iran for weaving *taqueté*.\(^{26}\) It is vertical and

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13. For a flat-woven sash from Nubia see Mayer Thurman & Williams 1979, 62 no.16 (B213, 4) (colour plate p.15); 64 no.21 (B251, 2); narrow ‘pyjama cords’ from Quseir: Eastwood 1982, 286, 302 nos. 26-28. The πολυμίται ζῶναι of the *Periplus Maris Erythraei* 49 is probably a copyist’s error for πολυμίτα ζῶναι, two separate items, not one. We are grateful to Eleanor Dickey for advice on this point.
14. Cardon 2003, 631, 645 (Z.25008-2), Fig. 326,b; Fig. 343; Pl. IV, 1 (lower centre).
15. In the Vulgate *Exodus* 29, 39 (39, 29) Jerome translates or paraphrases the Hebrew description of a similar sash as *opus plumarii*.
17. *Naturalis Historia* VIII, 196.
18. *Epigrammata* XIV, 150.
19. Wild & Wild 2000, 256, Fig.11-12, Pl.11-13.
24. Martial, *Epigrammata* XIV, 150; SB III, 7033, 37 (AD 481); P Ital. I,8,II,6 (AD 564).
very large, and features two types of shed: the one is opened in plain tabby weave with heddle rods, the other type, the pattern-making sheds, is opened by draw-cords in various hierarchies – pulled out horizontally. These cords are good candidates to be the mitoi of polymita. Pliny could well be right about invention in Alexandria: the shedding mechanism of the ancient ancestor of the zilu loom could, like the water mill, be another brainwave emanating from the circle attached to the Museum in Ptolemaic Alexandria.  

So, if vestis polymita is taqueté, what is vestis plumaria?

**Vestis plumaria**

The lexica are almost unanimous in translating vestis plumaria as ‘embroidered textile’ and they have been followed faithfully by most editors of papyri. Indeed, at first reading, ‘embroidery’ seems to fit in all 95 instances of the use in Latin and Greek of terms based on the root *plum*-. But on closer inspection there are some broader issues.

Kerstin Droß-Krüpe has pointed out elsewhere that most classical references relating unambiguously to embroidery and using phrases like *acu pingere*, ‘decorate with a needle’, refer to foreign exotica...
rather than Mediterranean fashion. But there was a Mediterranean tradition of embroidery of considerable sophistication, exemplified by a well-known panel from Aghpm where chain stitch and couched wool thread has been deployed to represent the personification of Autumn (Fig. 6), one of an original quartet. Nonetheless the corpus of surviving embroideries from the Roman world discussed recently by Annette Schieck is relatively small and – one has to admit – not very inspiring.

I argued very briefly in 1999 that the *ars plumaria* was not embroidery, but tapestry weaving, and Kerstin Droß-Krüpe came to the same conclusion in her study just mentioned. What is the evidence?

In AD 301 the Emperor Diocletian made a forlorn attempt to control rising prices for consumer goods and services by promulgating an Edict on Maximum Prices, intended to be applied across the Empire, and probably respected particularly in the eastern provinces which he ruled directly. The archetype was in Latin, but Greek translations were posted in the East. The compilers took an empire-wide view of the most significant merchandise to be included, along with its prices in notional *denarii*. There has been argument about the artificiality of the pricing structure, but for us it is the relative costs that reveal the relative qualities of the goods that matter most.

In Edict Chapter XX on pay in the textile industry the *plumarius* is paid per ounce of yarn for working on long-sleeved silk tunics (*strictoriae*), half-silk tunics and two of the most expensive half-moon cloaks (*chlamydes*) in wool (Table 1).

### Table 1. The Latin text of Chapter XX of the Edict of Diocletian.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Description</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>[De mercedibus plumariorum et sericariorum]</td>
<td></td>
</tr>
<tr>
<td>1a</td>
<td>[plumario] in strictoria subserica</td>
<td>x ducentos</td>
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<tr>
<td>2</td>
<td>in strictoria holoserica</td>
<td>x viginti quinque</td>
</tr>
<tr>
<td>3</td>
<td>in chlamyde Mutinensi</td>
<td>x mille</td>
</tr>
<tr>
<td>4</td>
<td>in chlamyde Ladicena ut s(upra)</td>
<td>x quadringentos</td>
</tr>
<tr>
<td>5</td>
<td>barbaricario ex a[u]ro facient&lt;i&gt;</td>
<td>x quingentos</td>
</tr>
<tr>
<td>6</td>
<td>operis primi</td>
<td>x septingentos quinuaginta</td>
</tr>
<tr>
<td>7</td>
<td>barbaricario in holoserica</td>
<td>x quinguaginta</td>
</tr>
<tr>
<td>8</td>
<td>operis secundi</td>
<td>x quinuaginta</td>
</tr>
<tr>
<td>9</td>
<td>sericario in subserica pasto</td>
<td>x quinuaginta</td>
</tr>
<tr>
<td>10</td>
<td>in holoserica scutlata</td>
<td>x quadraginta</td>
</tr>
<tr>
<td>11</td>
<td>in holoserica scutlata</td>
<td>x quadraginta</td>
</tr>
<tr>
<td>12</td>
<td>gerdiae pastae in tunica pexa</td>
<td>x duodecim</td>
</tr>
<tr>
<td>13</td>
<td>in tunicis Mutinensibus vel ceteris pastae</td>
<td>x sedecim</td>
</tr>
</tbody>
</table>

30. Pritchard 2006, 30-31, Fig.3.3.
Fig. 6. Late Roman embroidered panel in wool on a linen ground from Egypt, now in the Whitworth Art Gallery, Manchester (inv. no.T.1968.252). It shows the personification of a season, probably Autumn. Photo by courtesy of the Whitworth Art Gallery, Manchester.
pay, 25 denarii per ounce, is twice what a specialist (female) wool weaver could earn for a day’s work.\textsuperscript{36}

In Chapter XIX on wool textiles reference is constantly made to the value of the purple wool embodied in the decorative features. In the entries for two sorts of expensive bed covering (rachana and stragula),\textsuperscript{37} for high-quality long-sleeved tunics in wool (strictoriae)\textsuperscript{38} and probably for the higher class of chlamys on which the plumarius worked,\textsuperscript{39} it is prescribed that the textiles should be sold according to the weight of plumatura (πλουμάρισις in the Greek texts); but no upper price limit is set. For the less valuable and elaborate items, the jargon used in Chapter XIX is ‘clavans purpurae libras x’, ‘with clavus bands containing x pounds of purple yarn’.\textsuperscript{40}

The compilers had no need to clarify their terminology. A glance through the catalogues of some of the principal collections of so-called ‘Coptic’ textiles in European museums – effectively the clothing of the well-to-do of Late Roman Egypt, often salvaged from their burial grounds with minimal or no archaeological record – leaves no doubt that tapestry weave is the dominant, almost exclusive, mode of Roman textile decoration.\textsuperscript{41} Egypt, thanks to local climatic conditions ideal for the preservation of organic materials, offers a snapshot of a phenomenon which is reflected in contemporary iconography across the whole Roman Empire,\textsuperscript{42} and among its neighbours, such as the Palmyrenes and Sasanians, further East.\textsuperscript{43}

If the dominant decorative form according to the Edict is plumatura, and the dominant technique in the archaeological record is tapestry weave, it is hard not to identify the one with the other. This is juxtaposition of evidence, however, not proof. But at present it has to be the basis of our hypothesis.

Some supporting amplification is to be found in comparing the range of textile goods for which the use of tapestry weave for decoration is archaeologically attested with the textile spectrum of which the written sources give us a glimpse.

Only a handful of types of textile were created entirely in tapestry weave, notably couch furnishings, curtains and wall-hangings.\textsuperscript{44} More commonly, individual tapestry-woven inserts are found in garments of wool, linen and silk which are otherwise undecorated. On (long-sleeved) tunics (Fig. 7) the technique was employed for weaving figured and plain bands (clavi) down front and back, roundels and panels at the shoulder, pairs of short bands at the wrist, and sometimes halters at the neck and horizontal bands at knee level.\textsuperscript{45} Cloaks are embellished with roundels and panels and other simpler motifs, placed in the corners, depending on garment shape.\textsuperscript{46} Furnishing fabrics also feature corner decoration, and bands marking the start and finish of the web.\textsuperscript{47}

\textsuperscript{36} EdD XX, 12-13 for wages of a gerdia, ‘female weaver’.
\textsuperscript{37} EdD XIX, 6; XX, 36.
\textsuperscript{38} EdD XIX, 20: this is a lacunose entry and there is some doubt about the items listed.
\textsuperscript{39} EdD XIX, 22.
\textsuperscript{40} EdD XIX, 8-13, 15-16, 18-19, 21, 23-24, 27.
\textsuperscript{41} For example Trilling 1982; Lorquin 1992; Schrenk 2004; Pritchard 2006.
\textsuperscript{42} For example in the mosaics of the Late Roman villa near Piazza Armerina in Sicily (Carandini et al. 1982, passim; Wilson 1983) and mosaics in the North African provinces (Dunbabin 1978). The Late Roman mosaics at Noheda (Spain) depict a riot of exuberantly decorated costumes, many theatrical, but others more everyday (Tévar 2013).
\textsuperscript{43} Schmidt-Colinet 1995.
\textsuperscript{44} Trilling 1982, Pls. 1, 2; Schrenk 2004, 26-45; Willers & Niekamp 2015; von Falke & Lichtwark 1996, 344-345 Nr. 394. Theocritus (Epigrammata XV, 78-83) refers to large (tapestry-woven?) hangings in Ptolemaic Alexandria (3rd century BC) and an epigram in the Anthologia Graeca (IX, 778) was originally attached to a tapestry map of the world.
\textsuperscript{46} Maciej Szymaszek is currently preparing a corpus of all Roman-period textiles, mostly cloaks, carrying decoration of tapestry-woven gamma-motifs.
\textsuperscript{47} Cushions: Paetz gen. Schieck 2009; curtain: Gervers 1977; spreads with loops: von Falck & Lichtwark 1996, 301-302 Nr. 341a-b; Verhecken-Lammens 2009, 132 Fig. 6; sabana (?): Carroll 1988, 94 no. 9.
References to long-sleeved shirts (strictoriae, στιχάρια) with plumatura abound in the papyri, and Diocletian’s Edict adds the wide-fitting dalmatica to the list, together with half-moon cloaks (chlamydes) and rectangular cloaks (fibulatoria). Papyri mention veils and head-coverings with tapestry decoration (described as πλομαρικὰ). Household furnishings had more modest tapestry decoration. Under this heading we find a (wool) blanket, ‘spread’ (rachana, stragula), and cushion cover. Most items, however, were anonymous linen sheets and towels with a touch of colour. Late Roman church inventories mention altar cloths and curtains.

48. P.Oxy. XIV, 1741, 16; P.Fouad 74, 6; SB XVI, 12940, 12; SPP XX, 245, 6; SPP XX, 275, 3-4; P.L.Bat. 25, 28; compare EdD XIX, 18, 20, 40; XXVII, 8-10 (ed. Giacchero 1974).
52. EdD XIX, 6, 36.
53. P.Berol. 25405, 7-8.
54. faciale, ‘face cloth’: SB III, 7033, 45; EdD XXVII, 23-28 (ed. Giacchero 1974); sabanum, ‘hand towel’: P.Oxy. XVI, 2054, 8; ‘linens’: SPP III, 83, 4; SB XVIII, 13965; SB XX, 14202, 5, 6; Diethart 1983, 13, doc. 3, 10; P.Ant. I, 44, 8-9, 13; SPP XX, 245, 13, 14.
The craft of the plumarius

Some 40 plumarii (and two plumariae) are known to us from a span of seven centuries (see Appendix 1). Vitruvius in Augustus’ reign and the compilers of Diocletian’s Edict 300 years later both make special provision for the work of the plumarius. A late Roman contract of apprenticeship provides for a girl, Evangeleia, to be trained as a πλουμαρίσσα by ‘experienced πλουμαρίοι’. But what did plumarii actually do?

Garments of wool and most linen textiles in antiquity were woven to shape on the loom as a single web of cloth (Fig. 8); they required little subsequent tailoring. Tapestry-woven decoration in panels, roundels and clavus-bands was integrated into the weaving on the loom as the appropriate stages were reached, and this is when the plumarius would be called upon to exercise his skills. But it was no simple matter.

To intensify the effect of the areas of dyed weft, the warp within the chosen ornament – band, panel or roundel – was often grouped and crossed (so-called croisage) (Figs. 9, 10), so that the weft yarn could be beaten up tighter. The precise configuration of the warp crossing varied greatly. Common to all, however, was that the warp re-arrangement started and ended within the flanking ground weave, a diagnostic feature most clearly seen along the edges of tapestry-woven bands. This means that the weaver, before and after inserting the coloured weft yarn, passed a few

56. For plumariae: P.Oxy. LIX, 4001, 19-20; P.Aberd. I, 59. (In P.Coll.Youtie II, 95, 6 A. Delattre reads πλουµαρισσης in preference to the original editor’s ταρσικαρισσης; but the sense of the context militates against this reading.) For a general survey of specialists see Ruffing 2008, 722, plumarii.
57. Vitruvius, de Architectura VI, 4, 2; EdD XIX, XX passim.
59. Burnham 1973, 2-5; Granger-Taylor 1982; for an example see Pritchard 2006, Figs. 4.4a, 4.4b.
Fig. 9. Drawing showing the grouping of warp yarns on the loom for *croisage* (warp crossing). Drawing by courtesy of D. De Jonghe.

Fig. 10. Diagram of a typical example of the structure of *croisage*. After Schrenk (2004), 489, with permission.
yarns of ground weft through the new shed, and thus created a shadow effect (Fig. 11). In some cases – perhaps on particular loom types – some of the warp was eliminated from the weaving by being pushed to the back and ultimately cut or worn off. In some textiles, warp crossing and elimination appear in combination. In some independent tapestry motifs the ground weft also floated on the back. It is noteworthy in some cases that in successive bands on a single textile the same warp threads were grouped or eliminated, so some sort of mechanical device was used to store and repeat the shed.

Another enhancement, easily mistaken for embroidery, is the so-called ‘flying thread’ technique (Fig. 12). On an otherwise plain tapestry background white linen thread carried on spools is wrapped around warp threads and passed obliquely over the weft to create a network pattern in silhouette, all carefully counted out.

Finds of inked and/or painted cartoons on papyrus (ἐντύπα, χαρτάρια) (Fig. 13) indicate that the plumarius might have a repertoire of design motifs from which a customer could choose, as has been argued for mosaics and wall paintings. The cartoons may have served as a general guide rather than being copied at 1:1 as is modern practice.69

Diocletian’s Edict hints that the plumarius may have chosen and provided his own dyed yarn, an expensive business. The complexity of Roman dyers’ practices being revealed by modern dyestuff analysis may reflect the pressure which the plumarius exerted on dyers to achieve a particular fashionable colour nuance.70

The ταβλία πλουμαρικά, tapestry-woven panels, on tunics, cloaks and bedspreads in late antiquity were sophisticated works of art in their own right.71 Ever more elaborate textile decoration was being demanded at every level in society as time went on. The huge ‘Dionysus Hanging’ in the Abegg-Stiftung, Bern, recently published, is a monument to the skills and dexterity of late Roman tapestry-weavers.72 The plumarius must have had a pivotal rather than an ancillary role in the weaving profession. Wealthy patrons might employ him on piecework in their domestic workshops; but the plumarius in

Fig. 11. The shadow effect of croisage on the ground weave adjacent to a tapestry-woven band on an Early Roman wool textile from Mons Claudianus in the Eastern Desert of Egypt. Photo: J.P. Wild.

64. Bogensperger 2012, 93 Abb. 34; Pritchard & Verhecken-Lammens 2001, 23-24 Fig. 3.2.
65. De Jonghe & Tavernier 1983, 182 Fig. 3, 174-175; Ciszuk & Hammarlund 2008, 127-129.
66. Verhecken-Lammens 2013. ‘Flying thread’ might be implied in SB XX, 14214, 10 which lists a garment ‘decorated with tapestry and by needle and ‘point’ (?)’.
68. For a corpus of tapestry weavers’ cartoons on papyrus see Stauffer 2008; for wall painters’ copy-books see Ling 1991, 217-220.
72. Willers & Niekamp 2015. Around the time of the Arab conquest of Egypt and thereafter tapestry-woven ornament seems to have been woven separately from the garments to which it was later sewn: Pritchard 2006, 83.
turn probably employed humbler weavers to do the basic ground-weaving.

**The etymology of plumarius and its congeners**

There is a final intriguing question to ask: what was the connection (if any) between plumarius, ‘tapestry weaver’, and pluma, ‘feather’? Kerstin Dross-Krüpe has already considered this problem, but the sources shed little direct light on it.73 Petronius alludes to the variegated shimmer of a peacock’s plume in textile-metaphorical language (‘aureo Babylonico’).74 and two hundred years earlier Plautus includes ‘plumatile’ in a catalogue of new-fangled clothing designations.75 Some sort of visual likeness between a bright multi-coloured feather and tapestry weaving might have been in their minds and given rise to the neologism plumarius.

Be that as it may, the profession of plumarius was established in Italy at least by the close of the Republican period.76 It occurs for the first time in Greek as a loanword in a papyrus dated no earlier than the late 3rd century AD.77 Tapestry weaving, however, was already known in Classical and Hellenistic Greece;78

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76. Varro, Frag. 33, in Nonius Marcellus 162, 27 (ed. Lindsay 1903).
78. Wace 1934, 110; Wace 1948; Wace 1952; Spantidaki & Moulherat 2012, 195-196.
but the practitioner was known simply by the portmanteau term ποικίλτης, ‘decorator’. One might suggest that as the craft of tapestry weaving became ever more demanding and sophisticated, a new term was coined to give the operative a more distinctive title. As a loanword plumarius (presumably through Greek) is found in Coptic writings, as one might expect, and once in Syriac. But, more surprisingly, pflūmāri occurs in Old High German, borrowed (before the second Lautverschiebung of c. AD 400) from the Latin vocabulary of the northern Roman frontier provinces.

Concluding comments

Already at the beginning of this paper we revealed the conclusion we had reached: vestis polymita is taqueté, vestis plumaria is tapestry. Such a premature revelation may seem unwissenschaftlich. But we would plead that trying to match textile with text is like playing a game of football on shifting sands. The players move, the ball moves, and so do the goalposts. Scoring a goal is more a matter of luck than fine judgement. But it is fun to try.

Appendix 1: Sources for textile terms based on the root -plum/-πλουμ-

I. Papyri and Ostraka

Note: Abbreviations for papyrological publications used below are cited according to the standard set out in J. F.Oates et al. (2001) Checklist of editions of Greek, Latin, Demotic and Coptic papyri, ostraca and tablets (fifth edition), Oxford, and in later editions online at www.scriptorium.lib.duke.edu/papyrus/texts/clist.html.

79. Droß-Krüpe & Paetz gen. Schieck 2014, 213. In P.Cair.Masp. II, 67163, 7, 12 the same craftsman describes himself as both ποικίλτης (l.7) and πλούμαρος (l.12).

80. For a discussion of the implications of loanwords for archaeology see Wild 1976.

81. P.Ryl.Copt. 238, 15. We are grateful to C. MacMahon for the information that the term is also used by Shenute in his (Coptic) writings.

82. As plumia: Ioannes Ephesius, Historia Ecclesiastica II, 6 (Scriptores Syri (Paris 1935), Vol. III, iii, 105-106). We are grateful to Sebastian Brock for advice on this term.

83. We owe this reference to Roland Schumacher (see his article in this volume).
[1st century AD]; CIL VI, 9813 (Vicari 2001, no. 51) (Rome) [1st/2nd century AD]; CIL XIII, 5708 (ILS 8379) (Le Bohec 1991) [AD 150-200]; Edictum Diocletiani, passim (Lauffer 1971; Giacherco 1974) [AD 301]; CIL VI, 31898 (Rome) [4th century?]; SEG XXVII, 1977, no. 995 (Tyre); SEG LIV, 2004, no. 1512 (Pompeipolis, Cilicia) [5th/6th century]; CIG 4434 (b) (Cilicia); SEG LVIII, 2008 [p. 336] (IG-CVO, 153A) (Sicily) [late Roman]; SEG XXXVII, 1987, no. 1345 (Tarsus, Cilicia) [5th/6th century]; MAMA III, 496 (Korykos) [5th/6th century]; MAMA III, 685 (Korykos) [5th/6th century]; MAMA III, 441 (Korykos) [5th/6th century]; MAMA III, 285,b (Korykos) [5th/6th century]; MAMA III, 403 (Korykos) [5th/6th century]; MAMA III, 364 (Korykos) [5th/6th century].

3. Literature

1st century BC: Varro (Frag. 33) in Nonius Marcel- lus, p.162, 27 [c. 44 BC]; Vitruvius, de Architectura VI, 4, 2 [under Augustus]; 1st century AD: Lucan, de Bello Civili X, 123-126 [AD 62 or 63]; 2nd century AD: (vacat); 3rd century AD: (vacat); 4th century AD: Firmicus Maternus, Mathesis III, 6, 4 [fl.c. AD 340]; Scriptores Historiae Augustae, Carus XX, 5; Jerome [Hieronymus], Epistulae 29, 4 Ad Marcel- lam [AD 384]; Jerome, Epistulae 29, 6; Jerome, Epis- tulae 64, 12 Ad Fabiolam [AD 395-397]; 5th century AD: Prudentius, Hamartigenia, 294-295 [c. AD 405]; Caesarius Arelatensis, Regula ad Virgines XLII [AD 503-543]; Liber Pontificalis I, cxlvi, cxlvii [AD 471]; 6th century AD: Procopius, de Aedificiis III, 247 [AD 553-555]; Johannes Malalas, Chronicographia 17, 9, 20 [c. AD 565-570]; Gregory of Tours, de Glo- ria Martyrum 97 (S. Sergius) [AD 583-594]; 7th cen- tury AD: Aldhelm, de Laudibus Virginitatis 15.

The decoration of the textiles associated with the Jewish Tabernacle is repeatedly mentioned in the Vulgate text of Exodus, chapters 26-39, where a variety of terms are employed, presumably on the authority of Jerome (Epistulae 29, 4). This terminology, and the corresponding Greek of the Septuagint, is discussed by Mossakowska-Gaubert (2000), 305.

Appendix 2: Word forms built on the root -plum/-πλουμ

* not attested in Greek

Latin:
plumarius
plumare (?) [SHA, Carus XX, 5]
plumatus [Lucan, de Bello Civili X, 122; Caesar- ius Arelatensis, Regula ad Virgines XLII]
plumatura [Edict of Diocletian passim]

Greek:
πλουμάριος
φλουμάρης [P.Oxy. XXIV, 2421, ii, 32; SB XII, 10935]
πλουμαρία [P.Oxy. LIX, 400, 19-20]
πλουμαρίσσα [P.Aberd. I, 59]
*πλουμαριζω [restored from Coptic: Riedel & Crum (1904), 55]
πλουμαρικός [P.Dub. I, 20; PSI VIII, 959, 33]
πλουμάρισς [Edict of Diocletian passim]
πλουμίον [Procopius, de Aedificiis III, 247]
πλουμ(ία) [SPP XX, 245, 6]
πλουμαρία [= πλουμία] [P.Oxy. XVI, 2054]
πλουμαρισίμος [= πλουμαρι<ο>σήμος] [P.Ant. I, 44, 9]

Adjectival forms:
έμπλουμος [P.Fouad. 74, 6; SB XX, 245, 13]
εὔπλουμος [P.Ant. I, 44, 13]
ορθόπλουμος [SB III, 7033, 39; P.Apol. I, 49, 5]
οθονεμλ(ουμάριος ?) [SB XII, 11077, 26]
Abbreviations


CIL T. Mommsen et al. (1862-) Corpus Inscriptionum Latinarum. Berlin.


MAMA W. M. Calder et al. (1928-) Monumenta Asiae Minoris Antiqua. Manchester.


SEG Supplementum Epigraphicum Graecum (1923-).

ZPE Zeitschrift für Papyrologie und Epigraphik.

Bibliography


Tunics Worn in Egypt in Roman and Byzantine Times: The Greek Vocabulary

Maria Mossakowska-Gaubert

The principal element of the fashion in clothing introduced in Egypt with the arrival of the Romans was a tunic made of two rectangular pieces of fabric sewn together. Such a tunic either would leave the arms naked, or cover the arms to the elbow (fig. 1). This fashion changed with the turn of the 2nd and 3rd century AD. At this time, in addition to the tunics without sleeves, the inhabitants of Egypt started to wear tunics with ‘true’ sleeves — long or short, wide or tight — inspired by the Eastern fashion: the manner of making the tunics changed and the decorative motifs became richer. The tunics were woven to shape, either in one piece (fig. 3) or, probably starting from the 5th century AD, were made up of three pieces stitched together (fig. 4). As for the sleeveless tunics, they were also woven in only one piece (fig. 2). In the 6th-7th century AD Egypt, one could see a certain influence of the style probably coming from Sassanid Persia. Amongst other things, this tendency was expressed in tunics with long sleeves, sewn in several pieces (fig. 5).

These changes in fashion are reflected in the vocabulary concerning the tunics, as attested in the papyrological documents and in the literary texts. Several Greek terms are employed to indicate tunics in the texts written in Egypt at this time: δέλματική, καμίσιον, κολόβιον, λεβίτων, στιχάριον, χιτών. Studies focussing on Egyptian tunics and their vocabulary are dispersed in isolated comments and lexicographical articles, as well as in the publications of

1. I am grateful to Vivienne Callender who translated my paper into English.
2. Regarding the changes in the fashion of tunics, see Croom 2000, 30-40 and 76-85; Mossakowska-Gaubert 2006, 170-173; Pritchard 2006. On the technical details of constructing the tunics, see also Verhecken-Lammens 1997.
3. Up until now, the most ancient fragments of tunics woven to shape, for which the interpretation leaves no doubt, comes from Dura Europos: they are dated c. 256 AD (cf. Pfister, Bellinger 1945, nos 1-3, pl. V-VII, 14-15 and 17) and from Palmyre — c. 273 AD (Pfister 1934, no. T 20, 19, fig. 2; pl. VI and pp. 24-28).
4. Regarding this date and this phenomenon, see Pritchard 2006, 60 and 68.
5. See, for example, Calament 1996; Martiniani-Reber 1997; Lorquin 2002.
Figure 1. Tunic without sleeves, sewn from two pieces. Drawing: Mahmoud Bakhit © Ifao, after Granger Taylor, Sheffer 1994, fig. 28 and 29.

Figure 2. Tunic without sleeves, woven to shape, in one piece. Drawing: Mahmoud Bakhit © Ifao, after Wild 1994, fig. 31b.

Figure 3. Tunic with long sleeves, woven to shape, in one piece. Drawing: Mahmoud Bakhit © Ifao, after Carroll 1988, fig. 12 A.

Figure 4. Tunic with long sleeves, woven to shape, in three pieces. Drawing: Mahmoud Bakhit © Ifao, after Lafontaine-Dosogne, De Jonghe 1988, fig. 137 and 138.

Figure 5. Tunic sewn from several pieces. Drawing © Maria Mossakowska-Gaubert, after Tilke 1923, fig. 28.
The first notification of the word δαλματική in the Greek language seems to be in a register of clothing written on a papyrus found in Egypt and going back to the end of the 2nd - beginning of the 3rd century, undoubtedly before the year 222 AD. The word δαλματική / δάλματική / δελματικίον is then frequently mentioned in the Egyptian papyri until the 5th century. We note that this term is almost absent in other Greek texts written in Antiquity, except for the Greek version of the Edict on Maximum Prices of Diocletian and the Panarion of Epiphanius of Salamis. Those two texts are from the 4th century AD.

The dalmatica is associated with the liturgical parameters used in the Roman Church at the end of the Empire. Textual testimonies regarding a possible use of the dalmatica in a non-liturgical context in the western

objects coming from excavations or collections, and they do not exhaust the subject. It is the aim of this paper to present the evolution of the significance of these terms and their employment in the texts coming from Egypt.

δαλματική / δέλματικη / δελματικίον

Dalamatica is a term having a geographical character, suggesting that the source of this clothing would be from Dalmatia, but we do not have any archaeological or iconographic evidence confirming this etymology.

The oldest known mention of the Latin word dalmatica is attested in an inscription containing the copy of a letter written by Claudius Paulinus, governor of Britannia Inferior, dating from 220 AD.

6. One section of the studies presented in this article, especially concerning the tunics without sleeves, has been published in Mosakowska-Gaubert 2004. My studies on the tunics were conducted as part of the PhD dissertation entitled Le costume monastique en Égypte à la lumière des textes grecs et latins et des sources archéologiques (iv°- début du vi° siècle), prepared under the direction of Włodzimierz Godlewski, and defended in 2006 at Warsaw University. My research on the vocabulary of clothing continues, since 2012 in the collective program “Contexts et mobiliers” directed by Pascale Ballet, Jean-Luc Fournet and myself, hosted by the French Institut of Oriental Archaeology in Cairo – IFAO, and since 2017 in my Marie Skłodowska-Curie fellowship program MONTEX, hosted by the University of Copenhagen’s Centre for Textile Research – CTR.

7. On this term see, for example, Bayet 1892; Murri 1943, 121-127; Wild 1968, 222-223; O’Callaghan 1982-83; Granger Taylor 1983, 139, and Dross-Krüpe in this volume.


10. This letter enumerates the gifts offered by Claudius Paulinus to Sennius Sollemnis, a high dignitary from Roman Gaul. Among the gifts is found a dalmatica from Laodicea in Syria. The edition of the text: CIL XIII, I, 1, 3162, col. II 10. For a reedited text, with translation and detailed commentary, see Pfau 1948. For the dalmatica see particularly p. 25. Cf. also Wild 1968, 222.

11. Despite a clear comment on this subject, made by Wild 1968, 222, n. 250, one still finds in several scientific publications indications concerning the use of the term dalmatica / delamtica and of the tunic thus named already about the middle of the 2nd century. This opinion is founded on testimony in the Historia Augusta, according to which Commodus wore this garment (8.8). However, that work had been written towards the end of the 4th century and the term delamtica used there reflects the vocabulary of its author, rather than the realia of the time of Commodus.

12. SB XXIV 15922, I 22, IV 5. In addition, from the year 230 AD comes another papyrus found in Egypt containing the term δαλματική (CPR 121, 16). Furthermore, P. Harr. I 105, containing the word δαλματικαί (l. 8), is dated by its editor to the 2nd century, however, this dating has been questioned and was taken back to the 3rd century (see BL XI, p. 90). One other text, the P. Oxy. XII 1583, has been dated in an imprecise manner to the ‘second century’, and it may be that it was written towards the end of the 2nd century. In the thirties and forties of the 3rd century, the δαλματική term also appears in some papyri found at Dura Europos: P. Dura 30, 16-18 (232 AD) and P. Dura 33, 8 (240-250 AD) and in a graffito: Baur, Rostovzeff & Bellinger 1933, 153, no. 300, L. 15 – non vid.

13. One isolated attestation of the word δαλματική, in a made up word: δαλματικομαφόριον, is found in a text from the 7th-8th century: SB VI 9594, 4, 5.

14. Ed. Diocl. (301 AD) XXXVI, 39, 49, 59 and 72; (315-403 AD), Panarion I, 1 XV (PG 41, col. 245A).

15. It is not clear in which period exactly the dalmatica became the official costume of the Roman deacons. The citations coming from the Liber Pontificalis and Vita Silvestri on this use of the dalmatica as a sacerdotal vestment in the 4th century, at the time of Pope Silvester, do not seem to be reliable (on this subject to see Bayet 1892, 20). However, evidence concerning the 6th century (e.g., Life of Caesarius of Arles, I, 42; Gregory the Great, Dialogues, IV, 42, 2) and much later (e.g., Isidore of Seville, Etym. XIX, 22) does seem to be reliable.
part of the Empire are extremely rare. However, this term is usually associated with representations of roomy tunics, with long and wide sleeves, known from Roman art dating to the end of the Empire: they range in style either without a belt, or girdled under the chest (among women) or, more rarely, fastened around the lower part of the hips (among men).\(^{19}\) One finds tunics of this type in the archaeological material coming in particular from the eastern part of the Mediterranean (fig. 6), but not exclusively.\(^{20}\) Moreover, one is unaware whether from the beginning this term indicated a tunic with long sleeves, and what the width of these sleeves would have been. A clearly described dalmatica as a tunic with broad sleeves appears only in the later glossaries.\(^{22}\)

According to the papyrological documents, the δαλματική was worn above all by women,\(^{23}\) but also by men, especially in the 3rd and 4th century AD.\(^{24}\) However, one does not find in the Egyptian texts any mention of a δαλματική like liturgical vestment. In one of the documents, a δαλματική is mentioned among the vestis militaris.\(^{25}\) This clothing is not attested in the texts and documents concerning the monks.

The δαλματικά mentioned in the papyrological texts are made in linen\(^{26}\) or wool,\(^{27}\) sometimes decorated with bands of colors: apparently, the clavi.\(^{28}\)

\(^{16}\) It should be noted that this term is absent in the Thesaurus Linguae Latinae. One of the rare examples of the wearing of the dalmatica in the context which does not seem to be sacerdotal is found in the description of the martyrdom of Cyprian, the bishop of Carthage (Acta proconsularia S. Cypriani, V, ed. Th. Ruinart, Acta Primorarum Martyrum Sincerae and Selectae, Amsterdam 1713, 218, and Corpus Scriptorum Ecclesiasticorum Latinorum 3, 3, CXIII, 5): clothing that Cyprian removed before his execution, amongst which is found a dalmatica, were probably that type of garment usually worn and not liturgical – on this subject, see the comment by Bayet 1892, 20.

17. See the following examples:

18. See the following examples:
   - Sicily: Carandini, Ricci & de Vos 1982, 332. fig. 200: mosaic, one of the maidservants of the mistress, Piazza Armerina (4th century AD);

19. See the following examples:

20. See, for example, Kendrick 1920, pl. I, no. 1: Egypt – Panopolis (late 3rd to early 4th century AD); Pritchard & Verhecken-Lammens 2001: Egypt – Panopolis? (3rd to early 4th century AD).

21. See, for example, Granger Taylor 1983: two ‘dalmaticas of St. Ambrose’, Milan (4th-6th century AD?).

22. See Corpus glossariorum Latinorum, ed. G. Goetz, Vol. V, Leipzig 1894, 356, 72: 91 dalmatica: tunicula latas manicas habens. In addition, in two Greek texts of the 4th century, already quoted here, one δαλματική was associated with a tunic having short sleeves or without sleeves, called a κολόβιον, either as a garment of the same value, or identical (Ed. Diocl. XXVI, 39, 49, 59 and 72; Epiphanius of Salamis I, 1 XV: PG 41, col. 245A). The question one would like to answer is whether in this period the δαλματική indicated a tunic with short sleeves, or if a κολόβιον had long sleeves? One can advance the hypothesis that in the case of these texts it concerns a tunic with short and perhaps wide sleeves, however there is no indication on this last aspect. Moreover, in the scientific literature one finds the opinion that the term dalmatica relates to all kinds of tunics with long sleeves (e.g., Carroll 1988, 39), which seems incorrect to us, because each type of tunic with sleeves had its own designation (see below the terms κοιμισμὸν and επιγύνημα).

23. See, for example, P. Oxy. XX 2273, 12 (late 3rd century AD): δ. destined for a girl; P. Oxy. LIV 3765, 12-13 (c. 327 AD): δ. τορσικών γονυακίων; P. Stras. III 131, 7 (363 AD) – marriage contract; BGU XIII 2328, 10 (middle of the 5th century AD?) – marriage contract; SB XII 11075, 9 (middle of the 5th century AD): given to a bride.

24. See, for example, P. Oxy VII 1051 (3rd century AD): δ. of one Cyrillous; P. Kell. I 7, 11 (c. 350 AD): δ. for a Harpokration.

25. P. Coll. IX 247, 247 (324/25 or 325/26 AD).


καμίσιον, ύποκαμίσιον (καμάσιον, καμάσιον, camisa, camisia) ²⁹

It is not established from which language this term comes: certain linguists have tried to find its origins in the Germanic languages via the Celtic languages.³⁰

It seems that this term appears simultaneously in the Latin³¹ and Greek³² literature towards the end of 4th century. In the 6th century, the term ύποκαμίσιον makes its appearance. The words καμίσιον and ύποκαμίσιον passed into the Coptic language (καμίσιον, καμίσιον, ³³ ύποκαμίσιον ³⁴). Later, the καμίσιον term would be adopted, probably via the Aramaic, by the Arabic: qamīṣ.³⁵

The meaning of the camisia / καμίσιον term is also not clear. In a letter to Fabiola written in 395-397 AD, Jerome compares a sacerdotal tunic, very close-fitting, with a camisa in linen worn by soldiers.

²⁹ Regarding this term, see, for example, Wild 1968, 221-222; Kramer 1994; O’Callaghan 1996; Schmelz 2002, 118-119. I thank Adel Sidarous for his remarks on this subject.
³⁰ Walde & Hofmann 1938, s.v.; Chantre 1968, s.v.; Ernout & Meillet 2001, s.v.
³² Firstly, under the form of καμίσιον: see, for example, Gregory of Nazianze (381 AD), ‘Testamentum’ in Iuris ecclesiastici Graecorum historia et monumenta, ed. J. B. Pitra, vol. 2, Rome 1868, 158, l. 7, 9, 11. In the 5th century, this word had taken the form καμίσιον (see Palladius, Historia Lausiaca, 65,4).
³³ Regarding the other forms, cf. Förster 2002, s.v. ύποκαμίσιον. Also see Boud’hors 1997, 24-25.
³⁴ Förster 2002, s.v. ύποκαμίσιον.
³⁵ Frankel 1886, 44-45 – non vid.
– which was a garment with sleeves, moulded to the body. In Historia Lausiaca of Palladius (second decade of the 5th century) this term indicates a kind of tunic or an ‘undergarment’ worn by an imperial civil servant. According to the texts of the 5th–6th century AD, a ‘hair shirt’ called a καμίσιον was sometimes worn by the monks. In the Chronicon Paschale of the 7th century AD, the καμίσιον is a military garment. Finally, Isidore of Seville explains in his Etymologiae, that a camisia is a garment for sleeping, as well as a liturgical vestment. We recall that Paul the Deacon (8th century AD) in his epitome of the text De significatione verborum, written by Festus Grammaticus (end of the 2nd century AD), identifies the camisia with the supparus – a female linen garment, identified in its turn with the subuctula – a garment worn under another piece of clothing.

In the 6th century, the term ὑποκαμίσιον appears in the Greek texts, but the relation between the καμίσιον and the ὑποκαμίσιον remains obscure. Was the ὑποκαμίσιον a garment which one put under a καμίσιον – as suggested by the prefix ὑπο-? Or else, was this a garment of the same form as the καμίσιον, but worn under the καμίσια as well as other clothing, and thus an ‘undergarment’? The word ὑποκαμίσιον is used in papyrological documents to the early 8th century.45

With regard to the Greek papyrological documents, the καμίσιον term, sometimes in the form καμάσιον or καμάσιον, appears in the Greek papyri at the beginning of the 4th century and it is attested until the beginning of 8th century. However, an abbreviation καμί(σια) exists in a document dated from the end of the 2nd–beginning of the 3rd century AD and has been interpreted by editors as καμί(σια). As with other evidence of this term found in the papyri are dated from the 4th century AD and later, it either concerns the first mention of this term in the Greek language, or this reading must be called into question. The καμάσια quoted in the papyri were made in linen, perhaps in cotton, and in wool or with decorative motifs executed in wool. Some documents contain other indications about this clothing: the attestations

36. 64, 11: [...] solent militantes habere lineas, quas camisas vocant, sic aptas membris et adstrictas corporibus ut expediti sint vel ad cursum vel ad proellia [...]. Ergo et sacerdotes parati in ministerium utuntur hac tunica [...].
37. HL 65, 4.
38. Egyptian monks: Apoph. 80 (Ars. 42 = Sys. XV 11/10); Moschus, Pratum spirituale, 126 (PG 87, 3, col. 2988 B).
39. 394 (PG 92, 1012A).
41. 39 appears in the Greek papyri at the beginning of the 4th century AD and later, it either concerns the first mention of this term in the Greek language, or this reading must be called into question. The καμίσια quoted in the papyri were made in linen, perhaps in cotton, and in wool or with decorative motifs executed in wool. Some documents contain other indications about this clothing: the attestations
42. With regard to the term supparus cf. for example, Wilson 1938, 164-165; Potthoff 1992, 186-190.
43. On the word subuctula cf. for example, Wilson 1938, 164-165; Potthoff 1992, 184-185.
44. See, for example, Moschus, Pratum spirituale 186 (PG 87, 3064B); Leontius of Neapolis, Life of John the Almsgiver, XIX, 67.
45. As with other evidence of this term found in the papyri are dated from the 4th century AD and later, it either concerns the first mention of this term in the Greek language, or this reading must be called into question. The καμάσια quoted in the papyri were made in linen, perhaps in cotton, and in wool or with decorative motifs executed in wool. Some documents contain other indications about this clothing: the attestations
46. P. Iand. VI 125, 2 (4th century AD); P. Heid. VII 406, 4, 47 (4th-5th century AD); P. Princ. II 82, 41 (481 AD).
47. See, for example, P. Gen. I 80, 1 (4th century AD?): κάμασα – regarding this reading cf. BL VIII p. 135.
50. P. Heid. IV 333, v. 28 (5th century AD): καρπάσια καμίσια. On the adjective καρπάσιον understood as ‘in flax’, resulting from the substantive κάρπασος cf. D. Hagedorn, Byzantinischer Brief aus Samaritanischem Medium. In Griechische Text der Heidelberger Papyrus-Sammlung (P. Heid. IV), Heidelberg 1986, 234. The name κάρπασος, however, could also indicate cotton (cf. LSJ s.v.κάρπασος), therefore it is also probably that this text is recording a cotton garment.
51. P. Apol. 104, 16 (end of the 6th century or second half of the 7th century): μαλλωτ(ὰ) κ. Regarding the different ways in which one can understand the adjective μαλλωτ(ὰ) cf. Diethart 1989, 113-114 and Russo 2004, 140 and 141.
of καμίσιον worn by men52 are more numerous than those of a καμίσιον worn by women.53

An analysis of written sources makes it possible to conclude that the καμίσιον term indicated a garment worn directly on the body and that it probably had the shape of a tunic with sleeves. Since the word καμίσιον is found in some texts beside the terms κολόβιον, στιχάριον, δαλματική54 or χιτών,55 this inevitably indicated different tunics. It seems that the καμίσιον was worn either like an ‘under tunic’ or ‘undergarment’ by both the laity and the soldiers, being as well a liturgical vestment, or again, like a ‘nightdress’. The appearance of the word υποκαμίσιον in the 6th century in Greek texts could suggest that the καμίσιον no longer qualified as a type of clothing worn under another garment, this role henceforth being allocated to the υποκαμίσιον.

Representations of tunics worn under another tunic are frequent in the Roman and late Roman epochs.56 These ‘under-tunics’ appear at the neck edge and/or the sleeves of the tunic which is on top; they are always white or of a natural color, and are without decoration or with clavi, or with simple motifs around the neck – notably those belonging to women. The archaeological material of Egypt shows these tunics without decoration, or with simple motifs around the neck – notably those belonging to women. The archaeological material of Egypt shows these tunics without decoration, and with tight sleeves. It seems that the garments of this type could be worn under an upper tunic.57

Johannes Kramer proposed identifying the καμίσιον / camisia with the tunics with tight sleeves, worn by ‘barbarians’, such as those represented, for example, on Trajan’s Column.58 But in all likelihood, the word in question did not appear in the Latin vocabulary, and in all probability, Greek, until the 4th century. Consequently, at the beginning of the 2nd century, another name was most probably given to clothes of this type (for example, tunica manica and χιτών χειριδώτος or another name). However, one cannot exclude, at least in Greek, that starting from the 6th century AD the word καμίσιον indicates a kind of cut tunic, short and tight, with long sleeves, perhaps worn above trousers, as in the Persian Sassanid fashion. We know some representations of such tunics in particular from the Eastern part of the Mediterranean;59 these tunics also appear in the archaeological material coming from Egypt (fig. 7).60 These are, however, only assumptions.

Despite all the attestations of καμίσιον / camisia or υποκαμίσιον, and in spite of the iconographic and archaeological richness of the material, a question remains: do these terms designate the particular form or the function of a specific garment?

κολόβιον61

The word κολόβιον was probably derived from the adjective κολοβός, which indicates “truncated”,

52. See, for example, P. Ant. II 96, 17 (6th century AD): κ. of a certain Menas; P. Mich. XV 740, 6 (6th century AD): κ. for a worker; SB XVIII 13750, 3, 4 (7th century AD): κ. τοῦ κυρίου; P. Lond. IV 1352, 4, 10, 14 (710 AD): an order for an army’s necessities (?).
53. BGU II 550 (= SPP III 241), 2 (Arabic period) – a certain Euodia.
54. Gregory of Nazienze ‘Testamentum’ (op. cit. see note 32), p. 158, l. 7, 9, 1. See also the papyrological documents: P. Princ. II 82, 41 (481 AD); P. Heid. VII 406 (4th-5th century AD); P. Berl. Sarisch. II 96, 17 (6th century AD); P. Mich. XIV 684 (6th century AD); SPP III 83 (6th century AD); SPP XX 245 (6th century AD); P. Frag. I 93 (6th century AD).
55. Apoph. 80 (Ars. 42 = Sys. XV 11/10).
56. See the following examples:
Rome: Deckers et al. 1991, color figure 21: painting with a representation of an orante (first decades of the 4th century AD).
57. See, for example, Bruwier 1997, no. 10; provenance unknown (4th-5th century AD?).
58. Kramer 1994, 140. For the representations of Dacians on Trajan’s Column in close-fitting tunics, see Settis et al. 1988, e.g., plates nos 21 (XVIII, 41-43); 31 (XXIV, 61-63); 39 (XXX-XXXII, 75-77); 117 (LXX-LXXI, 179-181) and others.
59. See, for example, Piccirillo 1993, 138-139, fig. 169: mosaic – hunter on a horse. Jordan, Mont Nebo, diaconicon in the basilica (530 AD); Piccirillo 1993, 152, fig. 201: mosaic – hunter, Jordan, Mont Nebo, church of Saints and Martyrs Lot and Procopius (557 AD).
60. See, for example, Tilke 1923, no. 28: provenance unknown (6th century AD); Fluck, Linscheid & Merz 2000, no. 132: provenance unknown (Sassanian period: 6th-early 7th AD?).
61. On this term, see, for example Mau 1900; Wild 1994, 27; Mossakowska-Gaubert 2004, 157-161.
‘shortened’ or ‘short’. It became adopted to the Latin language in the form of *colobium*.

The oldest mention of κολόβιον in texts written outside Egypt is in the *Edict of Diocletian*. The word κολόβιον/colobium is attested in the literature in particular in the texts concerning the Egyptian and Palestinian monks. It also appears, though much more rarely, in other texts which do not have a monastic character. It signified a tunic without sleeves or with short sleeves, sometimes identified with a λεβίτων.

They belong especially to men who work physically, who are depicted during Late Antiquity dressed in a tunic without sleeves or, more often, with short sleeves.

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62. Chantraine 1968, s.v. κόλοβος.
64. See, for example, Pachom, *Praecepta - fragmenta graeca*, LXXXI (32) 26 (Lefort 1924, 17); *Historia Monachorum* VIII 6; Ad Castorem 1, 6 (PG 28, col. 856 D); Apoph. 559 (Nist. 4); John Cassian, *Inst.* I, 4; Moschus, *Pratum spirituale*, 124 (PG 87, 3, col. 2985 C); Anastasius of Sinai [attributed to], *Tales of the Sinai Fathers*, ed. Nau 1902-1903, XXXI, 22. For the *colobium* in the monastic costume, see, for example, Mossakowska-Gaubert 2004, 157-161.
65. Isaie, *Asceticon*, VI 5 F i, r. ζ; Barsanuphius and Jean, *Questions and Answers*, 53, 4-5, 13-1; 326, 12, 13; Dorotheus of Gaza, *Instr.* I 15, 5-6; I 15, 14; Cyril of Seythopolis, *V. Euthymii*, l. 73; Moschus, *Pratum spirituale* 92 (PG 87, 3, col. 2949-2952 C-D).
66. See, for example, Epiphanius of Salamis (315-403 AD) I, 1 XV (PG 41, col. 245A). See also, Servius Maurus Honoratus (late 4th century AD), *In Vergilii carmina commentarii*, Aen. IX, 613; Isidor of Seville (early 7th century AD), *Etym.*, 19, 22, 24.
68. See, for example, Piccirillo 1993, 173, fig. 224: fragment of a mosaic with a representation of a gardener, chapel of the priest Jean, Wadi ‘Afrit, Jordan (565 AD).
We also know of tunics of this type (fig. 8) coming from Egypt and elsewhere.

The word κολόβιον / κολόβιν which indicates a tunic appears in some inscriptions from Dura Europos, dated to about AD 235-240 and from the same period in the papyrological texts from Egypt. It is mostly present in the papyrological documents of the 4th and 5th centuries, only to disappear during the 6th century. The word κολόβιον could both indicate a tunic of a man as well as that of a woman. The κολόβια were made either in wool or in linen. In some texts it is a question of a κολόβιν with a double

69. See the following examples:
Rome: Deckers et al. 1991, coloured figure no. 20: the Good Shepherd (?), catacomb of the Via Anapo (two first decades of the 4th century); Nicolai, Bisconti & Mazzoleni 2000, 114, fig. 131: mural painting with a representation of some cooperers, catacomb of Priscilla (3rd-4th century AD?).
Egypt: Dunand 1990, 222, no. 610: terracotta figure of a coachman (?); Antinoe (3rd-4th century AD).

70. See the following examples:
Egypt: Kendrick 1921, pl. XIV, no. 340: tunic with short sleeves; provenance unknown (5th-6th century AD); Bruwier 1997, no. 68: tunic without sleeves, provenance unknown (c. 7th century AD); Mantering 2000: tunic A (without sleeves), tunic B (with short, sewn sleeves); the two coming from Mons Claudianus (period of occupation: between the end of the 1st century to the middle of the 3rd century AD); Hodak 2010, no. 157: tunic without sleeves; provenance unknown (3rd-5th century AD).

71. Baur, Rostovtzeff & Bellinger 1933, 93 no. 219, 98 no. 227 – non vid.

72. See, for example, P. Tebt. II 406, II, 17 (c. 266 AD); SB III 7244, 24-26 (middle of the 3rd century AD); P. Oxy. VII 1051, 8-9 (3rd century AD); P. Oxy. XLIV 3201, 10 (3rd century AD); P. Rein. II 118, 5-11 (late 3rd century AD).

73. The only document for the 6th century AD, where the word κολόβιον indicates a vestment, is P. Iand. VI 102, 21. In the P. Cair. Masp. I 67001 (514 AD), l. 31 κολόβιον (l. κολόβος) indicates a measure of liquid – cf. Preisigke s.v. κολόβος and the commentary of P.M. Meyer in Griechische Papyri in Museum des Oberhessischen Geschichtsvereins zu Giessen, Band I, Teubner 1910-1912, 104 [= no. 103, l. 16-17] on this subject.

74. P. Rein. II 118, 9-10 (late 3rd century AD): τὸ κ. Κυρίλλ[ης]; P. Tebt. II 406, II, 17 (c. 266 AD): an inventory of items left by the deceased Paulus; O. Wilck. 1611, 10, 11, 12, 14 (3rd-4th century AD): a list of male names and garments, the purpose of which we ignore.

75. See, for example, P. Oxy. VII 1051, 14 (late 3rd-4th century AD): κ. γυνεκίον; P. Wash. Univ. II 97, 4 (5th century AD): κ. γυνηκίον; SB VI 9158, 6 (5th century AD): κ. of a certain Nonna.


stripe or rather – *clavi*, and in others of a *κολόβιν* with a stripe, sometimes described as being from a crimson vegetable dye.

**λεβίτων** (*lebítōn*, *lebítōnárion*, *lebítōnárion*, *lebítōnárión*)

The Greek word *λεβίτων* was probably borrowed from the Semitic languages. In the Latin language it took the form *lebitonarium*, and it was adopted into the Coptic language in the following forms: *λαβίτε*, *λαβίτο*, *λαβίτον*, *λαβίτον*, *λαβίτον* and *λαβίτον*.

The term *λεβίτων* / *lebitonarium* appeared in the literature towards the end of the 4th century and it is well attested in the 5th century, only to disappear in the 6th century. The attestations of the term *λεβίτων* / *lebitonarium* are found in the texts, in particular, those concerning Egyptian monks and, more rarely, monks from other regions. This tunic did not have sleeves. We have illustrations of Egyptian monks dressed in a tunic without sleeves. Tunics of this type (fig. 9) were also found on the bodies of monks.

Up until now, we know of only three Greek papyrological documents where one could hope to see the word *λεβίτων*. However, the reading of this word, written each time with an erroneous orthography, is extremely doubtful. Nonetheless, this term is attested, without any ambiguity, in an inscription and in some papyri and ostraca written in Coptic. These documents date from the 4th to the 8th century AD and, in the main, we are sure that they were written in a monastic milieu. Nevertheless, the context of some documents where the word in question is found remains obscure.

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79. P. Oxy. XLIV 3201, 2 and 11 (3rd century AD): κ. ἐνσήμ(ου) [...].
81. Regarding this term see, for example, Mossakowska-Gaubert 2004, 161-163.
82. Cf. Sophocles 1900, s.v *λεβίτων*.
84. Pachom (Lat.), Praef. 4 (Boon 1932, 6); Praec. 2 (Boon 1932, 13); Praec. 67 (Boon 1932, 33); 81 (Boon 1932, 37); Pachom, Excerpt. LXXI (32) 26 (Lefort 1924, 17); Liber Orsies. 26 (Boon 1932, 127); Pachomii vita prima 14, 113, 134 and 146; Pachom (Gr.), Paradipomena IX 29 (ed. Fr. Halkin, Paradipomena de SS. Pachomo et Theodoro BHG 1399a, in Le Corpus Athénien de Saint Pachôme. Genève 1982, 73-93); Historia Monachorum VIII 6 and X 9; Palladius, Historia Lausiaca 32, 3; Apoph. 296 (ThP 29); Apoph. 417 (Sys. VI, 8 = JnP 2); Apoph. 439 (Cros 5); Apoph. 585 (Poe 11); Apoph. 926 (Phoc 1); Apoph. 1132 B (N 132 B = Coislin 126, 414, l. 12 and 20); Apoph. 1172 (Sys. V, 26 = N 127); Apoph. 1358 (N 358).
85. For the Palestinian monks see, for example: Barsanuphius and Jean, Questions and Answers, 326, 14. The word *λεβίτων* is also present in the Greek tradition from a Syriac text of Ephrem the Syrian: *Capita centum (Quomodo quis humiliatam sibi comparat)* 88, 3. See in addition the *Lexicon* called of Suda (10th century) in which is found an explanation which, in the language of the inhabitants of Prusa (in Bithynia), *λεβητονάριον* is a monastic *χιτών* made of animal hair: *Stiidae lexicon*, ed. A. Adler, vol. 1 part. III, Teubner 1933, Λ, p. 242.
86. See Pachom (Lat.), Praef. 4 (Boon 1932, 6); Praec. 2 (Boon 1932, 13); Pachom, Excerpt. LXXXI (32) 26 (Lefort 1924, 17); Historia Monachorum VIII 6.
87. See, for example, Sauneron 1972, 14-15; fig. 57: *graffito* representing two monks. Esna, hermitage no. 4 (between around 550 and 630 AD).
88. See, for example, Castel 1979, 139, fig. 12: St-Mark’s monastery, Western Thebes (6th-7th century AD); Winlock, Crum 1926, 70-71: *laura* of St-Epiphanius, Western Thebes (second half of the 6th century, up to the first decade of the 8th century); Bechtold 2008: *laura* of Cyriacus, Western Thebes (6th-7th century AD).
89. In all these texts it seems to be an erroneous form either, of the word *λεβίτων*, or of the word λέβης ‘cauldron’: *P. Neph.* 12, 14 (in the years 50 and 60 of the 4th century); *P. Bad.* IV 95, 105 (probably 6th century AD); *P. Oxy.* XIV 1683, 22 (late 4th century AD). Two of the first documents had been written in a monastic environment.
90. See, for example, *P. Lond.* VI 1920, 11; *P. Lond.* VI 1922, 5, 11 (c. 330-340 AD); *P. Bal.* II 263, 3 (675-775 AD); *P. Sarga* 161, 10; *P. Sarga* 164, 9 (late 6th - early 8th century AD); *P. Yale Copt.* 1, 32. V. 7, 7 (7th century AD); Heurtel 2004, inscription no. 25 (second half of 7th century AD?).
91. See, for example, *P. Mich. Copt.* 3, 9 (4th-5th century AD); *O. Vind. Copt.* 140, 15 (7th-8th century AD); *O. Crum VC* 118, 14 (7th-8th century AD).
Figure 9. Tunic without sleeves (St-Marc monastery, Thebes West; 6th-7th centuries AD). Drawing: Georges Castel © Ifao (Castel 1979, fig. 12).
The word στιχάριον is probably a diminutive of στίχη, — a word in the Edict of Diocletian designating a kind of tunic. In the Latin version it is translated as strictoria, which seems to be a neologism indicating a tunic which ‘is tight’ (the verb stringo). This word has passed into the Coptic language in the forms: στιχα, στιχαρι, στιχαριо. In Greek literary texts, the word στιχάριον does not appear before the 4th century AD, when it would indicate either a liturgical tunic, or a garment worn by the monks, or an item of the imperial costume. Finally, in the acts of the Synod of Constantinople and Jerusalem (536 AD) there is a passage concerning baptism: those newly baptized (νεοφωτίστοι) were barefoot and without their στιχάρια. In the Latin version it is translated as stichæ, which seems to be a neologism translated as strictoria, indicating a kind of tunic.

With regard to the documentary texts of Egypt, the date of the appearance of the word στιχάριον is not certain. The word in question is frequent in the papyrological documents — in particular, from the second half of the 3rd to the 6th century, and it persists until the 8th century AD. However, an word starting with στιχαριo is attested in a register of clothing dated earlier than 222 AD, mentioned above, and the term στιχάριον is attested in two papyri from Dura Europos, of which oldest goes back to 232 AD.

Given the numerous texts where στιχάριον is mentioned beside other terms for tunics, one must admit that it indicates a tunic with long and tight sleeves, different from the dalamatica, and quite distinct from all the tunics without sleeves or with only short sleeves.

Images of men dressed in short tunics with tight sleeves are very frequent in the art of late Antiquity, while those with long tunics and long tight sleeves are...
more rare.\textsuperscript{105} It would seem that this latter tunic type is especially worn by women.\textsuperscript{106} However, tunics with long and tight sleeves (fig. 10), woven in one or three pieces, are very frequent in the archaeological material coming from Egypt.\textsuperscript{107}

In the papyrological documentation, the στιχάριον was among the garments generally mentioned in regard to clothing intended for the army.\textsuperscript{108} This term is also present in the documents concerning monastic\textsuperscript{109} and liturgical\textsuperscript{110} vestments or again ‘civil’ and ‘laïc’ clothing: the στιχάριον was worn by men from all social strata,\textsuperscript{111} slaves\textsuperscript{112} and children.\textsuperscript{113} We note, however, that there are very few authentic mentions of tunics of this type being worn by women.\textsuperscript{114}


\textsuperscript{106} Egypt: Gąsiorowski 1931, Fig. 1: papyrus illustration with a representation of five charioteers, Egypt, Antinoe (c. 500 AD); Rutschowscaya 1990, 52: fragment of cloth with a figure of a boy, provenance unknown (5th century AD); von Falck & Lichtwark 1996, 168, no. 147: representation of a boy on a ceramic container Egypt (6th-7th century AD).

\textsuperscript{107} See the following examples:

\textsuperscript{108} Greece: ÅKERSTRÖM-HOUGEN 1974, coloured fig. 2.2: mosaic with a representation of the months of July and August, Argos (c. 500 AD).

\textsuperscript{109} North Africa: Ben Abed-Ben Khader, de Balanda & Uribe Echeverria 2003, fig. 217: one of the people in the retinue of a lord, public baths of Sidi Ghrib, presidential palace, Carthage (5th century AD).

\textsuperscript{110} Egypt: Bosson & Aufrère 1999, 238, no. 61: funerary stela of Hierax and of Tersi, Fayoum (Byzantine period).

\textsuperscript{111} See the following examples:

\textsuperscript{112} Rome: Deckers et al. 1991, coloured figure 12: painting of an orante (first decade of the 4th century).

\textsuperscript{113} Egypt: Walker & Bierbrier 1997, 159, no. 178: painting on wood of a portrait of a woman, Thebes? (c. 220-250 AD); Alaoui et al. 2000, 125, no. 101: funerary stela for an orante, Egypt (5th century AD); Rutschowscaya 1990, 51: tomb painting – Theodosia, Antinoe (6th century AD).

\textsuperscript{114} As an example: Dunand & Lichtenberg 1985: embossed tunic, Douch (middle of the 4th-early 5th century AD); Bruwier 1997, no. 84: unknown source (middle of the 6th - middle of the 7th century AD); no 85: unknown source (6th century AD?); Fluck, Linscheid & Merz 2000, no. 112: Antinoopolis (6th-8th century AD); no 124: Sohag (7th-9th century AD); Benazeth & Rutschowscaya 2009, no. 75: unknown source (6th-7th century AD).

105. See, for example, P. Michael. 21, 4, 9 (285 AD?) – cf. BLV, p. 68; SPP XX 75, 26 (3rd-4th century AD); P. Oxy. XLIV 3191 col. I, 3 (302 AD) – cf. the commentary on l. 2-3; SB I 4421, 9-10 (302 AD – regarding the dating cf. BL VII, p. 184); P. Cair. Isid. 54, 8, 10 (314 AD) = SB VI 9071; P. Cair. Isid. 72, 16 (314 AD); P. Oxy. XII 1448 (c. 318 AD); P. Oxy. XII 1424, 7 (c. 318 AD); P. Oxy. XLIV 3194, 9, 12 (323 AD); P. Ant. 131, 8 (323 AD – regarding the dating cf. BL IV, p. 2); P. Coll. IX, 247 = SB XX 14461 (324-327 AD); P. Oxy. LI 3621, 16 (329 AD); BGU I 21, col. II 16 (340 AD); P. Beatty Panop. 2, 20, 21, 26 (340 AD); P. Panop. 19, I (c) 2, (c) 2; X (b) 3; IV (a) 2-3, (b) 2; VI (b) 2, (d) 2 (339-346 AD); P. Oxy. LXI 4128, 23 (346 AD); SPP XX 99, 1, 2 (348 AD – regarding the dating cf. BLV, p. 144); P. Lips. I 59, 13 (371 AD); P. Lips. I 60, 14 (after about 371 AD); BGU III 620, 9 = Chr. Wilck. I 186 (4th century AD); P. Köln IV 190 (4th century AD); P.U.G. I 24 (4th century AD) – SB X 10258; P. Warr. 7, 9 (4th century AD) = SB V 7536; SB VI 9305, 6, 7 (4th century AD); P. Oxy. LXII 4348, 8, 9 (4th century AD); PSI XII 1264, 9 (4th century AD); P. Oxy. XVI 1905, 4, 6 (late 4th-early 5th century AD); P. Oxy. VIII 1136, 5, 4 (420 AD); SB VI 9306, 4 (5th century AD); P. Vind. Tandem 19, 4 (5th-6th century AD). On the annona militaris and the imperial fiscal system, see Mitthof 2001. Regarding the representations of Roman soldiers stationed in Egypt in the Late Roman epoch, cf. Paetz gen. Schieck 2012.

109. P. Apoll. VII 406, 12 and 37-38 (4th-5th century AD); P. Berl. Sarisch. 21; 48 (5th-6th century AD); P. Stras. VIII 719, 7 (5th-6th century AD); P. Paramone 14, 7 (6th-century AD); SB III 6024 (7th century AD?).

110. P. Leid. Inst. I 13 (7th-8th century AD?): inventory of a monastic church (?)?; P. Apoll. 103, 1 (end of the 3rd or beginning of the last quarter of the 7th century).

111. See, for example, P. Cair. Isid. 132, 8-9, 13 (3rd century AD): σ. for one Hérōkās; P. Ryl. IV 627, 2, 10 (early 4th century AD); σ. of Theophraxes; P. Oxy. XIV 1775, 14 (4th century AD): σ. for a person named Ploutarchos; PSI IX 1082, 13 (4th century AD?): σ. of a διδασκόντας Αμέθαμπος; P. Oxy. LIX 4004, 13-14 (5th-century AD): σ. of a Nathanael.

112. See, for example, P. Oxy. LI 3616, 3 (3rd-century AD?): σ. of a διδάσκαλος Φίλιππος.

113. See, for example, P.U.G. I 28, 4 (5th-century AD): σ. παιδεύσακα.

114. See, for example, P. Oxy. VII 1051, 7 (3rd-century AD): inventory of the business affairs of a certain Kyrilloutos; P. Oxy. LIX 4004, 14, 15 (5th-century AD): σ. belonging to women named Synikletike and Kyna; two marriage contracts: P. Dura I 30 (232 AD) and P. Cair. Masp. I 67006, 64, 83, 84 (6th-century AD).
The στιχάρια could be made either in linen, or out of wool or even with a mixture of linen and wool: λινόπιξον.  

The χιτών term is probably of Semitic origin. In a general sense, it indicated a ‘tunic’, and in particular a

115. See, for example, P. Oxy. VII 1051, 7-8 (3rd century AD); σ. [λινο]υν; P. Oxy. LIV 3776, 24, 47 (343 AD): declaration of a price for σ. in linen; SPP XX 92, 1, 2 (348 AD): σ. λινον; PSI IV 287, 15 (377 AD): σ. λινον; SB V 7536, 9 (4th century AD): σ. λινον; SB VI 9305, 6-7 (4th century AD): σ. λινον; P. Oxy. XLVIII 3426, 10 (4th century AD): σ. λινον; P. Oxy. LXII 4348, 9 (4th century AD): σ. λινον; SPP XX 92, 1, 2 (348 AD): σ. λινον; P. Oxy. LVI 3860, 29 (late 4th century AD): το σ. το λινον; P. Oxy. XVI 1905, 6 (late 4th century AD or early 5th century AD): σ. λινον.

Ταρσικά: P. Panop. 19, IV (a) 2-3; (b) 2; VI (b) 2, (d) 2 (339-346 AD); P. Beatty Panop. I 2, 20, 21, 26 (340 AD); P. Stras. IV 246, 6 (c. 380 AD); P. Vind. Tandem 19, 4 (5th-6th century AD). On the garments designated as ταρσικα and the artisans ταρσικαριοι cf. Wipszycka 1965, 110-112; Wild 1969; Mossakowska-Gaubert 2006, 177-178.

116. See, for example, P. Oxy. LII 3616, 3 (3rd century AD?); σ. ἐρε[ῦ]ν; P. Oxy. XLIV 3194, 9, 12-13 (323 AD): σ. ἐρεῖν; SB VI 9305, 6-7 (4th century AD): σ. ἐρεῖν διλώρων; P. Vars. 26, 18 (4th - 5th century AD): το ἐρα σ. (cf. BL III, p. 254); P. Oxy. LIX 4004, 13-15 (5th century AD): among garments that had been fulled, there were some στιχάρις.

117. P. Mich. XIV 684, 8 (6th century AD) and perhaps, if the restoration of a lacune is well-chosen, in the P. Wash. Univ. II 97, 12 (5th century AD). On the tunica pexa (‘soft-finished tunic’ made out of wool) cf. Wild 1967, 133-134; Lauffer 1971, 269 (20, 12).

118. On this term, see for example, Amelung 1899; Blum 1919; Descamps-Lequime 1988, 93-94; Mossakowska-Gaubert 2004, 163-166.
21. Tunics Worn in Egypt in Roman and Byzantine Times

‘tunic without sleeves’. The word χιτών is extremely frequent in Greek literature, from Homer to the 4th century AD. To indicate the tunics with sewn sleeves, worn by foreign people, one used the expression χειριδώτος χιτών. From the 5th century AD, the word χιτών becomes rare in the texts dealing with contemporary events, while still remaining present in the commentaries on older texts or in the literature inspired by these texts, and in works having a lexicographical character. Furthermore, Sozomen mentions χιτώνες ἄχειριδώτοι (‘tunics without sleeves’) – surely to distinguish them from others χιτῶνες – ‘with sleeves’.

In the papyrological documents, the term χιτών is attested at the beginning of the Ptolemaic period and it meant a tunic without sleeves. However, to indicate a tunic with ‘true sleeves’, coming from the local tradition, the documents of the Ptolemaic period used the same expression as in classical literature: χειριδώτος χιτών. From the 3rd century AD, when tunics with ‘true’ long sleeves would spread in Egypt and in all the Mediterranean, the word χιτών is always very common in the papyrological texts. It is mentioned in several documents beside other terms for tunics, either with sleeves (δαλματική, στιγμάτων), or without sleeves or with short sleeves (κολόβιον). It seems that the word χιτών maintained its most elementary meaning (i.e., ‘tunic without sleeves’) in these texts. The question of the difference between χιτών and κολόβιον should be asked at this point. One can suppose that this difference was visually clear in the appearance of these tunics. In this case, it may be that, whenever the two words occurred side by side in a text, χιτών indicated a ‘tunic without sleeves’ and κολόβιον a ‘tunic with short sleeves’.

The word χιτών is still attested in documents of the 4th century AD, and then disappears. The

119. See, for example, Herodotus VII 61 (Persians); Strabo IV 4, 3 (Gauls), XI 13, 9 (Medes), XV 3, 19 (Persians); Joseph Flavius, Antiquitates Jud., VII, 171 (Jews); Cassius Dio 49, 36 (Pannonians).

120. See, for example, Zosimus (second half of the 5th century AD), Historia Nova V, 32, 5, 7; Procopius of Cesarea (6th century AD), De bellis III, 25, 7. See also those texts concerning the Egyptian monks: Palladius, Historia Lausiaca 47, 3 (420 AD); Sozomen, Ecclesiastical History III 14, 7 and 13 (the forties of the 5th century); Apoph. 80 (Ars. 42 = Sys. XV 11/10); Apoph. 180 (Fel. 5) (5th century AD).

121. See, for example, Catena in Matthaeum (post 5th century AD), 30; John of Damascus (7th-8th century AD), Orationes de imaginibus tres III, 87, 12.

122. See, for example, Hesychius (5th century AD), Lexicon, chi, [87], s.v. χιτῶν and passim; Ioannes Philoponus (6th century AD), De vocabulis, chi, s.v. χιτῶν, χιτών.

123. III 14, 7.

124. See, for example, P. Cair. Zen. II 59146, 2-3 (256 BC); P. Cair. Zen. I 59092, 9-10 (3rd century BC); P. Cair. Zen. III 59469, 4-6 (3rd century BC); P. Tebt. I 46, 34 (113 BC); SB VIII 9680, 3 (2nd half of the 2nd century AD).

125. See, for example, P. Oxy. I 114, 5-6 (2nd or 3rd century AD); SPP XX 31 II, 16 = CPR I 21 (230 AD); P. Tebt. II 405, 10 (3rd century AD); P. Oxy. XLIV 3201, 8, 9 (3rd century AD); P. Mich. III 218, 14 (?1) (296 AD); P. Oxy. XX 2273, 12 (late 3rd century AD); PSI VIII 900, 7 (3rd-4th century AD); P. Flor. III 371, 7 (4th century AD).

126. See, for example, P. Oxy. XX 2282, 12-13 (late 3rd century AD); P. Prag. II 176, 6 (3rd-4th century AD).

127. See, for example, P. Tebt. II 406 (266 AD); P. Oxy. XLIV 3201, 2, 10, 11 (3rd century AD).

128. See, for example, P. Oxy. I 109, 13, 17, 19 (late 3rd-4th century AD); P. Oxy. XIV 1645, 10 (308 AD); P. Kell. I 65, 33 (early 4th century AD); P. Kell. I 66, 24 and 25 (early 4th century AD); SB XIV 11983, col. III 63 (c. 350 AD) = P. Lond. II 429; P. Kell. I 74, 10 (middle of the 4th century AD); P. Flor. III 371, 2-3 (4th century AD); P. Münch. III 126, 5 (4th century AD); SB VIII 9834 b, r. 8, 11 v. 47, 49 (4th century AD).
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χιτών was worn by men 129 as well as women 130
and by children of both sexes. 131 The χιτών
could be made of linen, 132 wool, 133 more rarely
of cotton134 or βύσσος135 (fine linen or cotton).136

In one case, the word combines the terms designating
two different tunics: στιχαροκόλοβιον.

Words derived from terms designating tunics

The word μαφόριον137 is attested in the literary texts
from the 3rd century – or, at the latest, at the beginning of the 4th century AD, whereas in the papyrological texts it already appeared in the 2nd century
AD, – only to disappear in the course of the 7th century AD. It indicated a shawl worn by women as well

The papyrological texts offer many examples of
words created from terms designating tunics. Most
of the cases concern a tunic together with another
item of clothing: μαφόριον, καρακάλλιον, φελόνιον.

Words composed with the term μαφόριον

129. See, for example, P. Cair. Zen. I 59087, 3-4 (258-257 BC): χ. belonging to Helenos; P. Petr.2 Will. 13, 18 (238-237 BC): χ. ἀνδρείου;
P. Yale I 42, 13 (229 BC?) = SB VI 9259: χ. belonging to Nechthosiris; P. Lille I 6, 8, 24 (3rd century BC): χ. belonging to Petesuchos; PSI VII 866, 13 (3rd century BC): χ. belonging to Andrikos; P. Erazm. I 2, 11 (152 BC): κ. belonging to a Nous and a Horos;
P. Dion. I 10, 20, 21, 22 (109 BC): κ. belonging to a Sotionchis, a Plenis, and a Paptytis; P.Oxy. II 285, 11 (c. 50 AD): χ. belonging to a Sarapion; P. Turner I 18, 13 (84-96 AD): κ. belonging to a Petronios; SB XII 10947, 22-23 (middle of the 1st century AD):
κ. belonging to a Heron; SB VI 9275, 4-5 (1st- 2nd century AD): κ. belonging to an Antonios; O. Claud. I 161, 5 (100-120 AD):
κ. belonging to an Ailouras; P. Giss. I 77, 6 (98-138 AD): κ. belonging to a Teeus; P. Sarap. I 1, 16 (125 AD): χ. belonging to a
Pamounis; P. Oxy. X 1269, 30 (beginning of the 2nd century AD): κ. left by Isas, deceased; P. Fay. 108, 17 (c. 171 AD): κ. owned
γυ(ναικεῖος); P. Hib. II 200, 10 (246-222 BC): χ. belonging to a Chrysis; P. Petr.2 Will. 13, 18 (238/237 BC): χ. γυναικείου; P.
Tebt. III 894, fr. 9, 3 (c. 114 BC): κ. γυ(ναικεῖος); P. Tebt. I 46, 34 (113 BC): χ. γυ(ναικεῖον); P. Tebt. I 120, 109 (97 or 64 BC):
γυ(ναικείου) χ.; P. Mich. XV 688, 12 (2nd-1st century BC): χ. γυ(ναικεῖον); P. Ryl. II 151, 14 (40 AD): χ. belonging to a θυγάτηρ;
131. See, for example, P. Cair. Zen. I 59060, 9 (258/7 or 257/6 BC) = SB III 6717: χ. for a young Pyrrhos; P. Lond. II 402, v. 14 (152 or
141 BC): χ. παιδα[....]; P. Tebt. I 127 (114 BC): χ. παιδι(κόν); P. Tebt. IV 1096, 29 (113 BC): χ. παιδι(κός); P. Oxy. XLI 2971, 27 (66
XLII 3060, 9-10 (2nd century AD): χ. [...] παιδικόν; P. Heid. IV 334, 1-2 (2nd century AD?): χ. παιδικῶν; P. Oxy. Hels. I 40, passim
132. See, for example, P. Hib. II 200, 10 (246-222 BC): χ. λινοῦν; P. Coll. Youtie I 7, 16-17 (224 BC): [...] ἱμάτιον καὶ χ. δύο ἐρε[οῦ]ν
(c. 50 AD): χ. λει ν οῦν; P. Oslo II 56, 3-5 (2nd century AD): χ. λινοῦς δύο; P. Mil. II 76, 6-7 (2nd-3rd century AD): τ]ὸ λιν[οῦν] κ.;
133. See, for example, P. Cair. Zen. II 59176, 251-257 (255 BC): γ]ναφεῖ τῆς Ἱεροκλέους χλα[μύδος καὶ χι]τῶνος καὶ ἱματίου κτλ. – the
price for the cleaning of clothing at a fuller’s, therefore made out of wool; P. Cair. Zen. III 59398, 8 (3rd century BC): χ. γνάπτρα
120, 109 (97 or 64 BC): τιμὴν ἐρίω(ν) γυ(ναικείου) χ.; SB XII 10947, 22-23 (middle of the 1st century AD): ἐρίων εἰς τὸν κ.; P.
III 816, 18-19 (3rd century AD): χ. ἐριοῦν καὶ λινοῦν; P. Oxy. I 109, 17 (late 3rd-4th century AD): χ. οὐλίριος – the editors, B.P.
Grenfell and A.S. Hunt, remarked that the word οὐλίριος is composed of οὖλος and ἔριον (The Oxyrhynchus Papyri, vol. I, London 1898, 176); PSI VIII 900, v. 11-13 (3rd-4th century AD): πέμ]ψον πόκον ...ιδιων καὶ ποιήσω σοι κιτώνιν [...].
134. See, for example, SB VI 9025, 31 (2nd century AD): [...] Οὐχ εὗρον τὸν χ. τὸν ἐρεόξυλον ὡς ἤθελον [...]; P. Oxy. LIX 3991, 1315 (2nd-3rd century AD): [...] τὸν χ. σοι τὸν ἐριό[ξ]υλον ἡ μήτηρ σου κ[α]τεσκεύασε [...]. Concerning the meaning of ἐριόξυλον
135. See, for example, P. Cair. Zen. I 59087, 4, 12, 18, 19, 22, 23, 27 (257 BC) = SB III 6783; BGU VII 1525, 3 (3rd century BC).
137. Mossakowska 1996.


as by men. This garment was worn on the shoulders, the head, or was sometimes used like a loincloth. The papyrological documentation lists several words derived from μαφόριον and from terms indicating tunics of all kinds.\footnote{138}

- **δελματικομαφόριον**
  Δελματικομαφόριον refers to a garment made of a tunic with long and wide sleeves, and of a shawl. It is attested in some papyri dated from the 3rd to the 5th century,\footnote{139} as in the Edict of Diocletian, where it appears in the form δελματικομαφέρτιον / dalmaticomaforium.\footnote{140} In the papyri as well as in the Edict, this garment was intended for women.

- **κολοβιομαφόριον**
  This term is only attested in some papyri, all dated from the 4th - 5th centuries.\footnote{141} It designates a tunic without sleeves or with short sleeves in association with a shawl.

- **στιχαρομαφόριον**
  The term στιχαρομαφόριον appears in many papyrological documents dated from the 5th to the 7th, and perhaps to the 8th century AD.\footnote{142} This garment, made up of a tunic with long and tight sleeves, combined with a shawl, was worn by women\footnote{143} as well as by men.\footnote{144}

The commentaries concerning the garment terms composed of the word μαφόριον are numerous. According to one of the hypotheses, the στιχαρομαφόριον term is made up of the adjective στιχαρο-, from στίχος (‘striped’), and the noun μαφόριον.\footnote{145} However, most researchers consider that στιχαρομαφόριον and other terms – δελματικομαφόριον and κολοβιομαφόριον – are designations of the particular shawls worn with this or that tunic.\footnote{146} In accepting this last explanation, a question arises: if the στιχαρομαφόριον were a particular μαφόριον that one put on over the στιχάριον, and if the κολοβιομαφόριον were intended to be worn on over the κολόβιον, while the δελματικομαφόριον accompanied the δελματική, in what way exactly, would these μαφόρια differ from each other and be distinguished from the simple μαφόριον mentioned in the same documents?\footnote{147}

It is thus necessary to seek another explanation for these composit terms. It is useful to quote here the note by Friedrich Preizigke on στιχαρομαφόριον: ‘ein mit dem Rocke verbundenes Kopftuch, Kapuze (?)’,\footnote{148} as well as the comment by Siegfried Lauffer on the
subject of the *dalmaticomafiorum*: ‘Ärmelgewand mit Kopfbedeckung’. It seems to us that one can extend these interpretations, by rejecting however the translation ‘hood’ for μαφόριον, to all compounds containing the word μαφόριον: thus we would have different tunics with shawls attached (probably sewn), being used to cover the shoulders or to veil the head. It is true that, until now, no tunic with a shawl stitched to it has been found. On the other hand, there are some examples of tunics with a hood that gives an idea of how one could attach a small shawl to this garment.

**Other composite terms**

- **στιχαροκολόβιον**
  This term is attested in a list of clothing from the dossier of Dioscorus (*P. Lond.* inv. 0584, 14; 6th century). It is not easy to imagine a combined garment derived from two tunics, one with long sleeves (στιχάριον), the other without sleeves (κολόβιον). Jean-Luc Fournet understands this term as ‘a long tunic without sleeves’. However, another solution appears equally possible: ‘a tunic with ‘true’ short sleeves’ – that is to say, woven in the style of a tunic with long sleeves (στιχάριον), but with the form of a κολόβιον with short sleeves.

- **στιχαροκαρακάλλιον**
  In a list of clothing coming from Oxyrhynchos, probably from a monastic context, one mention is made of two στιχαρ(ο)καρακάλλια. The word καρακάλλιον is borrowed from Latin *caracalla*. The exact form of a Roman *caracalla* is not clear. It is interpreted by scholars in different, sometimes even contradictory ways: ‘a kind of fur-lined mantle with a hood and sleeves’, ‘type of garment without sleeves and with a hood’, ‘a hooded cape of wool’, or again ‘una veste […] forse non sempre caratterizzata dal cappuccio, ma spesso fornita di applicazioni decorative multiformi e multicolori’. Considering the state of the sources, it is not impossible that, according to the place and the time, the garment called καρακάλλιον / *caracalla* changed its appearance, while keeping the same name. As for the word στιχαροκαρακάλλιον, it seems possible to us that it meant a tunic with long sleeves provided with a hood (fig. 11), an element which despite certain objections, remains characteristic of a καρακάλλιον.

- **στιχαροφαιλόνιον**
  The στιχαροφαιλόνιον term appears in a private letter dated to the 6th century. It is also mentioned as a liturgical vestment in a text attributed wrongly to Sophronius of Jerusalem, as well as in the *Pratum spirituale* of Moschus, like the single habit worn by two ascetics. This garment combines a tunic named στιχάριον and a mantle combined with a short-sleeved mantle.

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150. On this proposition see Mossakowska 1996, 34-35.
151. For some examples see *infra*, note no. 159.
152. This unpublished document is being studied by Jean-Luc Fournet, whom I warmly thank here for having given me permission to utilise the results of his ongoing research.
153. See, for example, a tunic worn by a Fructus on the mosaic from Uthina conserve at Bardo, Tunis (5th century AD): Ben Abed-Ben Khader, de Balanda & Uribe Echeverria 2003, fig. 214. Furthermore, a tunic with short sleeves is conserved in the Victoria and Albert Museum – cf. fig. 8.
154. *SB* XX 14319, 3, 4 (7th century AD).
156. Freund 1866, t. I, 420, *s.v. caracalla*.
159. Russo 2004, 142.
160. For some garments of this type see, for example, Wulff & Volbach 1926, 62, fig. above-left: Akhmîm (6th-7th century AD?); Benazeth & Rutschowscaya 2009, no. 74: provenance unknown (6th - 8th century AD).
161. *P. Michael* 38, 2, 10.
163. 171 (*PG* 87, 3 col. 3037, C).
called φαιλόνιον, which is a Greek form of the Latin term peanula. A peanula was a mantle with the shape of bell, sometimes split at the front, fastened with hooks to close it, generally stitched, and presenting only one opening for the head. This mantle was frequently provided with a hood (peanula cucullata). The peanula was already known in Roman society during the Republic, at the beginning of the 4th century AD became one of the most common mantles.\textsuperscript{164}

The shape of the garment named the στιχαροφελόνιον is not clearly identifiable. D.S. Crawford suggests “that in compounds στιχαρο- meant ‘striped’, from στιχος; a στιχάριον would then be a ‘striped thing’ by etymology, a ‘tunic’ by use only”;\textsuperscript{165} he has thus translated the term in question as a ‘striped cloak’. It seems to us, however, that this explanation — which is also used by certain scholars to explain the significance of the στιχαρομαφόριον term — is not correct.\textsuperscript{166} Thus, what was the στιχαροφελόνιον? Does it refer to a tight tunic with long sleeves, easy to wear under a mantle, stitched at the front and provided with a hood, or is it a tunic with a little hood, the characteristic element of a φελόνιον?

\textsuperscript{165} In Papyri Michaelidae, Aberdeen 1955, 67.
\textsuperscript{166} For a discussion see supra.
Conclusion

An analysis of the written and iconographic sources and the preserved clothing allows us to conclude that in Egypt, until the end of the 2nd century AD, the only Greek word indicating a tunic was χιτών; for a tunic with sleeves one used the term χιτών χειρίδιος. With the arrival of the new fashion wearing of tunics with long, sewn sleeves, towards the end of the 2nd - beginning of the 3rd century AD, the vocabulary became richer. The tunics without sleeves are from then called κολόβιον or λεβίτων, in parallel with the term χιτών, until the end of the 4th century AD. The λεβίτων term seems to be specific to the vocabulary used in the monastic environment, and in the papyrological documentation is attested in texts written only in Coptic. Until the end of the 5th century AD, tunics with wide sleeves were designated by the term δελματική, and those with tight sleeves by στιχάριον, a word still present in the 8th century AD in the vocabulary employed in Egypt. Finally, it may be that the κομίσιων term in the Greek language of Egypt at one time meant a tunic worn like an ‘undergarment’, at other times – in particular in the texts of the 6th and 7th centuries AD – a tight tunic known as ‘Persian’, stitched from several pieces, different from the ‘local’ style, and always called στιχάριον.

From the beginning of the 3rd century AD, new garment types also appear combining, a tunic and another element of clothing, such as a shawl, hood, mantle or another tunic. The garments of this type have their own specific composite vocabulary, not always identified in a definitive manner (δελματικομαφόριον, κολοβιομαφόριον, στιχαρομαφόριον, στιχαροκαρακάλλιον, στιχαροκολόβιον, στιχαροφελόνιον).

We note that certain terms are used differently according to the period, and that their meaning varies, depending on the types of texts in which they appear. Indeed, the vocabulary from the literary texts and that used by the inhabitants of Egypt, which is reflected in the papyrological documents, are sometimes dissimilar. These socio-linguistic phenomena are very evident, particularly in the case of the terms δελματική, κολόβιον, λεβίτων and στιχάριον.

Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B.A.S.P.</strong></td>
<td>Bulletin of the American Schools of Papyrologists</td>
</tr>
<tr>
<td><strong>BdE</strong></td>
<td>Bibliothèque d’Étude</td>
</tr>
<tr>
<td><strong>BIFAO</strong></td>
<td>Bulletin de l’Institut français d’archéologie orientale</td>
</tr>
<tr>
<td><strong>BRHE</strong></td>
<td>Bibliothèque de la Revue d’histoire ecclésiastique</td>
</tr>
<tr>
<td><strong>FIFAO</strong></td>
<td>Fouilles de l’Institut français d’archéologie orientale</td>
</tr>
<tr>
<td><strong>JEA</strong></td>
<td>Journal of Egyptian Archaeology</td>
</tr>
<tr>
<td><strong>MDAIR</strong></td>
<td>Mitteilungen des deutschen archäologischen Instituts</td>
</tr>
<tr>
<td><strong>MMAEE</strong></td>
<td>Metropolitan Museum of Art, Egyptian Expedition</td>
</tr>
<tr>
<td><strong>TU</strong></td>
<td>Texte und Untersuchungen</td>
</tr>
</tbody>
</table>

Bibliography


21. Tunics Worn in Egypt in Roman and Byzantine Times


Lefort, L.-Th. (1924) La Règle de S. Pachôme, Muséon 37, 1-28.


Reil, T (1913) Beiträge zur Kenntnis des Gewerbes im hellenistischen Ägypten. Leipzig.


21. Tunics Worn in Egypt in Roman and Byzantine Times

<table>
<thead>
<tr>
<th>Greek word</th>
<th>The most common meaning</th>
<th>Date of use attested in papyrological documentation</th>
<th>Other meaning</th>
<th>Date of use attested in papyrological documentation</th>
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</thead>
<tbody>
<tr>
<td>δελματική</td>
<td>Roomy tunic, with wide sleeves</td>
<td>late 2nd/early 3rd – 5th century AD</td>
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<td></td>
</tr>
<tr>
<td>δελματικομαφόριον</td>
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<td>3rd – 5th century AD</td>
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</tr>
<tr>
<td>καμίσιον</td>
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<td>• late 2nd/early 3rd century AD (uncertain)</td>
<td>cut tunic, short and tight, with long sleeves (?)</td>
<td>6th – early 8th century AD</td>
</tr>
<tr>
<td>κολόβιον</td>
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<td>middle 3th – 6th century AD</td>
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</tr>
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<td>4th – 5th century AD</td>
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<td>λεβίτων</td>
<td>Tunic without sleeves</td>
<td>Greek: uncertain</td>
<td></td>
<td></td>
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<td>[λέβιτων]</td>
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<td>Coptic: 4th – 8th century AD</td>
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<td>στιχάριον</td>
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<td>στιχαροκολόβιον</td>
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<td>6th century AD</td>
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<td>υποκαμίσιον</td>
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<td>6th – early 8th century AD</td>
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<td>3rd century BC – 2nd century AD</td>
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<td>3rd century BC – 2nd century AD</td>
<td>Tunic without sleeves</td>
<td>3rd – 4th century AD</td>
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Table 2.

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<th>Greek name and date of its use in papyrological documentation (2)</th>
<th>Greek name and date of its use in papyrological documentation (3)</th>
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<td>Tunic without sleeves</td>
<td>χιτόν 3rd – 4th century AD</td>
<td>κολόβιον middle 3th – 6th century AD</td>
<td>[κεβίτον] 4th – 8th century AD</td>
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<td>Long tunic, without sleeves (?)</td>
<td>στιχαροκολόβιον (?) 6th century AD</td>
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<td>καμίσιον 4th – 5th century AD</td>
<td>ύποκαμίσιον 6th – early 8th century AD</td>
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Terminology Associated with Silk in the Middle Byzantine Period (AD 843-1204)

Julia Galliker

During the 1st millennium AD, silk became the most desirable fibre in the Mediterranean region. While the expansion of silk production and consumption is widely acknowledged, specific features of the industry’s development are more difficult to discern. Chroniclers had little reason to document silk manufacturing processes, and producers were not inclined to record or publicise their trade secrets. Historical knowledge of silk comes mainly from accounts of its consumption in a variety of forms and contexts.¹

For the middle Byzantine period (AD 843-1204), the two most elaborated sources associated with silk date from the 10th century. The Book of the Eparch (BOE) (911/12) is a collection of regulations applied to guilds under the supervision of the eparch of Constantinople.² The Book of Ceremonies (BOC), attributed to Emperor Constantine VII Porphyrogenetos (945-959), is a compilation of 5th- to 10th-century protocols used by court officials to stage imperial rituals.³ Together, these sources have shaped much of the existing Byzantine scholarship pertaining to silk. The conventional interpretation is that for much of the middle Byzantine period, silk was an imperial prerogative confined to the most elite members of society.⁴ However, close reading of the larger body of source evidence shows that the prevailing Byzantine silk narrative has numerous shortcomings and limited value in the study of historic processes. From the standpoint of contemporary scholarship, the role of silk in the middle Byzantine period requires reconsideration through application of current research methods.

To provide a more secure historical basis for silk research, other types of writing should be considered including histories, chronicles, and testamentary documents. A survey of Byzantine and other contemporary sources dated between the 6th and 13th centuries reveals a large number of textual ‘mentions’ describing textiles. Many mentions contain only partial information, but include terms associated with silk such as

1. For a more detailed discussion of the history of silk in the Mediterranean region, see Galliker 2014, 33-80.
2. BOE, Koder.
3. BOC, Reiske.
4. For example, see Lopez 1945, Muthesius 1995b; Muthesius 1997, Muthesius 2004; Oikonomides 1986; Starensier 1982; Beckwith 1974.
production place, materials, weave type, end use, design, quality, and usage context.

Philologists have long tried to clarify the meaning of textile words in Byzantine sources with limited success. For example, in his preface to BOC, Vogt observed that it is not possible to know the precise nuances of textile-related terms. The general view is that lexical analysis can recognize the incidence of various words, but there is seldom sufficient descriptive information in written works to form a reconstructive view of textiles.

Probing more deeply, there are several reasons why textile terminology presents such a challenge. With few exceptions, authors used specific textile terms in context without elaborated definition or provision of descriptive details. Like other specialized lexicons, textile terminology usage was sometimes inconsistent and localized. Moreover, textile terms were not stable, but evolved different meanings over time. Various factors contributed to the migration of meaning including changes in material type, production location, and technology.

In recent decades, new research methods supported by computer information technologies have equipped historians to analyze evidence more exhaustively and dynamically than in the past. To study Byzantine textile terminology, I developed a relational database of textile mentions similar in concept and form to a prosopography. This database comprises over 800 descriptive mentions of textiles found in a variety of Byzantine sources dating from the 6th to 13th centuries. The resulting corpus provides an evidentiary basis to discern patterns that are difficult to perceive with conventional methods.

The textile mention database supports critical examination of textual evidence to define the meaning of terms pertaining to or associated with silk in the middle Byzantine period. This process is aided by considering written sources from a framework that follows the general sequence of silk textile processes including material acquisition and preparation, textile construction, decoration, and pattern reproduction. The larger objective is to use the collective terminology data to redefine historical understanding of silk in the middle Byzantine period by demonstrating its social importance, contribution to technology development, and integration in the regional economy.

Terms for silk in Byzantine writing

Silk was explicitly identified in Byzantine sources by one of three terms: serika, blattia, and metaxa. In the majority of mentions, references to silk were generic and not elaborated. Several scholars have discussed silk terminology in the middle Byzantine period and concluded that the words were part of an evolving lexicon, but that their meaning became more or less synonymous over time. Contextual analysis of the database corpus demonstrates usage patterns that clarify the development and specific meaning of the terms.

Serika

While the incidence of both serika and blattia was nearly equal among the sources surveyed, the terms developed and were used in different ways. Serika was the word used by Theophanes of Byzantium in the second half of the 6th century to describe the transfer of sericulture technology to the empire. Significantly, serika was the principal term for finished silk goods employed by all Byzantine historians from Nikephoros, Patriarch of Constantinople (806-815), to

5. Lombard 1978, 239.
7. Schmitter 1937, 201.
8. In its conventional form, prosopography is a method of extracting historical information by compiling information about individuals defined chronologically and geographically based on one or more master criteria. For additional information, see Keats-Rohan 2003; Short & Bradley 2005; Keats-Rohan 2007.
Niketas Choniates (c. 1155-1217). While silk was typically discussed as a luxury good, there were also exceptions. An account by Anna Komnene suggests that silk garments were included on military campaigns. Finding that he had insufficient iron for his troops at the battle of Lebounion (1091), Emperor Alexios I Komnenos (1081-1118) equipped some of his men in silken garments that resembled iron in colour for battle against the Pechenegs.\(^ {12} \)

The term *holoserika* appeared in the 7th- to 8th-century *Rhodian Sea Law* referring to the reward due to sailors for salvaging valuable silks.\(^ {13} \) In a comprehensive analysis of silk terminology centred on the late Roman period (AD 250–450), Schmitter traced the appearance of the Latin word *holosericum* to the early 3rd century.\(^ {14} \) At the time, the word referred to continuous filament silk as compared with inferior spun silk known as *subsericum*. Schmitter concluded that silk had become common enough for the meaning of *serika* to be vague, requiring more specific terms to describe silk quality distinctions and processing stages.\(^ {15} \) Analysis of the *BOC* shows that evolution of silk terminology is also evident for the word *holoserika*, which appeared only in chapters dating from the 5th to 7th centuries.\(^ {16} \)

### Blattia

The word *blattia* provides another example of changing terminology associated with silk. Guilland described the semantic evolution of the term from a purple murex dye derived from shellfish in the late Roman period to a generic designation for silk textiles by the 9th century.\(^ {17} \) However, analysis of the corpus indicates that usage remained ambiguous. Some later sources used *blattia* with reference to purple silk. Compiled in the 950s, *De Administrando Imperio* described remuneration to the Pechenegs in *blattia* and other precious textiles in a way that indicates purple silk was involved.\(^ {18} \) Similarly, Anna Komnene used the word with the specific meaning of imperial purple silk in her description of Alexios’ gift to Henry IV.\(^ {19} \) In some other texts, *blattia* was combined into a compound word that specifically identified other colours.\(^ {20} \)

Among the 17 mentions of *blattia* in the *BOC*, seven were for garments, one for furnishings and nine for lengths of fabric for decoration. Nearly all references to *blattia* in the text appeared in chapters dated to the 10th century. The compilation also included two enigmatic mentions of *holoblattia*, both in reference to church singers wearing the ceremonial dress of imperial guards for the visit by foreign ambassadors in 946.\(^ {21} \) Other variations of the word, presumably with reference to types of silk, are found in the 11th-century testament of Eustathios Boilas (*blatenia*)\(^ {22} \) and in the Patmos Inventory dated 1200 (*blattitzin*).\(^ {23} \)

### Metaxa

In contrast to *serika* and *blattia*, the word *metaxa* was often used with the specific meaning of raw silk fibre. Prokopios used the term *metaxa* in his account of the introduction of sericulture to Byzantium in 553/4.\(^ {24} \)

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11. Middle Byzantine historical sources include: *Nikeph; Theoph; Leo Diac; Skyl; Psellos; Attal, Brunet; Nik Chon; V. Basilii; An Komn*.
20. For examples of mentions of *blattia* in various colours, see *BOC*, Reiske, I: 97, 441; and *BOE*, Koder, 4.3, 8.1, 9.6.
Surviving fragments of Menander’s history, which covered the period 558 to 582 demonstrate a clear distinction between metaxa and serika. All discussions of bulk trade in raw silk with the Sogdians referred to metaxa.25 In contrast, finished goods, such as hangings and gifts, were called serika.26 Usage by Theophanes Confessor in the early 9th century is less clear. He wrote metaxa when describing the Roman capture of Saracen tents in 528/9 and burning the contents of the Persian palace of Destagerd in 625/6, but serika in two instances involving silk cloths.27

The properties of silk as both a strong and flexible material were recognised for military applications. According to the BOC, metaxa was included with the equipment assembled for the 949 expedition against Crete. Metaxa fibres were made into bowstrings for hand-drawn low-ballistae and for large bow-ballistae with pulleys, alone, or in combination with spart grass fibres.28

Use of metaxa to refer to woven silk was less common, but was used in certain instances. The term appeared in the Greek version of the 5th-century book of the Armenian Agathangelos.29 It may have been incorporated in a historicising sense in the hagiographies of Saints Arethas30 (martyred c. 520) and Gennadios,31 patriarch of Constantinople (458-471) in the 10th-century editions by Symeon Metaphrastes. The Imperial Expedition treatise, revised under Constantine VII Porphyrogennetos, referred to a particular type of striped silk garment imported from Egypt as lorota metaxota.32 A marriage contract from southern Italy dated 1267 referred to silk cushions and face veils as metaxa rather than serika.33

Summary of silk terms

This analysis of the three words for silk, serika, blattia, and metaxa, indicates that the meanings overlapped, but that each term had a distinctive identity. Serika was a generic word in common use for finished silk cloths. Blattia coincided with serika in reference to finished silk cloth, but also signalled an imperial association, apparently as a means to convey status. Usage patterns for metaxa show that the word was generally used for raw silk, but might have indicated a particular choice or as a geographical or historical reference.

Terms for silk trade and processing

Fibre trade

Arab literary works and the Cairo Genizah contain substantial evidence concerning the regional silk trade in the 11th and 12th centuries.34 A handful of Byzantine sources also provide specific information about trade in raw silk. In addition to Menander’s account of the Sogdian silk trade as noted above, the 6th-century Christian Topography was written from the author’s direct experience. He described trade in Ceylon (Taprobana) as a transit point for metaxa silk and a variety of other exotic goods. He identified Tziniesta, probably Southern China, as source of raw silk.35 He also referred to the land-based caravan silk trade through Asia and Persia.36 The late 10th-century correspondence of Leo, Metropolitan of Synada includes a reference to silk merchants in the Anatolikon theme.37

27. Theoph. de Boor, 179, 25-26; 322, 5-8; 444, 17-18.
28. BOC. Reiske, II: 670, 1 and 12; 671, 15; 676, 10-11. For a brief discussion of silk for bow strings instead of gut, see Haldon 2000, 273 and n. 110.
30. Sym Metaph, 5.
31. Sym Metaph, 134.
33. Syllabus, CCCIV, 436.
34. For example, see Serjeant 1972; Goitein 1967-1993.
35. Kos Ind, Wolska-Conus, II, 45.7; 46.2; XI, 15, 4. Also, see Kos Ind, McCrindle, 47 n. 2.
36. Kos Ind, Wolska-Conus, II, 45; II, 46; XI, 14-15. For a discussion of metaxa in other sources, see 352 n. 45.
37. Leo Syn, 42.1-2.
Chapter 6 of the BOE represents the most extensive source of information about the silk fibre trade for the middle Byzantine period. The regulations referred to metaxa with the specific meaning of silk in a raw state, before degumming and other processing. According to the text, the metaxopratai were dealers in raw silk. Their defined role was to buy bulk quantities of metaxa coming into the city and resell the material for processing. They were explicitly forbidden from working the material themselves.

Another reference to metaxopratai comes from a document containing short notices of tenancy contracts found on the last page of codex Patmiacus 171. Consisting of only 27 lines, this brief text provides a glimpse of textile commerce in 10th-century Constantinople. Among the five ergasteria (workshops) mentioned in the document, four were associated with various aspects of the textile trade. One workshop (before 957) was formerly occupied by a raw silk merchant. Other tenants included a linen seller, a merchant of head coverings made of goat hair, and a dealer in imported silks.

Descriptions of raw silk transactions in the BOE show that the basis for exchange was weight. One reason for close supervision of silk transactions was the potential for fraud by rigging scales or by the addition of adulterants to increase fibre weight. The eparch provided certain guilds, including the raw silk merchants, with weights and measures marked with a seal. The weighting implement associated with silk was the bolion, which was either a silk balance or set of weights.

Silk processing

Reeled silk yarns

Specific terms for silk preparation activities are included in only a few Byzantine sources. For example, fibre processing was mentioned in a document from John Apokaukos (c. 1155-1233). An early 14th-century didactic work involving silk cultivation and fibre processing by Manual Philes described various operations in what seems to have been a home-based or small-scale producer in a Byzantine context.

Chapter 7 of the BOE referred to the guild of the katartarioi as processors of raw silk, but contains few clues about the specific work performed by guild members. Presumably, one of the roles of the katartarioi was to reel raw silk. According to Lombard, the word was derived from Latin cathartium and Greek kathartion serikon, meaning silk that required cleaning.

A possible reference to yarn weight is included in paragraph 8.2 of the BOE. The regulations forbade manufacture of polon in units of six or eight, but permitted 10 and 12 according to certain requirements. Most scholars have associated these terms with garment construction referring to pieces of cloth joined together. Given the context of use, the term probably applied to yarn fineness, with a low value corresponding to a finer diameter, similar to the modern use of denier. The term polon also appeared in the Kletorologion of Philotheos with a possible reference to yarn.

38. BOE, Koder, Chapter 6.
40. Patmos, Oikon.
41. Patmos, Oikon, 347 n. 10. For a discussion of workshops and handicraft production, see Koukoules 1948-1952, II, 1, 235.
42. Patmos, Oikon, 346, 3, 2.
43. Hendy 1985, 334; BOE, Koder, 6.4.
44. Jo Apok, 99.10.
46. BOE, Koder, 7.1.
47. Gil 2002, 34.
48. BOE, Koder, 8.2; BOE, Freshfield, 245; Imp Exp, 217-219 n. (C) 226.
49. Muthesius 1995b, 292; see Imp Exp, 218 n. (C) 226.
Spun silk yarns

To consolidate the loose filaments left over from reeling silk filaments, the tangled waste fibres are combed to remove waste and debris. The combed floss is then spun like other discontinuous fibres. The resulting yarn is silk in name, but the quality of the material is inferior in several respects. It lacks the fine, even appearance of filaments and the smooth feel. Even if tightly spun, such silk yarns appear ‘hairy’ as compared with filament silk, and tend to pill with abrasion and wear.

In general, spun silk was a cheaper substitute for filament yarn and was used in ways that imitated the material. Lopez suggested that both the Arabic and modern Italian words for silk floss, qatarish and catarzo respectively, come from the Greek word katartarioi. Goitein noted the use of the word qatarish in an 11th-century business letter referring to floss silk. The distinction between filament and spun silk was stressed in the Imperial Expeditions treatise where prokrita kathara was used to indicate ‘pure’ filaments as compared with either spun silk or a composition of mixed fibres.

In the chapter for the katartarioi raw silk processors, paragraph 7.2 refers to the metaxarioi. According to the text, metaxarioi employed women as well as men, a possible reference to insertion of twist in filament yarn or spinning of silk fibres. Identification of spinning as a female domestic occupation is frequent in Byzantine sources where it assumed symbolic meaning to represent female virtue, modesty and diligence. Women also spun in and out of their homes for pay. In one example, Choniates relayed that Emperor Alexios III (1195-1203) accused his wife, Euphrosyne, of adultery. She was led out of the palace “dressed in a common frock, the kind worn by women who spin for daily hire.”

The sources covered in the corpus contain several mentions of koukularikos. This material has been translated by various authors as coarse, raw, or spun silk. Contextual analysis indicates that koukularikos referred to spun silk, a cheaper version of cloth made from filament silk. For example, among the garments provided by the eidikon for the 949 expedition against Crete were 100 koukularikos tunics and 100 pairs of koukularikos leggings. Koukularikos was mentioned in a tribunal act among documents attributed to Demetroios Chomatenos (c. 1216-1236). Among the various types of textiles mentioned in the text were 20 lengths of koukularikos fabric for monastic clothing. The 1142 Pantelemon inventory includes a koukularikos cloth decorated with a pattern of lions. A marriage contract dated 1267 also referred to a silk veil of koukularikos.

An indication of the relative value of koukularikos in a Byzantine context is obtained from a marriage contract published by De Lange. The document, dated 1022, was written in the town of Mastaura, in the Byzantine region of Lydia. Among the bride’s valuables was a double-faced red dress of koukularikos valued at one and a half gold pieces, comprising just 4% of the total value of movable goods. The dowry listed at least 14 textile items for
garments and household valued between 0.5 and 2 gold pieces. On a relative basis, the spun silk dress was less valuable than a veil with a silver clasp listed at 2 gold pieces, but more costly than other dresses recorded at 1 gold piece each.

**Silk fibre combinations**

In addition to silk filament yarns and those spun from loose fibres, ‘half’ silks were also mentioned in Byzantine sources. ‘Half’ silks woven from a combination of silk and another fibre had the advantage of economy, since a cheaper fibre type was used for either the warp or weft. Such cloths have a long history in the empire dating from the introduction of silk to the region. In the mid-10th century *Broumalion* ceremony described in the *BOC*, both the proto-spatharioi and the spatharokandidatoi were given either a length of *molchamion* or a striped robe. The Greek word *molchamion* was equivalent to the Arabic term *mulḥam*, a half silk widely cited in Islamic writing.

**Metal yarns**

In addition to the fibre-based materials discussed above, metallic yarns were conspicuously mentioned in the middle Byzantine sources in association with silk. Gold was the usual metal applied to textiles; the corpus contains only two references to silver embroidery. Techniques for incorporating precious metals into textiles are ancient, with archaeological evidence dating to the Bronze Age. While drawn gold wire and flat metal strips were sometimes used for textiles, they are not well suited to applications requiring flexibility and drape. In order to produce a more pliable cloth, thin strips of beaten gold were wrapped around an organic core such as silk, leather, or gut. An example of a gold-wrapped silk yarn is shown in fig. 1.

Sillographic and textual evidence indicate that there were four types of Byzantine imperial factories: *blattion* for silk weaving, *chrysoklabon* for gold embroidery, *chrysochoeion* to fabricate gold jewelry, and *armamenton* to produce arms and weapons. On 25 December 792 Theophanes Confessor relayed that the imperial gold embroidery workshop, the *Chrysoklabarion* situated at the *Chryson*, caught fire. The *Kleitorologion of Philotheos* dating from 899 described the processional order for three occupations associated with the *Chryson*: the imperial tailors, the gold embroiders, and the goldsmiths. This grouping suggests that it was the goldsmiths who made the gold yarn used by the imperial workshops.

In addition to producing new gold embellished silks, the imperial gold workshop maintained and renovated existing imperial textiles. The alleged actions of Emperor Michael III (842-867) demonstrated that gold woven or embroidered textiles could be melted down to recover precious metals. Both the *Vita Basilii*, written in the mid-10th century, and John Skylitzes’ 11th century *Synopsis Historiarum* described how Emperor Michael III (842-867) allegedly gathered gold vestments belonging to the emperor and high officials and gave them to the *eidikos* to melt down. According to these accounts, Michael’s death averted possible destruction of the garments and they were restored to the palace.

**Summary of silk trade and fibre processing terms**

As this analysis has shown, the properties and performance characteristics of silk fibre types were a feature of the material culture of the middle Byzantine...
22. Terminology Associated with Silk in the Middle Byzantine Period

The *metaxopratai* regulations in the BOE suggest that the silk industry in Constantinople was oriented toward the regional fibre market with importers from a variety of locations. The inference is that as wholesale dealers, the *metaxopratai* were specialists in grading, buying, and selling various types of fibres through market-based transactions.

To prepare silk for weaving, the *katartarioi* performed a number of processing steps based on customer requirements and market demand. Various silk yarn types were produced with different qualitative and performance characteristics. Imitation and fraud were features of the market for silk, demonstrating the need for supervision by the eparch. Unlike some other types of precious materials, silk is a divisible good that could be used in small quantities for decoration, spun from silk floss, or woven with other fibres.

In contrast to the prevailing historical interpretation, silk materials were not confined to elite members of society, but functioned as a relative luxury available to a broader population in Constantinople and elsewhere in the empire.

Despite the visibility of gold in finished products, applied either through weaving or embroidery, there is no mention of trade in metal yarns. Only imperial sources hint at the production of metal yarns and decorations for textiles in the imperial palace workshop. Given the high value and weight associated

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Fig. 1. Figured pattern silk woven with gold-wrapped silk yarn photographed at 150× magnification, 1950.2 © Cleveland Museum of Art. Note that much of the gold finish applied to the strips has flaked off of the surface of the yarn. Photo by J. Galliker.
with metal yarns, they were presumably manufactured on a local basis or as part of yarn preparation in some workshops.

Terms for textile production and cloth types

Having considered evidence for silk fibre trade and yarn processing, this analysis now turns to an examination of source information for textile production terminology. Chapter 8 of the BOE provides valuable information about the work of the serikarioi, the producers of silk cloth. The main challenge associated with this chapter is interpretation of specific terms that have few mentions in Byzantine writing. Despite this difficulty, it is evident that the work of the serikarioi involved at least three distinct processes: dyeing, weaving, and tailoring garments for sale to the vestipratioi, the silk garment merchants. Each of these distinctive processes represented a group of specialist occupations and required training and skill to plan and coordinate work.

Dyers

The occupation of the dyers is among the best documented of the textile trades among the sources considered in the corpus. According to the framework defined by the BOE, dyeing of fibre and skeins could have been conducted by the katartarioi as part of their processing work. The regulations in Chapter 8 indicate that at least some dyeing was managed by the serikarioi. In addition to valuable murex stuffs, a wide variety of other dye materials were traded throughout the region. Chapter 10 of the BOE itemised some of the dyestuffs handled by the myrepsoi, the dealers in perfumes and unguents, including indigo and yellow wood for dye.75

Letters in the Cairo Genizah referred to the sale of dyestuffs to Rūmī (Byzantine or European) merchants.76 In 1085 a Tunisian trader boasted that he made a 150% profit on the sale of brazilwood, a red dye stuff, to a merchant from Rūm at a port in Palestine.77 A letter from Alexandria dated about 1060 reported the strange buying habits of the Rūm. These merchants bought indigo and brazilwood at auction for exorbitant prices and did not distinguish between high quality and inferior goods.78

In addition to dyestuffs, other chemicals were also involved in colouration processes. Describing the alum deposits mined in Upper Egypt, Ibn Mammātī (d. 1209) explained that the material was taken to Alexandria where it was sold to Rūmī merchants:

“It is a stone which is needed in many things, the most important being dyeing. There is some demand on the part of the Rūm for their requirements; for they cannot do without it nor avoid using it.”79

While we have little information about the actual work involved in professional dye processes, the industry was notable for its noxious smells and hazardous effluents. In Constantinople and other cities, dyers were often grouped together with tanners and castigated for the public hazards of their occupation. In about 1150, Michael Choniates reflected this sentiment, refusing to permit Jewish tanners and dyers to dwell in his diocese.80

In Byzantine sources, the high rate of Jewish participation in the dye industry is evident from various texts, in part because the community was subject to restrictions, exclusions, and periodic persecution.81 Written in the 1160s, Benjamin of Tudela’s census is an important source for Jewish occupational participation in the textile industry. He reported that there were

75. BOE, Koder, 10.1.462-464.
76. The Cairo Genizah is a trove of discarded writings recovered from the Ben Ezra Synagogue at Fustat (Old Cairo). References to Rūm generally meant Byzantium as the modern name for the Eastern Roman Empire. The term also was used in a vague manner for Christian Europe into the 12th century. See Goitein 1967-1993, I, 43-44.
79. Mammātī, 23; tr. from Serjeant 1972, 162-163.
80. Mich Chon, 1, 53; tr. from Starr 1939, 224-225.
2,000 Jews (meaning families), mostly skilled artisans in silk and purple cloth, in Thebes and throughout Greece.82

Describing the denominational and ethnic division in various occupations, Goitein noted the high rate of Jewish participation in the textile industry throughout the region, especially in silk work and dyeing.83 A Genizah document described how a Jewish silk dyer fled Byzantium to seek financial support in Egypt after he was accused of spoiling a precious fabric.84 He was severely punished and his children taken from him until he could reimburse.

**Weavers**

In contrast to dyers, we have little written information about professional weavers or their work processes during the early and middle Byzantine periods. Wipszycka's extensive study of the late Roman textile industry in Egypt was based on papyrus and ostraca recovered from various sites. The material included numerous details about the work activities and products of professional weavers.85

The word gyneaikeion, which in classical Greek described the part of the house reserved for women, came to mean textile workshop in early Byzantium.86 The term appeared again in the Basilika in a title that must have been enacted in the middle Byzantine period, because it has no parallel in Roman codes.87 According to the law, a fine would be levied against anyone who corrupted a woman working in a textile factory.88

Evidence associated with the administration of the imperial workshop is provided by the woven inscription on the Aachen ‘imperial elephant’ silk that was taken from the shrine of Charlemagne and is now housed in the Munster Treasury.89 The inscription reads “in the time of Michael, primikerios of the imperial bedchamber and eidikos when Peter was the archon of Zeuxippos.” Michael, the eidikos, held the rank of primikerios in the imperial bedchamber, one of eight ranks by which palace officials were graded. The second line of text states that Peter was the archon (head) of Zeuxippos, which indicates oversight of an imperial function, presumably an imperial silk factory.90 Unfortunately, the inscription date is no longer visible on the silk.

Additional primary evidence pertaining to the archontes of silk workshops comes from seals published by Oikonomides dated to the 7th and 8th centuries.91 Information pertaining to silk workshop administration is limited to a few textual citations. The Kleitorologion of Philotheos referred to meizoterai ton ergodosion meaning workshop foremen.92 The vita of Antony II Kauleas, patriarch of Constantinople (893-901), included a reference to the head of the imperial silk factory.93

In an incidental mention, the 10th-century history of Leo the Deacon referred to a manager or supervisor of an imperial weaving establishment.94 According to this text, the silk factory superintendent was asked to summon a body of workers from the weaving establishment to join the plot to seize the throne.95

82. Be Tud, 10.
86. Lopez 1945, 6 n. 3.
87. Lopez 1945, 6 n. 3.
92. Listes, 123.10 and 317.
93. F. Kauleas, 18.25.
94. Leo Diac, Hase, 146.91: ἑαυτῆς ἱστουργίας ὄντι μελέδωνῷ.
95. Leo Diac, Talbot, 191; Leo Diac, Hase, 146.90-1 and 147.1-5. According to Dagron 2002, 432, the word systema in this text refers to a group or body of workers rather than to the usual translation in the sense of a guild or corporation.
From this passage, we surmise that silk workers were hierarchically organised and had enough male members to comprise a force capable of assisting with the plot.

To maintain a trained and skilled workforce essential to the exacting requirements of silk production in Constantinople, slaves may have comprised a significant source of labour. Some studies have examined slavery and its increased importance in the 9th and 10th centuries. Dagron noted that slaves fell into three categories, essentially mirroring the social hierarchy of free men.

Several sources attest to the use of slaves in imperial workshops. The Vita Basilii mentions widow Danielis’ gift of one 100 female textile slaves to Emperor Basil I (867-886). Theodore of Stoudios (759-826) wrote about a monk named Arkadios who was condemned for icon veneration during the Second Iconoclastic period (814-842). According to a letter, the monk was forced to work as a slave in an imperial cloth workshop. The BOE stated that the slaves of some types of private artisans who broke rules could be made into state slaves. Apparently, a large enough body of imperial slaves existed to warrant the notice of Emperor Leo VI (886-912), who provided them the right to dispose of their property during their lifetime and at death.

### Textile types

The textile names that are most easily interpreted today were based on particular descriptive characteristics. The corpus includes some Greek terms that referred to striped cloths including lorota and abdia, an Arab-style striped cloak.

One of the most frequent ways of referring to fabrics was to name them by their fibre type. Linen textiles were widely cited in a number of sources. Examples included descriptive compound words such as blue linen (linobenetos). Specific types of linen textiles included sabana as a type of cloth for towels. Sabana was also used as a term for the linen broadcloth mantles worn by eunuch protospatharioi in the BOC. Linomalotaria appeared among the widow Danielis’ gifts in the Vita Basilii and was also mentioned in the Imperial Expeditions treatise. The widow’s gifts to Basil included fine linen amalia, which may have been a cloth without nap. The same term appeared in the Imperial Expeditions treatise together with the adjective rasika meaning rough. In the BOC, rasikon referred to cloth used for making sails.

The sources included in the corpus mention byssos, an especially fine type of linen made with delicate yarns that may have appeared semi-transparent. Arab accounts included many references to ḏāṣab, a highly-prized, fine linen woven with precious metals.
for luxury use, often as turbans. Although not mentioned by name, Attaleiates’ *Diatexit* included two valuable Saracen cloths, one of which was embroidered. At the opposite extreme, Byzantine sources contain several mentions of sackcloth (*sakkon*), referring to a rough material worn for mourning, punishment, or atonement. Usage context suggests that sackcloth was a general category of low quality, coarsely-woven cloth.

A few textile names in Byzantine sources referred to a specific type of weave structure. Reiske translated the word *trimita* in the *Imperial Expeditions* treatise to mean three-coloured or striped. A more likely explanation is that the word retained its historical meaning as a term for twill weave. In literal translation ‘three threads’ referred to the number of warps comprising a twill unit as compared with two for tabby weave. The term *trimita* appeared in Roman Egyptian sources including a papyrus dated to the year 363. Trimitarioi was an occupation identified in the *Edict of Diocletian* as well as a 4th-century tax receipt. The word also appeared on a 2nd-century inscription found in Pessinous.

The word *hexamitos* is of particular interest to this analysis because of its modern use as a term for weft-faced figured weave silks with a twill binding. Writing in the mid-1800s, Michel described transmission of the word from Greek to European languages through a series of terms including *exametum*, *xamitum*, *sciamitum*, *samita*, *sametum* to the present day *samitum*, *samit*, or *samite*. The term is understood to mean a weave unit of six warps comprising three binding and three main warps. The structure is normally associated with sophisticated drawlooms equipped with a figure harness for reproduction of woven patterns. *Hexamitos* was listed in the 11th-century *Typikon of Gregory Pakourianos* as an altar covering. The 11th-century testamentary description of Kale, wife of Symbatios Pakourianos, included a yellow *hexamiton* robe. The *BOE* included a possible related form of the term, *biattia hexalia*, in reference to silks brought for trade by merchants from other nations.

**Summary of textile production terms**

Summarising textile production evidence, the work of the *serikarioi* in Constantinople included dyeing, weaving, and tailoring silks for sale to garment merchants. Among textile producers, dyers are most visible to us because of the high rate of Jewish participation and the stigma associated with the trade. Production of dyestuffs and chemicals used in the process was a major industry in its own right with an extensive international exchange network.

The work of professional weavers is less well documented, but seems to have included free men as well as slaves. Diverse skills were required with occupations specialised by material and function in a variety of workshop settings. Textile names provide additional details about the production and consumption of silk and other types of cloths in Byzantium. Categories defined in terms of description, material content, and weave structure refer to luxury goods as well as common items.

112. Serjeant 1972, 249, 37.
113. Attal, Gautier, 1782, 1793-1794.
114. Theoph, de Boor, 173, 3-6; An Komn, Leib, III, 5, 6.
115. BOC, Reiske, Comm., 539 A11. Note that Haldon carried over this interpretation in his analysis; see *Imp Exp*, 219-220 n. (C) 229.
117. Wipszycka 1965, 112 n. 21; 113 n. 22.
118. Broughton 1938, 820.
119. Michel 1852, 106-108; also see Jacoby 2004, 229; Weibel 1935.
120. Becker 1987, 105. In a weave unit of six warps, the structure refers to a 1/2 twill with a 1:1 binding to main warp proportion.
122. Gre Pak, Lemerle, 1733-1734.
124. BOE, Koder, 9.6.442.
Terms associated with textile decoration

**Colour**

In middle Byzantine sources, the hierarchical arrangement of the court was communicated through silk fabric characteristics including colour, metal embellishment, and figured pattern woven designs.\(^\text{125}\) James’ analysis of Byzantine colours showed that perception was not defined solely by hue, but was also influenced by brilliance and saturation.\(^\text{126}\) Some literary works conveyed colour intensity to indicate hierarchy. Psellos described the emperor as being garbed in robes of purple as compared with those of the empress in a less intense shade.\(^\text{127}\) James traced colour terminology from early Byzantium into the middle period to show the evolution of perception toward a scheme dominated by specific definition of hues, a development particularly evident from the organisation of complex rituals.\(^\text{128}\)

The most comprehensive source of colour information for the middle Byzantine period comes from the *BOC*. My analysis of the 217 instances of textile-related colour mentions in this text shows distinctive patterns in the use of terminology. Evidently, colour terms were edited for consistency during the reign of Constantine VII, including those used in chapters originally written in earlier centuries. Significant discrepancies in colour and other characteristics occur only in chapters 96 and 97, which were added to the compilation later, during the reign of Nikephoros II Phokas (963-969). For example, the colour words *kastorion* and *halourgis* appear in chapters 96 and 97 respectively, but do not occur elsewhere in the text.\(^\text{129}\)

Generic references to purple typically applied the word porphyry. Particular garments, ranks, and persons were described specifically in terms of murex-based dyes. Each of the 25 references to the purple *sagion* worn by high officials was recorded as *aletheinos* for genuine or true purple.\(^\text{130}\) Mention of a porphyry *sagion* occurred only once to describe a gold-bordered garment decorated with pearls worn by the emperor.\(^\text{131}\) Regular patterns of use are also evident for other murex dye types. The coloured *tablion* applied to the chlamys worn by high officials were described in each of four instances as *oxeon*, a reddish-purple colour.\(^\text{132}\) The word *tyrea* appeared only six times in the entire compilation, in each case for the ground colour of a chlamys worn by a patrician.\(^\text{133}\) References to white followed a similar pattern. The white chlamys worn by high officials were described as *leukon* in 22 instances, and as *aspron* only once.\(^\text{134}\) In each of the three instances that veils were worn by high-ranking women in ceremonies, the colour was *aspron*, not *leukon*.\(^\text{135}\)

False purple, *pseudoxea*, was mentioned one time in the *BOC* for the tunics worn by the stewards of the table and again in the *Imperial Expeditions* treatise for belts dispatched to foreigners.\(^\text{136}\) While some scholars have interpreted these mentions as evidence of the restriction of murex dyes to high court officials, this

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125. Garments also played a role in the scheme and have been studied by various scholars. See Parani 2003, Dawson 2002, Piltz 1997.
130. *BOC*, Reiske, I: 10, 81-82; 16, 98; 17, 98-100; 17, 104; 18, 109; 30, 167; 30, 169; 45, 231; 46, 236; 47, 241-244; 48, 250-251; 48, 254. II: 7, 539; 11, 549, 15, 575; 15, 587; 15, 590.
131. *BOC*, Reiske, II, 37, 634.
134. *BOC*, Reiske, *leukon*: I: 1, 24; 10, 71; 11, 86; 12, 89; 15, 96; 19, 115; 27, 148; 29, 161; 30, 162; 32, 171; 47, 241-242; 51, 260; 264, 284; 68, 303; 86, 391; 91, 416-417; 92, 422; II: 15, 579; 15, 590; 51, 699; 51, 701; *aspron*: II: 30, 630.
136. *BOC*, Reiske, II: 15, 578; *Imp Exp*, C.244-245.
interpretation is problematic. As textile researchers and conservators can attest, the composition of particular dyestuffs cannot be perceived by visual inspection. Many compounds were used to achieve various colours and even murex-based dyes contained other substances. Consequently, pseudoexa may have referred to some perceptual difference in hue or intensity, in addition to possible differences in chemical composition.

**Metal and gemstones**

Application of gold and other precious metals to textiles was another way to demonstrate hierarchical ordering of the court in the middle Byzantine period. Conspicuous display of precious metals was an obvious way to project wealth and power. James’ colour analysis showed the importance attributed to the visual qualities of metal with emphasis on iridescence, shine, and gleam. While her study pertained to mosaics, the same concepts can be applied to textile evidence. Writing about literary and visual representation, Maguire suggested that gold in imperial portraits dematerialised imperial images as a means of associating them with angelic beings and conveying divine qualities. Brubaker noted a similar use of gold in 9th-century manuscript painting to convey light, and by inference, as an expression of divinity. Gold interwoven with silk or applied as embroidery would produce a similar effect.

In his 6th-century ekphrasis of Hagia Sophia, Paul the Silentary blended perception of light with metal and colour in association with silk in his description of a gold-embroidered altar cloth:

> “But by the web, the produce of the foreign worm, changing its coloured threads of many shades. Upon the divine legs is a garment reflecting a golden glow under the rays of rosy-fingered Dawn.”

As described in the *BOC*, gold was applied to textiles through a variety of means including: weaving, embroidery, gilding, and applique. The terms *chrysoyphes* (χρυσοϋφής) or *chrysoyphantos* (χρυσοϋφάντος) described gold woven into textiles on the loom. Two different types of gold embroidery were mentioned in the text. *Chrysokentetos* referred to gold yarns embroidered to the cloth surface (couched), while *chrysoesolenokentetos* was apparently a method of affixing tiny gold tubes to the cloth surface. The literal translation of *chrysohenges* as bright or shining gold probably meant application of gold leaf to gild textiles.

Other types of gold decorations were sewn to finished garments. *Chrysoperikleistos* was translated by Reiske as gold-bordered, and by Vogt as edged with gold, but Dawson suggested application of tablet woven gold bands. *Chrysoklabos* referred to woven or applied bands running from shoulder to hem. The related terms *chrysosementos* and *chrysa holosementos* have been interpreted as either appliqué or gold-patterned.

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137. For discussion of the meaning of the term, see Muthesius 1995a, 293; *Imp Exp*, 169 n. (B) 108-109; 224 n. (C) 244; Jacoby 1991-1992, 483.
138. For example, see Verhecken 2007.
139. The literature of historic dye technology is extensive and relies upon chemical analyses to determine chemical components. For a synthesis of historical dye stuffs, see Cardon 1999.
141. See Maguire 1989, 228 for panegyric references to the sun and shining light.
149. *BOC*, Moffatt, 294 n. 2; Dawson 2002, 28.
Terminology for the types of gold decorations in the BOC followed the same general pattern as the prestige colours discussed above. General references to gold textiles used the word *chrysos*. Specific terms were used to describe garments in terms of a hierarchically ordered scheme. As we have seen, except for the two chapters added during the reign of Nikephoros II Phokas, the consistent use of terminology suggests that the texts were collectively edited for greater consistency in terminology.

The addition of gemstones or pearls to garments was mentioned in the BOC on four occasions.\(^{150}\) The most elaborate garment was a *kolobin*, which was known by the name *Botrys*, meaning ‘bunch of grapes’.\(^{151}\) The figured pattern silk garment was embroidered with gold thread and decorated with precious stones and pearls. A scholion to the *Imperial Expedition* treatise referred to a special *chiton* worn by the emperor when he entered the city in an imperial triumph. Known by the name ‘rose cluster’ (ῥοδόβοτρυς), it was described as *chrysoyphantos* suggesting that the design was woven with silk and gold yarns.\(^{152}\) The garment was “covered in pearls set in a criss-cross pattern, and with perfect pearls along the hems.”\(^ {153}\) Several authors including Attaleiates and Choniates mentioned the heavy weight of imperial garments and regalia.\(^{154}\) Function and practicality limited the extent to which heavy embellishments could be applied to silks, so other means of distinguishing high status textiles had to be devised.

**Representation**

In addition to colour and precious metals, representational patterns provided a third means of elevating textiles and communicating hierarchy. Textual evidence concerning figured silks shows patterned weaves to be a clear extension of the Byzantine visual sphere in terms of both aesthetic perception and symbolic reference.

**Aesthetic Perception**

In her study of colour perception in Byzantium, James documented descriptions from various authors demonstrating aesthetic appreciation for compositions involving variegated colours in forms such as mosaics, marble columns and peacock feathers.\(^ {155}\) In an encomium describing the interior of the Nea Church, the *Vita Basilii* integrated visual references for two different media. The text described the floor mosaics as first appearing “to be fully spread with rugs woven of silk or of *sidonian* fabrics.”\(^ {156}\)

Several mentions included in the corpus referred to the use of variegated colour, particularly in creating a layered, ambivalent experience. As a visual representation of Christ’s dual nature for the feast of the Nativity, high officials wore Tyrian purple and yellow-spangled (μηλινοκάθρυπτα) chlamyses.\(^ {157}\) The costume worn by the emperor for the feast of the Ascension represented a similar mingling of colour and pattern with the prescription of a multi-coloured *skaramagion*.\(^ {158}\)

Sources suggest that the two qualities that were especially prized in Byzantine colour combinations were contrast and association.\(^ {159}\) John Mauropous related his aesthetic appreciation of colour interpolation in an 11th century epigram “beauty is created when two contrasting colours are wonderfully blended together.”\(^ {160}\) The medium of figured textiles required patterns to be woven with contrasting colours at a
scale appropriate for the intended viewing distance. For the reception of the foreign ambassadors, the protospatharioi wore green and pink skaramangia while the spatharokandidatoi and the spatharioi wore other colour combinations.161

Symbolism

Interpretation of figured patterns described in historical sources requires critical analysis of source evidence to examine intention. Relying on earlier sources, Theophanes Confessor conveyed Byzantine suzerainty over Lazica by describing the investiture garments worn in 522 by Tzathios which bore embroidered images of Justin I (518-527).162 The iconoclasm controversy was clearly referenced in Theophanes’ description of the donation made by Michael I (811-813) on the investiture of his son, Theophylaktos. Michael renewed a set of four curtains of ancient manufacture “splendidly embroidered in gold and purple and decorated with wonderful sacred images.”163

Several scholars have investigated patterned silks to explore how textile representation was influenced by iconoclasm.164 Based on documentary evidence and available technical information about figured silks, Brubaker concluded that the imperial silk workshop remained active during iconoclasm, but that subject matter alone is an insufficient guide for dating.165 For the middle Byzantine period, Maguire examined the way that costume was used to present the emperor and his court as counterparts to the invisible court of Christ.166 In his study of liturgical vestments in Byzantium, Woodfin showed the later transformation of Byzantine liturgical dress from its middle Byzantine basis in the imagery and forms of the imperial court.167

Figured textiles were visible not only to court officials in imperial ceremonies, but also to the population of Constantinople. Choniates described the imperial triumph declared in 1133 by Emperor John II Komnenos (1118-1143) to mark the capture of Kastamon. For the occasion, the streets were decorated with gold-embroidered purple cloths as well as woven images of Christ and the saints.168

Summary of textile decoration terms

The properties of silk made it a highly adaptable medium for expression. The high dye receptivity of the material provided a means to convey rank through colour with the capacity for nuanced presentation of information. Like metal, silk reflects light to display a shimmering, radiant presence. Combining colour with gold intensified the visual display of wealth and divine qualities. While gold was applied to silk garments and furnishings through every available means, representations provided another device to communicate hierarchy. Woven patterns coincided with aesthetic preferences for variegated colours. Use of textiles for symbolic representation in garments provided a powerful means of projecting information with the advantages of portability and intimate association with the wearer.

Terms for woven pattern designs

Imperial restrictions

Chapter 8 of the BOE reflected imperial efforts to maintain the exclusivity of imperial silks. The text defined certain goods as kekolymena, meaning forbidden or prohibited. The serikarioi were permitted to produce certain types of silk for sale to the vestiopratai. These restrictions were not applicable when the eparch commissioned silks to be woven for purchase

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161. BOC, Reiske, I:15, 576.
162. Theoph, de Boor, 168, 23-26.
163. Theoph, de Boor, 494, 29-31; tr. from Theoph, Mango, 678; for re-editing and embellishing earlier iconoclastic sources, see Brubaker & Haldon 2001, 166.
164. See Maguire 1996, 100-106, 137-145; Muthesius 1997, 2, 60, 68-72, 146.
168. Nik Chon, Diiten, 18, 81-84.
by the state. The implication is that serikarioi had the material resources and technical capabilities necessary to produce at least some types of imperial or sub-imperial quality silks when required, but were otherwise prohibited from doing so. The penalty for making prohibited weaves or for selling a slave who knew how to produce such silks to a foreigner was to have a hand cut off. The consequence of delivering silks made abroad to the imperial storeroom (basilikon kylistareion) was to be flogged and shaved.

The particulars of prohibited goods are listed in BOE paragraphs 8.1, 8.2, and 8.4. These sections are difficult to interpret because the specific terms are not meaningful in literal translation. What is clear is that the regulations referred to categories of attributes. Paragraph 8.4 explicitly prohibited use of murex dyes for particular types of textiles. Paragraphs 8.1 and 8.2 restricted production of high value silks of one or more colours and in certain combinations, including those that gave variegated or multi-coloured effects. Another prohibition pertained either to the size of a finished cloth, or more likely, the scale of a pattern repeat.

A monetary limit was placed on the maximum value of goods produced by the serikarioi. Any garment worth more than ten nomismata had to be reported to the eparch. The regulation also applied to the guild of the vestiopratai. This same market value limit appeared in the Imperial Expedition treatise. The eikikon was responsible for purchasing various types of garments from the marketplace for values up to ten nomismata. Purchased items included Egyptian silks and locally made purple garments. These were intended as gifts for foreigners and for military officials in the event of a rewards presentation at a military camp (aplekton).

References to loom technology and quality of workmanship are evident in chapter 8 of the BOE. Paragraph 8.3 required inspection of silk looms and equipment by certain officials, the mitotes, under the authority of the eparch, to ensure that imperial quality goods were not being produced. The inference is that inspectors monitored textiles on workshop looms as they were being woven. Finished goods were also examined by the boullotes and required the eparch’s seal. Paragraph 8.9 defined the consequences of not having seals affixed to bales of finished cloths.

Regulations for the serikarioi defined three qualitative categories of silks: high (megalozela), medium (mesozelon) and lower quality (leptozelon). The Imperial Expedition treatise used these same terms to describe the qualities of woven silks produced in the imperial workshop. The BOE regulations strictly prohibited production of goods in the high and medium categories, but some lower quality items were allowed. While the full set of attributes involved in grading silks are not clear to us, quality references included yarn type, and possibly diameter.

Polychrome pattern weaves

Scholars have long puzzled over the meaning of triblattion and diblattion, which appeared only in association with imperial or high prestige silks. In the sources included in the corpus, triblattion and diblattion were specifically named 15 and 16 times respectively. In addition to four mentions in the BOE, 17 the terms appeared five times in the BOC, 15 in the Imperial

169. Note that spelling of idikon is from the text, as compared with eidikon elsewhere. BOE, Koder, 8.2: ἐχτὸς τῶν ἐχόντων ὁρισθῆναι παρὰ τοῦ ἐπάρχου πρὸς χορηγίαν τοῦ ἰδικοῦ.
170. BOE, Koder, 8.11.
171. BOE, Koder, 8.1, 378-379: τὰ δὲ βλαττία κατὰ περσικίων ή δισπίθαμα χλανίδια ἐμφανιζέσθωσαν τῷ ἐπάρχῳ....
172. BOE, Koder, 8.1, 379-380.
173. BOE, Koder, 4.2.
175. Imp Exp, 217-219 n. (C) 226.
177. BOE, Koder, 8.1, 8.4.
178. BOC, Reiske, I: 10, 80, 11; 37, 188, 21; 48, 255, 7-8; 97, 442, 1-2; II: 15, 581, 2.
Expeditions treatise,\textsuperscript{179} five in Attaliates’ Diataxis,\textsuperscript{180} once in the Tytipon of Gregory Pakourianos.\textsuperscript{181}

Considering these sources collectively, the terms were used explicitly in conjunction with colour words in 11 instances and in association with figured patterns in 13 cases. In the BOC, triblattion was used coincidentally with a description of a chlamys patterned with a plane tree design.\textsuperscript{182} This mention was immediately preceded and followed by a number of other descriptions referring to various patterns including griffins, lions, horsemen, and peacocks. The Imperial Expeditions treatise included several mentions of diblattia decorated with eagles and other imperial symbols in various colour combinations.\textsuperscript{183} For the reception of the Saracen ambassadors in the BOC, the emperor put on his eagle pattern chlamys to receive the guests.\textsuperscript{184} The Diataxis included a diblattion silk with a yellow griffin design.\textsuperscript{185} The text also listed a purple diblattion curtain with a design of peacocks in conches.\textsuperscript{186} For the feast of the Nativity in the BOC, some high officials wore chlamyses that were patterned with a design of peacocks in conches.\textsuperscript{187}

In his 17\textsuperscript{th}-century Latin glossary, Du Cange defined triblattion as a three-colour cloth and included a description by Peter Damian.\textsuperscript{188} Reiske interpreted the term to mean either the number of times a silk was placed in a dye bath or a type of polychrome textile. Although some scholars have adopted the dye bath interpretation, this explanation is inconsistent with colour processing.\textsuperscript{189} Submitting a cloth to multiple baths of the same colour would not produce reliably perceivable gradations in colour intensity to support distinct terminology.\textsuperscript{190}

Guilland adopted Reiske’s second explanation and concluded that di- and triblattion referred to solid strips of various colours applied to a ground fabric that was usually purple in colour.\textsuperscript{191} His analysis did not propose a method of application, nor did he describe the location or physical dimensions of the strips. To explain the coincidence of triblattion with pattern descriptions, he suggested that the designs were embroidered onto the applied colour strips.\textsuperscript{192} He concluded by suggesting that the number of bands applied to a garment was an indication of hierarchy and might have designated rank in the manner of clavi.\textsuperscript{193}

Despite its general acceptance, Guilland’s explanation is problematic. Incidence and context indicate that di- and triblattion occupied a high position in the hierarchy of textiles in imperial use and contributed to the sublime presentation of the emperor and his immediate retinue. Colour banding is among oldest and most common forms of embellishment, in part because it provides a way to recycle used or damaged coloured textiles. In the middle Byzantine period, materials for coloured strips were widely available, required no special processing or skills, and could have been worn by many persons in society. For the purpose of elite differentiation, colour bands would have been inconsistent with use of fine silks, exclusive dye-stuffs, and precious metals.


\textsuperscript{180} Attal, Gautier, 1306, 1779, 1887, 1792.

\textsuperscript{181} Gre Pak, Lemerle, 1728.

\textsuperscript{182} BOC, Reiske, II: 15, 581, 1-2. A plane tree is deciduous variety with a broad canopy.

\textsuperscript{183} Imp Exp, C.240-242, 251-253.

\textsuperscript{184} BOC, Reiske, II: 15, 587, 21.

\textsuperscript{185} Attal, Gautier, 1787-1788.

\textsuperscript{186} Attal, Gautier, 1376-1377.

\textsuperscript{187} BOC, Reiske, I: 23, 128, 14.

\textsuperscript{188} Du Cange & Carpentier 1733, VI, 1277.

\textsuperscript{189} This interpretation was carried over in Muthesius 2002, 163. For addition discussion with respect to blattion and dyes, see Dawson 2002, 22-26.

\textsuperscript{190} See Edmonds 2000 for an explanation of murex dye bath preparation and use.

\textsuperscript{191} Guilland 1949, 339-348.

\textsuperscript{192} Guilland 1949, 347.

\textsuperscript{193} Guilland 1949, 348. Several scholars including Haldon have adopted Guilland’s interpretation; See Imp Exp, 205-207 n. (C) 173.
As Guilland pointed out, several different kinds of garments were made from di- and triblattion such as: chlamys, skaramagia, kolobia, divetesia, and tunics. Furnishings included cushion covers, curtains, altar cloths, hangings, and untailored lengths of cloth. Affixing coloured bands to a variety of different garments would have created a disparate appearance in the otherwise formalised and coherent system of vesture, particularly for items embellished with clavi. A ranking system for furnishings based on coloured bands is difficult to imagine. The idea of affixing coloured strips to unsewn lengths of cloth seems especially questionable since they might later have been made into tailored items. The corpus contains various references to the use of stripes for decoration on some garments, but only occasionally in association with high officials or the emperor in a ceremonial context. Moreover, no written work included in the corpus attached symbolic or aesthetic importance to the use of colour bands.

A telling reference comes from the Book of Gifts and Rarities. Included among the elaborate gifts sent by Emperor Romanos I Lekapenos (920-944) to Caliph al-Radi bi-Allah (934-940) in 938 were several brocade cloths:

“One with a design of eagles in two colours, another with a floral [design] in three colours, another also with three-coloured stripes, a red one with coloured foliate design, the design of yet another [represents] trees on a white ground, two with a design [representing] a hunter set in a roundel on a white ground, two with crouching lions on a yellow ground, two eagles in roundels....”

The conclusion from the discussion above is that diblattion and triblattion were the middle Byzantine terms for imperial quality weft-faced compound weave figured silks. This explanation is consistent with descriptions of aesthetic and symbolic preferences as related through a variety of written sources. This analysis also agrees with accounts of pattern use and colour terminology. Examples of two colour diblattia type cloths are shown in Figs. 2 a-c.; Figs. 3 a-c provide examples of three colour triblattia silks.

Scholars including Guilland have questioned why only one or two colours at most were named in conjunction with triblattion and diblattion. In the prescriptive sources that included these terms, the purpose of recording information was for identification rather than comprehensive description. For a bi-colour diblattion, either the pattern or the ground was named. Polychrome silks with three or more colours would have had a dominant pattern colour and a ground. Reference to other colours would have been cumbersome and unnecessary. For example, a cloth described as oxea leukotriblatton would have had a white dominant pattern colour on a red-purple ground.

As noted by Guilland and others, there were clear status distinctions between triblattion and diblattion. Each of the seven instances of multi-coloured patterned silks worn by the emperor was triblattion. Only the cushions provided for the emperor to recline while on campaign were diblattion. Triblattion silks were awarded only to the strategos of important themes. All other senior officials received various qualities of diblattion with different imperial symbols according to rank. The implication is that the privilege of wearing variegated colours in a polychrome

194. For a possible exception, see Imp Exp, C.241-242; 257-258.
195. The Book of Gifts and Rarities comes from an Arabic manuscript dating from the Ottoman period and covers the 7th to 11th centuries for the Islamic world. The text conveys extensive details about textiles and other valuable and exotic items involved in court exchanges. Recently, Christy's examined the text as a historical resource. Her analysis of the purported embassy of Queen Bertha to Baghdad in 906 demonstrates some of the ways the text was altered to meet the needs and tastes of court writers. See Christy's 2010, 160-161.
199. Attal, Gautier, 1790-1792.
weave was a prerogative reserved for the emperor and the most senior officials. Patterns for lesser officials were available only in bi-colour silks. The wearing of patterns and particular colours to designate rank was clearly defined by the BOC:

“Note that on the actual day of the reception, all those mentioned previously, from the protospatharioi down to the lowest ranking person wearing skaramangion, stood each according to the colour and pattern of his skaramangion, that is, those wearing the pink and green eagles to either side, those wearing the owls and the many-circled eagles, likewise those wearing the wave pattern, and likewise those wearing the white lions.”

Monochrome pattern weaves

An important type of patterned weave comparable to tri- and diblattion in complexity and importance has barely been noticed in the secondary literature. In the BOC and the Imperial Expedition texts, monochrome pattern silks were identified by the combination of a colour name with the prefix di-. Translated literally, diaspron meant two whites, a reference to tone-on-tone patterning effect. The Diataxis used a similar term, blattion diphoton, to describe a silk pectoral garment. With the literal meaning of two shades or tones, the use of diphoton to describe a silk cloth suggests a monochrome patterning effect. The designs in monochrome weaves were formed either by incised lines or by the textural contrast of a pattern against a ground. In either case, the effect would have been subtle and elegant. Both structures were forerunners of true damask, a modern term which itself alludes to its historical production centre, Damascus.

Additional interpretational evidence is provided by the incidence of colours attested. The 16 mentions of the weave included: six white, four pink or rose, three yellow, and three blue. Monochrome patterns were often woven in white or light colours because textural contrasts are more easily perceived. The same paragraph of the BOE that prohibited the serikarioi from weaving triblattion and diblattion included a third term, dimoirosea, which is conventionally translated as two-thirds purple. Given the naming conventions for monochrome patterns in other sources, the term dimoirosea may have referred to imperial quality ‘damask’ figured silks.

In the BOC, usage context shows that monochrome patterned silks were part of the hierarchical ordering of textiles when all attendants wore white garments. For the most holy festivals – Easter Sunday, Eve of the Epiphany and the Wednesday of mid-Pentecost – only the emperor wore diaspron garments. The weave was also used to indicate seniority during the reign of Nikephoros II Phokas. As described in chapter 96, the president of the senate wore a pink ‘damask’ (dirodi-non) chiton on appointment, and a pink ‘damask’ sagion shot with gold on feast days.

By analogy to the hierarchical distinction between triblattion and diblattion, monochrome patterned weaves may have been ranked according to the quality of light. One-colour patterns in the brightest hues seemed to occupy the most superior position in the hierarchy associated with the weave. Coloured ‘damasks’ were included among the goods prepared for the expedition against Crete in 911 as

200. BOC, Reiske, II: 577-578, tr. from BOC, Moffatt, 577-578.
201. For a brief discussion of the term, but without reference to particular sources, see Muthesius 1995a, 296. For the word diprosopo- pon, see Koukoules 1948-1952, 2.2, 33. For a discussion monochrome weave structures: Muthesius 1997, 85-93. For explanation of monochrome patterning methods, see Becker 1987, 118-129.
202. The meaning of diaspra was interpreted by Haldon as either a warp and weft of different colours or multiple dye baths. See Imp Exp, 217 n. (C) 225.
203. Attal, Gautier, 1798.
204. Attal, Talbot, 371 n. 48.
205. CIETA 2006, 12.
206. BOE, Koder, 8.4; BOE, Freshfield, 8.4.
207. For the sake of brevity, the term used here for monochrome pattern weaves is ‘damask’ to designate the category of such structures.
208. BOC, Reiske, I: 97, 440, 443.
gifts for senior officials. In the Kletorologion of Philotheos, doctors wore blue ‘damask’ skaramagia. As with polychrome figured silks, monochrome patterned weaves were used for furnishings as well as garments. Sets of pink ‘damask’ curtains were hung in the Hippodrome festival held for the Saracen ambassadors.

Among the various characteristics that contributed to the hierarchical ordering of silks, quality is the most difficult to interpret from written sources. In addition to dividing textiles into high, middle, and low categories, the Imperial Expeditions treatise referred to subcategories for some items comprising first, second, and third grades. Haldon noted that use of tripartite grading systems was longstanding, with similar references in the Edict of Diocletian. Both the BOC and the Imperial Expedition texts indicate that the qualitative hierarchy of textile gifts was visible and understood by the giver and receiver as well as the broader community of observers. The limitation of textual evidence is that we do not know the specific textile characteristics that distinguished imperial and non-imperial categories of goods, nor do we understand the basis for ranking within each category. Nevertheless, we can surmise that this ‘qualitative hierarchy’ resulted in tangible differences in workshop practices by textile type.

**Summary of woven pattern terms**

Pattern weaving technology provided a means of differentiating imperial silks given the long-standing problem of imitative colour and metal use. By the middle Byzantine period, textile prerogative was defined by a combination of elements that were modulated according to need. Information was conveyed through the interaction of components including garment type, material composition, precious metals, applied embellishments, and colour combinations.

Description of particular prohibitions provides the best available definition of the properties that constituted imperial quality silks. As interpreted in this section, these included particular dyestuffs, colour combinations, pattern scale, yarn size, quality attributes, and monetary value. Critical analysis clarifies the long-debated meaning of di- and triblattion as bi-colour and polychrome weft-faced compound weave figured pattern silks. Although they had less apparent visual impact, the use of diaspron pattern weaves was a means of designating rank on occasions when the ceremonial rite called for one-colour garments.

**Conclusion**

This analysis provides a synthesis of 57 terms from Byzantine sources pertaining to or used in association with silk. Considered collectively, silk terminology provides a body of evidence to examine the role and social importance of silk in the material culture of the middle Byzantine period. In contrast to the lingering perception that silk was an imperial monopoly, the material appears to have been widely available in Constantinople as well as in provincial towns. Silk fibre trade and processing terms suggest a highly developed international industry.

As compared to other fibres, silk was considered to be relatively luxurious, but was only one factor contributing to the value of a particular textile. While silk remained a luxury fibre on a comparative basis, not all luxury items contained silk and not all silk-based textiles were high value goods. Terminology analysis indicates that various types of low quality silk products were produced in response to consumer demand.

The extensive lexicon associated with textile decoration demonstrates the adaptability of silk as a medium of expression. It also demonstrates that the desire for elite differentiation spurred development of new materials and methods. Production of complex figured silks woven on specialised looms in the imperial silk workshop provided a means of limiting

209. BOC, Reiske, II: 44, 661.
210. Listes, 183.20.
211. BOC, Reiske, I: 15, 589.
212. Imp Exp, 224 n. (C) 243-244.
213. For example BOC, Reiske, I: 44, 227-230; II: 18, 607; Imp Exp, C.503-511.
imitative products. *Triblattion, diblattion* and high quality ‘damask’ weaves were technical and institutional adaptations to elevate precious silks as an imperial resource.

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Be Tud = *The Itinerary of Benjamin of Tudela*. (1907) M.N. Adler (ed. & tr.) London.


22. Terminology Associated with Silk in the Middle Byzantine Period


Leo Syn = The Correspondence of Leo, Metropolitan of Synada and Syncellus. (1985) M.P. Vinson (ed. & tr.) Washington, DC.

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22. Terminology Associated with Silk in the Middle Byzantine Period


The collection

The Arabic Leinwand (A.L.) collection is held by the Department of Papyrus (Papyrussammlung) in the Austrian National Library of Vienna. The collection was acquired in Egypt in the late 19th century by an antiquity trader in Cairo commissioned by Joseph von Karabacek, the famous papyrologist, and contains 68 items. Almost all of these have an association with writing, hence the reason why they were collected for the Library, and only eight objects have no association at all. The language for the most part is Arabic with a few texts in Greek, or with Greek with Arabic.

The collection of pieces related to writing can be broadly divided into the following two categories:

1. Writing on textiles
   There are 38 examples of writing on textiles. These are items with epigraphy, with texts written by hand, stamped on, embroidered or woven into the textile. The texts themselves are non-literary and include legal deeds, accounts, letters, talismans, and some may be purses used by merchants to carry money. Embroidered or woven examples, known as tirāz, are by far the least numerous, with only three examples in the collection.

2. Writing on paper
   There are 22 items that make use of reused paper documents. These are fragments of paper that are employed as structural inserts in clothing items including hats. They thus provide information on the work of tailors and hatters in the medieval period.

The papyrologist Adolph Grohmann attempted to organise the collection during the 1920s and 30s and undertook some cataloguing including translating some of the texts. However, only a few of the items, mainly the talismans, were published separately via illustration or a summary of their text. So in other words, this collection is unique and largely understudied. The authors, along with a colleague, are currently completing a catalogue raisonné of this collection, using a multidisciplinary approach to understand as much as possible about the provenance of the items.
the date of their production, their use, disposal and entry into the collections. This article presents one example from this collection, A.L. 18, that challenges our understanding of the terminology around textiles identified as ṭirāz, in particularly their use as historical documents, and their status within the communities where they were made and used.

Fragment A.L. 18

Description

In the collection, there are only three textiles decorated with ṭirāz, and A.L.18 is one of them. It is a fragment 6.8 by 7.6 cm, with edges that were frayed.
in antiquity, and which have possibly been trimmed in the recent past. The textile is in ‘s’-spun linen, in a tabby weave of medium quality of 30 threads per cm. The embroidery is in brown silk in rough stitches, many of which are unidentifiable, but include a majority of double rows of chain stitch. The remains of the tops of the uprights suggest that they may have been slightly ornamented. The embroidery has been heavily worn.

A.L.18’s text can be reconstructed through reference to the relevant formulas as follows:

Translation:
“… or[dered to be made in the private factory (ṭirāz al-khāṣṣa) at Shaṭā …”

This replaces the previous readings made by Karabacek and Grohmann.5 According to the text, A.L. 18 is an Egyptian textile from the city of Shaṭā, which is one of the production centers for ṭirāz in ‘Abbasid and Fatimid Egypt. The town is located in the Nile Delta close to Tinnīs and Damietta, both of which were famous places of ṭirāz production that slightly overshadowed Shaṭā.6 The town was producing textiles in the 2nd/8th century, before that of the public factory at Miṣr.7

As the inscription suggests, the word ṭirāz refers both to the type of textile but also to the factory or workshop where those pieces were made, which were under the control of the caliphs and rulers. Unfortunately, the part where the name of the caliph and the date usually appears is missing. Sometimes a missing date does not pose an obstacle to dating the ṭirāz, because if the name of an intendant or amīr (a member of the caliph’s family entrusted with the authority over the ṭirāz) appears, these can be cross referenced to other documents and the date worked out. However, with neither a date nor the name of an official, this piece cannot be dated from its inscription.

The textile industry at Shaṭā

Shaṭā’s textile production was recorded by different Arab historians and geographers as early as al-Ya’qūbī (d. 284/8978), Kitāb asmā’ al-buldān,9 composed in 276/889, Ibn Ḥawqal (d. after 362/973), Kitāb Sūrat al-arḍ, and al-Muqaddasī (d. c., but after 400/1000), Aḥsan al-taqāsīm fī ma’rifat al-aqālīm, a book mainly composed in 375/985.10 They refer to the presence of Copts who may have been involved in the textile industry at Shaṭā. Various fine textiles are named after the town (“al-bazz al-shaṭawī”). Yāqūt (d. 626/1229), in his Mu’jam al-buldān, is aware of “cloths from Shaṭā”, i.e., “al-tiyāb al-shaṭawīyya”, then gives more details through al-Ḥasan b. Muḥammad al-Muhallabī (d. 380/990),11 who said that Shaṭā and Damietta were famous for their production of very fine and delicate textiles, the price of some of them being one thousand dirhams, although no gold was used in their fabric.12

5. Karabacek 1909, 38; CPR III, 60 and n. 3, where Grohmann gives a short description of the object, which mainly relates it to his typology (“stammt nach der mit schwarzer Seide eingestickten Inschrift”, i.e., belongs to the inscriptions embroidered with silk), followed by his reading of the text of the ṭirāz, giving the provenance of the fabric erroneously as “Banšâ” (Banshā). In his footnote 3 he refers to Karabacek’s reading and revises it, suggesting “bi-’amalihi” as the right reading rather than “bi-’amal”, which is Karabacek’s reading, but leaves the provenance of the fabric as “Banšā”. On the original envelope in which the textile was stored is a note written by Karabacek with his reading of the text.


8. The first date is given in the Hegira calendar and the second is in AD, here and elsewhere.


12. Yāqūt (d. 626/1229) 1410/1990, entry 7110, vol. 3, 388. See also Wüstenfeld 1867, vol. III.1, 288. All these authors, out of al-Fākihī (see below) and al-Muhallabī, are quoted, although sometime only partially by Ramżī 1375/1955, vol. 1/2, 243. Ibn Ḥawqal 1938-39, 152-153 [20], said that the price of al-ṣaṭāwī was even more during his time, from 20,000 to 30,000 dinars, but the passage is a little confusing.
Al-Maqrīzī, the famous Egyptian historian, who died in 845/1442, refers to the city twice: first he mentions as his predecessors did, a type of cloth (ṭiyāb) which is named after the city, al-ṭiyāb al-shaṭawiyya. While he is a little late in date for our item, he also quotes al-Fākihī (d. 272/885), who saw a kiswa from Shaṭā bearing the name of Hārūn al-Rashīd, the famous ‘Abbasid caliph, whose reign started in 170/786, as well as the name of al-Faḍl b. al-Rabī’, who took over the government under Hārūn al-Rashīd in 187/803, and moreover the date of 191H, i.e., 806-807 AD, the very beginning of the reign of the Caliph Hārūn. The complete text of the kiswa is given by al-Fākihī according to Maqrīzī, and this piece of cloth is described by al-Fākihī as a piece of “qabāṭī Miṣr”.

So literary sources state that the city of Shaṭā was a place for textile production including some very high quality textiles from at least the end of the 2nd/8th through to the 4th/10th centuries.

The private factory

According to its inscription, the factory where A.L. 18 was made was al-khāṣṣa or private. In Cairo under the ‘Abbasids there was a distinction made between the public ṭirāz workshops (‘āmma) and the private ṭirāz workshops (khāṣṣa) whose production was reserved for the caliph. By the time of the Fatimid caliphs, the sale of ṭirāz textiles to the public from the ‘āmma was a significant source of revenue with the largest ṭirāz factories providing an income of more than 200,000 dinars each day and this presumably increased in the later Fatimid period given the dramatic rise in ṭirāz production at court and the penchant of the middle and upper classes for imitation.

There is some information known about the factory system at Shaṭā. In 937 AD, under the Caliph Abū al-‘Abbās Muḥammad al-Rāḍī bi-llāh, the intendant at Shaṭā was Jābir, following on from one called Shāfī. Later pieces include those produced under the Caliph al-Muṭī’ (334-363/946-974) that mention an intendant called Fā‘iz, as well various pieces that mention the public and private ṭirāz factories at Shaṭā which were under the direction of Fā‘iz. He was evidently the chief intendant of all the Caliph’s factories in Shaṭā, and his office spanned the end of the ‘Abbasid period and the new era of the Fatimids, which started in 341/952 with the Caliphate of al-Mu’izz (from 341/952 to 365/975). An inscription on a textile in the Benaki Museum dated 387/997-998 AD, which states that it comes from the public factory at Shaṭā, confirms that the city hosted a public factory in the 4th/10th century.

The other well-known places of production in the Nile Delta also had both public and private factories. According to Grohmann, production in both the private and public factories was very well regulated, with those of the private factories particularly bound to ritual as their textiles were reserved for royal use:

“At the head of the administration of these state factories there was always an official of high rank from the judicial or military service… When he arrived with the fabrics intended for the royal use (…) he was received with the highest honours (…) when the bales of the precious fabrics were brought in, the superintendent of the ṭirāz presented himself to the caliph, showed
him all that he had brought with him, and called his attention to each piece”.\(^{21}\)

Another item within the Arabic Leinwand collection (A.L. 1) is a fine piece of linen bearing a stamped inscription in red color, the text of which refers, according to Grohmann, to the Caliph al-Mu‘izz. The stamp demonstrates one of the mechanisms for controlling the quality of the bolts of cloths produced in royal factories, in this case probably for the purpose of taxes.\(^{22}\)

In contrast to the state-controlled factories, domestic production of cloth continued but in very different circumstances. Grohmann suggests that in the Delta there was “an industry conducted in private houses, probably alongside of the state factories. The lot of the workmen—women span and men wove and the work rooms were rented by them—was wretched; the half dirhem, which was the daily wage, was not sufficient for the minimum necessities of life”.\(^{23}\)

In terms of helping date the textile, the mention of the term al-khāṣṣa can help slightly because by stating that it was private it, by default, suggests that there was also a public factory, thus dating the piece to probably at least the mid-4th/10th century, as early references to factories were simply described as factories, and these were presumably private.\(^{24}\)

**Dating from comparable textiles**

Grohmann’s notes on the textile, which were recorded on the envelope where it was originally stored, refer to several comparator textiles.\(^{25}\) Out of these, only two are traceable, and only one relevant, a textile published in the *Journal of the Royal Asiatic Society* in 1906 which is an embroidery on linen in red thread. The embroidery is now in the V&A collections and is in a stem or running stitch. It is dated to 895 AD with a provenance of the cemetery at Akhmīm in the Sohag Governorate (Egypt).\(^{26}\) The simplicity of the calligraphy was what probably made Karabacek consider this a comparator, however now that the provenance of the textile has been identified more relevant comparators from Shaṭā can be looked at.

Shaṭā was well known as a textile centre from the end of the 2nd/beginning of the 9th century, and produced fine pieces such as the veil for the Kaaba (191H). As stated above, the complete text is given by al-Fākiḥī according to Maqrīzī,\(^{27}\) and this piece of cloth is described by al-Fākiḥī as a piece of “qabāṭī Miṣr”, i.e., tapestry from Miṣr according to the Editor of the text, Ayman Fu’ad Sayyid.\(^{28}\)

Other tapestry examples from Shaṭā include pieces in the Royal Ontario Museum such as a linen with blue weft tapestry dated to 949 AD, blue and yellow silk weft tapestry dated to 937 AD, and a further example attributed to Shaṭā dating to 944-945 AD.\(^{29}\) Other examples include a piece with small red lettering on a yellow band, dated 370/980-981,\(^{30}\) and another in red silk tapestry dated to 350/962.\(^{31}\)

There seem to be very few surviving examples of embroidered ṭirāz from Shaṭā, although there is one example in dark brown silk in a variety of stitches, made under al-Mu‘tamid, dated 276/889-890, which is in the Kelsey Museum of Archaeology.

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22. CPR III, 59, and Fig. 2.
25. There were four references cited by Grohmann in CPR III: Staatlichen Museen in Berlin, Papyrussammlung, “ein Linnenstück mit einem mit blauer Seide eingestickten ṭirāz (P. Berol. 7616)” (which were not traceable); South Kensington Museum, Guest 1906, with 4 pl.; linen, 2-6, 8, 11-14, silk and linen, 10, 15, 16, silk 1, 7, 9 (which has been traced); Sewell 1907, 163 (traced but is not relevant); and Frahm 1822, MASP 8, 572-574 (which was not traceable).
27. See our footnote 12, and the note of the ed. Ayman Fu’ad Sayyid, 611.
29. Kuhnel & Bellinger 1952, 73.638, 47; 73.214; 73.651, 47.
There are temporal changes in the techniques used to create ṭirāz within the factory system. Generally, the factory production of ṭirāz in the Delta area of Egypt began in the 2nd/8th century by emulating embroidered ṭirāz imported from areas of the Middle East such as Iran. The Egyptian factories used a different suite of embroidery stitches on a linen rather than cotton ground, then shifted in the later 4th/10th century to producing similar designs in tapestry, a technique which had a longer and more embedded tradition in Egypt.

Stylistically, all the cited examples both in embroidery and tapestry bear a resemblance to A.L. 18, with unadorned long lettering with little embellishment apart from the slight capping of the uprights reminiscent of Tinnīs tapestry and embroidery. However there is one factor that complicates this scenario, and indeed brings the whole issue of the provenance of the textile based on its inscription into doubt. From a technical perspective, all of the above examples are very high quality and fit clearly into technical categories associated with production in the Delta in the early to late 3rd/9th century. In the case of embroideries, this means that the majority of their stitches are running or couched stitches. In contrast, the decipherable stitches of A.L. 18, which is the majority of them, are executed in chain stitch. Chain stitch was used in Iran, and typified ṭirāz from those factories, and although the stitch was occasionally used by Egyptian embroiderers, for example in turning the corners of letters, examples where it was the sole stitch used in a ṭirāz piece have been identified as the hand of Iranians working in Egyptian factories (e.g., Tinnīs). However, the examples identified by Kuhnel are the work of a professional, while it is less likely that A.L. 18 is. Its poor quality is exacerbated by having quite a loose chain, with, in some areas such as the uprights on the letters, two rows running parallel to each other (see figure 2). While the chain stitch is hard to decipher on the front side of the cloth, the typical reverse of chain stitch of a line of slightly slanting stitches, can be seen on the back of the textile, the two parallel rows representing the two rows of chain stitch on the uprights (figure 3). It is immediately obvious that the embroiderer struggled to control the stitch

32. Day 1937, no.2, 423 and fig. 2. See Kuhnel & Bellinger 1952, 40.
34. Ellis 2001, 1.
size, and that there was little planning of the placing of the letters or how the stitch work would run between them. For example, on the front side, the ‘tails’ of the letters are worked as a curve on the left hand side, but on the right, they are ‘counted’, that is following the warp and weft, giving a block effect to the letter shape. It would seem that the needlework was certainly not that of a professional embroiderer in chain stitch, nor indeed even a competent one.

Discussion

During the late 2nd/8th, 3rd/9th and 4th/10th centuries Shaṭā produced a variety of textiles from state-controlled factories, initially private ones, later both private and public, which at times were under the control of just one intendant. While there are few examples of surviving embroidery this must have made up a substantial part of the early production. The surviving examples of linen with silk tapestry dating from towards the end of the 4th/10th century form a distinct assemblage of textiles, in line with other production from neighbouring towns. As is the case when comparisons with documentary sources are possible, the texts recount a much wider variety of types of textiles produced at Shaṭā than have actually survived, including some very high status fabrics.

Where does A.L. 18 fit into this picture? With the possibility of this being done by an Iranian embroiderer working in Shaṭā being ruled out, the question is raised of why a private tirāz factory in Shaṭā was producing such poor quality embroidery that emulated Iranian embroidery techniques. If, as Grohmann suggests, the produce of the private factories was individually presented to royals, then A.L. 18 seems unlikely to be this caliber of textile. It may have perhaps been reserved for the humbler members of the royal entourage, or given away as a low quality gift. However its combination of strange technique and poor execution surely suggests that this was not the product of any state workshop, or if it was, it was perhaps some kind of trial, that somehow ended up leaving the factory, although the wear on it suggests that it was used extensively before being disposed of.

Could this be that this was not a private factory production at all, but tirāz created outside the state system attempting to pass off both an inscription and technique? It could be a copy of an ‘authentic’ tirāz textile, which mixes an Egyptian inscription with an Iranian embroidery technique. This would certainly fit with this period’s ‘penchant for imitation’ whereby there was a strong trade in reproductions and poorer quality imitations, and where domestic embroiderers replicated in stitches tapestry work that had been produced on a loom. So could this then be an embroidery that was not produced in the khāṣṣa factory, but ‘claims’ to be? Why though would the embroiderer choose a technique that they were evidently incompetent in—this surely would have revealed it as a fake to anyone who knew the production from the private factories of Shaṭā? Perhaps it was created in one of the workshops which Grohmann described as “wretched”, that were outside the state system, and thus beyond its quality controls. These must have sold on to a ‘black’ market where imitations, such as the tapestry example in the Musée des Tissus de Lyon, were the norm.

If there were any questions asked about provenance of the tirāz the evidence could easily be cut off and discarded—and indeed this would be the fragment that would contain that evidence that it was a fake. A further point which is worth bearing in mind is that A.L. 18, in line with the other textiles in the collection including the other two tirāz pieces (A.L. 11 and 48), did not come from a burial site, but from a rubbish dump. It was not therefore carefully disposed of as most surviving tirāz pieces in other collections were, but it really was worn out and thrown away. Even as a poor quality imitation of an example of tirāz that was either very rare or never actually existed, it still had enough value that it was used until it was worn into a rag.

41. Day 2010, 42.
Conclusions

The analysis of this piece of textile has highlighted how complicated deciphering textile terminologies can be. Many tirāz textiles contain the written information that identifies them as a type of object and gives them a historic and production context. As a textile category they helpfully reveal what they are, even when fragmentary. This does mean that each piece’s historical value has tended to be based on the information in its written text, therefore textiles that cannot be dated or are uninscribed have been neglected.42 However, this example has raised some interesting, albeit unanswerable, questions—what does it mean if the information on tirāz is not true? Suddenly, new ideas about the people producing the item and the life history of the object are opened up to scrutiny, questions that would probably never before raised if there was a consistency between decorative technique, quality and inscription. Instead, the analysis throws up more questions than answers, but these questions are ones that lead to a deeper consideration of how tirāz textiles were made and used, and to our understanding of the term tirāz.

Abbreviations


EI' and EF = Encyclopaedia of Islam (1st and 2nd edition).


MASP = Mémoires de l’Académie impériale des sciences de Saint-Pétersbourg.

RCEA = Répertoire chronologique d’épigraphie arabe. Cairo 1931–.

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Zur Bekleidung der Krieger im Avesta: Rüstung und magischer Schmuck

Götz König

Während die in Altavestisch komponierten Lieder des Avesta (die Gāϑās und das Yasna Haptaŋhāiti) einen rituellen Dichtungsstil pflegen, der sich in eigentümlicher Weise gegen die Dinge der Welt weitgehend verschließt, d.h. Wörter, die auf Materiales – auf in Raum und Zeit Identifizierbares – sich beziehen, vermeidet, stellen die in Jungavestisch abgefaßten metrischen wie prosaischen Texte des Avesta eine weitaus ergiebige Quelle zur Rekonstruktion der materiellen avestischen Kultur dar. Richten dabei diejenigen Texte, welche die tägliche bzw. zu bestimmten Anlässen zu feiernde, um die altavestischen Texte herum komponierte Priesterzeremonie bilden (Yasna bzw. Yasna mit Visparad), ihre Aufmerksamkeit auf das Ritual und dessen Gegenstände, so dringt mit den interkalierbaren Sammlungen (naska) der Hymnen (Yašt; einst im *naska- bagām zusammengestellt) und dem sich weitgehend auf Rechtsgegenstände beziehenden Vidēvdād „Welt“ in die Ritualsphäre ein, die selbst wiederum in ihrer gegenständlichen Konkretion von dem priesterlichen Unterweisungstext Nērangelstān beschrieben wird.

Ob die in den drei genannten jav. Texten Yašt (Yt), Vidēvdād (V) und Nērangelstān (N) reflektierte materielle Kultur dabei einem einheitlichen zeitlichen, räumlichen und sozialen Horizont angehört, ist keineswegs sicher (s.u.). Während Vidēvdād und Nērangelstān weitgehend die Lebenswelt der Priester bzw. Gläubigen zum Zeitpunkt ihrer Textkomposition beschreiben, beziehen sich die (teilweise „archaisch“ anmutenden) Yašt auf eine eher aristokratische Sphäre, die sich immer wieder in eine heroisch-mythische Vorwelt ausdehnt.


Die Bildung ist im Avestischen nicht bezeugt. In N 19.6 findet sich ein barō.aspa- “ein Pferd reitend” (im Gegensatz zu vazō.raϑa- “einen Wagen fahrend”). Zum Zusammenhang von Pferd und Mann s.a. das Kompositum Yt 10.10 aspa.vīra.gan- “Pferd und Mann schlagend”.

Das bei der Nōzūt-Zeremonie angelegte Hemd wird kīse-ye kerfe und gerebān genannt, letzteres ist vermutlich eine volksetymologische Umbildung von grīwbān (Junker 1959, 28).

Zu Helm und Halsschutz aus safawidischer Zeit s. Rehatsek 1882.


Np. targ „Helm“ (s. ŠN).


Vīspa.ϑauruuō.ašti. (Yt 9.30, 17.50), einem Feind des Vīštāspa. Ihm eignet auch ein spitzes Schild/Brustwehr (uruui.vərəϑra-).

Auch von Frauen getragen, s. Yt 5.127, 17.10.

Vgl. Yt 5.64, 78; V 6.27 (PŪ mōg „Schuh“); xā.aodra- (PŪ xwēš mōg) V 13.39, PV 5.46.


**Vīdēvdād 14.9**


Die für die im avestischen Text gelisteten Rüstungssteile verwendeten Materialien sind unbekannt. Die (defensiven) Rüstungsgenstände des Gottes Vaiiu, die Yt 15.57 als „goldene“ (zaraniia°) beschreibt, entsprechen in ihren Bezeichnungen (° xaoδa- „Hut; Helm“; 9 x° minu- „Halsgeschmeide“ etc.) nicht den in V 14.9 genannten. Jedoch

<table>
<thead>
<tr>
<th>V 14.9</th>
<th>Pahlavi Übersetzung</th>
<th>Verwandtes</th>
<th>Bedeutung</th>
</tr>
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<tbody>
<tr>
<td>zrābō.</td>
<td>zreh</td>
<td>arm. LW zrahk’ [Hübschmann Nr. 238]; np. zreh „Bewaffnung“; np. zreh „Cuirass; Kettenhend“</td>
<td>Cuirass (frz. cuirasse “armour [leather]”)</td>
</tr>
<tr>
<td>kāiris.</td>
<td>grīwbān [ān āz tarag abāz ṣ zreh bast ēstēd]4 „Halsschutz [was vom Helm aus an das Cuirass gebunden wird]“</td>
<td>Vgl. Bergname kaoirisas(ca) Yt 19.6 (IE *kur-/*gur- „Hals“)</td>
<td>Halsschutz⁶</td>
</tr>
<tr>
<td>paiti.dānō.</td>
<td>padān [ān āz iärz ā i zreh dārēnd] „Mundvorsatz [was man unter dem Cuirass trägt]“</td>
<td>Vgl. ai. prati-dhāna- „Anziehen“</td>
<td>Mundvorsatz(-Tuch?)</td>
</tr>
<tr>
<td>sārauuārō.</td>
<td>sārwār [tarag] „sārwār [Helm]“</td>
<td>arm. LW salavart [Hübschmann Nr. 566]; syr. sanvartā „Helm“; vgl. av. hąm-varziti- „Wehrhaftigkeit“ etc.</td>
<td>Helm; Hut (?)</td>
</tr>
<tr>
<td>kamara.</td>
<td>kamar</td>
<td>np. kamar</td>
<td>Gürtel⁸</td>
</tr>
<tr>
<td>rānapō.</td>
<td>rānbān [‘sparzag (Mss. šplc’)]</td>
<td>Zu sparzag vgl. mmp./parth. ‘spr; np. separ „Schild“</td>
<td>Beinschutz</td>
</tr>
</tbody>
</table>


10. Auch von Frauen getragen, s. Yt 5.127, 17.10.

11. Vgl. Yt 5.64, 78; V 6.27 (PŪ mōg „Schuh“); xā.aodra- (PŪ xwēš mōg) V 13.39, PV 5.46.
zeigt weitere Analyse, daß sich aus einer Kleidungsbezeichnung i.d.R. nicht auf das für die Kleidung verwendete Material schließen läßt. So tragen, wie das Bildnis des Skunxa in Bisotun zeigt, die „spitzmützigen“ (tigra-xauda-) Saken xaudas aus Stoff/Filz; hingegen beschreibt Yt 13.45 die xodaas der Frauuaās (wie deren gesamte Rüstung) als „eiserne“ (Yt 13.45 aiiō.xoaadā. aiiō.zaiiā. aiiō.vərəϑrā̊. „eiserne Hüte, eiserne ‘Instrumente’ [= Angriffswaffen], eiserne Schilder/Brustwehren“), vgl. np. xūd „Helm“, jedoch pašto xol „Helm; Hut“, oss. xūd/xodæ „(Pelz-)Mütze“ (EWA III, 148; sem. LW ḥwdʾ „Tiara, Diadem“). Ähnliches gilt im Falle der Gürtelschnüre. Der historisch nächste Vergleichspunkt der Kriegerbekleidung, die V 14.9 aufführt, dürften Relief- und Siegeldarstellungen des achämenidischen Irans bzw. Beschreibungen der mit dem achämenidischen Iran vertrauten griechischen Historiker sein. Ein solcher Vergleich kann hier freilich nicht geleistet werden, da er damit hingewiesen werden, daß die griechische historische Literatur diesbezüglich sehr wertvolle Nachrichten enthält (s. z.B. Her. 7.84.1 über einen aus Bronze oder Silber gehämmerten Kopfschutz der berittenen Perser [πλὴν ἐπὶ τῇσι κεφαλῇσι εἶχον ἔνιοι αὐτῶν καὶ χάλκεα καὶ σιδήρεα ἐξεληλαμένα ποιήματα]).

Yašt 14


1. Er besitzt eine enge Beziehung zum Krieg;  
2. Er ist der Schützer der Wege (der Totenseelen?) und Reisenden (seine in späterer Zeit wichtigste Aufgabe);  
3. Er ist – im Avesta nur in Spuren zu erkennen – der Gott der ewigen Feuer (vermutlich enger Bezug zu 2.);  

12. Vgl. Y 58.1 taŋ. sōiiši. taŋ. vərəϑrom. dadomaidē. hiiŋ. namā. „Das bestimmen wir als Waffe, das als Schild/Rüstung, das Gebet …“  
15. Benveniste & Renou 1934; Gnoli 1989 mit Lit.  
17. Man vergleiche Agnis „fetischartige Verkörperungen“ bestimmter Tiere bei der Feueranlegung (s. Oldenberg 1923, 75, 251).
sich sämtlich auf Krieger zu beziehen. Sie bestehen aus apotropäischen Sprüchen/Formeln, die sich mit Hantierungen mit kleinen, weitgehend unbearbeiteten Objekten verbinden, welche offenbar den nackten Körper berühren oder aber am Körper befestigt werden.

Das Alter von Yt 14 ist nicht bekannt. Wie die anderen Yašt setzt der Text von Yt 14 nicht nur die Domestizierung und das Reiten des Pferdes (s. Yt 14.9) voraus (bei Iranern um 2000 v. Chr.), sondern auch das Kamel scheint – anders als vermutlich das Schwein – bereits von großer Bedeutung zu sein (Yt 14.11-13, 39), ebenso wie der Falke (also vermutlich die Falknerei). Wie alle anderen Hymnen ist auch Yt 14 mit der Königsinstitution offenbar unvertraut, was ein Datum vor den Achämeniden (Mitte des 6. Jh.) wahrscheinlich macht. Der geographische Horizont von den Yašt läßt sich besser als der des Yasna fassen, und einige Hymnen sind sogar zu lokalisieren (Yt 5, 19 am Hamun-See; Yt 13 im nördlichen, Yt 14 im nuristanischen Hindukush). In Yt 10 (an Miϑra) scheint das Zentrum der Miϑra-Verehrung im zentralen Hindukush zu liegen, von wo aus der Dichter die Länder des östlichen/nordöstlichen Iran (Xoresmien und späteres Xorāsān) sukzessive überschaut (Harai > Margu > Gauua > Suxδa > Xvāiriza).

Magische Gegenstände und Zauber in Yašt 14

In der zweiten Hälfte von Yt 14 finden sich Beschreibungen von vier Zauberpraktiken:

1. Yt 14.34-40
   Zauber mit Federn und Knochen
   magischer Text in Yt 14.38
2. Yt 14.42-46
   Zauber mit Federn
   magischer Text in Yt 14.45
3. Yt 14.57-58
   Zauber mit haoma Zweig
   magischer Text in Yt 14.57(-58)
4. Yt 14.59-60
   Zauber mit einem Stein
   magischer Text in Yt 14.59(-60)


Zauber mit haoma und Steinen (Zauber 3 + 4)

Die magischen Praktiken Nr. 3 (haoma) + 4 (Stein) teilen dieselbe Beschreibung. Nach einer kurzen Dekoration an Varaϑraynas nennen die Strophen Yt 14.57 bzw. 59 den Zaubergegenstand und dessen Behandlung. In Yt 14.58 bzw. 60 folgt sodann die Nennung des erhofften Erfolgs:

20. Das Kamel wird bereits in Y 44.18 erwähnt, und es figuriert nicht zuletzt im Namen des Zarāϑuštra, was darauf hinweist, daß die aav. Texte in einem Gebiet entstanden sein müssen, da die Domestizierung von Kamelen üblich war („der zarat-Kamele besitzt“).
21. Zu magischen zoroastrischen Texten und den Texten Yt 14.34-40 s. Modi 1894 (1911); 1900a (1911); 1900b (1911).
22. Dazu Lommel 1927, 139 n. 3; Friš 1951, 502-504.
23. Zu diesem s. Hübschmann 1882, 99; Geldner 1884, 82-83; Lommel 1927, 134, 140 n. 1; Friš 1951, 509-512; Humbach 1976.
Yt 14.58, 60
yāda. azəm. aunuata. vərəϑra. hacāne. yāda. višpe. anie. aire.
yāda. azəm. aom. spāδəm. vanāni. yāda. azəm. aom. spāδəm. niiuānāni. yāda.
azəm. aom. spāδəm. nijanāni. yō. mē. paskāṯ. vazaite.
Daß ich begleitet (hac-) werde von solch einem vərəϑra wie alle anderen Arier.

vərəϑra- ist definiert als der Wunsch, zu siegen (van-, ni-van-), die feindliche Armee zu schlagen (spāδəm. ni-jan-). Die Bedeutung von vərəϑra- ist folglich (wie schon im zweiten Zauber) „Sieg“. Zugleich ist haoma – wie die Federn im zweiten Zauber – bestimmt als „guter Schützer“ (nipātārəm. vohu.) und „Wächter für den Körper“ (pātārəm. tanuie.):

Yt 14.57
vərəϑraynəm. ahurāδātm. yazamaide.
haoməm. baire. +sāiri. baγəm. haoməm. vərəϑrājanəm. baire. nipātārəm. vohu.

26. yaz-. meint sowohl einen Opfer- wie Gebetsakt. Letzteres zeigt Yt 10.32: surunuiiā. nō. miϑra. yasnahe. „Erhöre, o Miϑra, unser Gebet (yasma)“.


28. Zur Bindung des

29. Im Šāhnāme besiegte Kay Xosrō den Afrāsiyāb durch Hōms Hilfe (s. Boyce 1975, 159). Šāhnāme 29. Im
30 Die Bedeutung von ni-viz- ist unsicher (möglicherweise „anhängen“). 31 Haoma, der angehängte (?) Gegenstand, entspricht dem altindischen soma und ist sowohl der Name der im „Opfer“ (yasma) gepreßten (hu-) Pflanze (oder des Pilzes) wie des gewonnenen (ehemals toxischen) Saftes. Yt 14.57 scheint den haoma als Pflanze/Pilz zu bezeichnen. Deren Attribut sāiri.baγa- ist unklar (vielleicht „den Kopf einbiegend“.


Das Motiv des haoma-Tragens scheint in einem Indra-Mythos eine Parallele zu besitzen. AV 2.27 zeigt Indra in einem Redestreit mit den asuras. Um diesen zu gewinnen, ruft Indra eine pāṭā- genannte Pflanze an (Vers 1/4). Diese wurde einst von einem Adler (suparṇās) gefunden und von einem Eber ausgegraben (Vers 2). Indra plaziert die Pflanze als ein Amulet am Arm (Vers 3) und isst (vi-aś-) sie schließlich (Vers 4):33

1. May the enemy not win the debate!
   Thou art mighty and overpowering.
   Overcome the debate of those that debate against us, render them devoid of force, O plant!

2. An eagle found thee out, a boar dug thee out with his snout. Overcome the debate of those that debate against us, render them devoid of force, O plant!

3. Indra placed thee upon his arm in order to overthrow the Asuras. Overcome the debate of those that debate against us, render them devoid of force, O plant!

4. Indra did eat the pāṭā-plant, in order to overthrow the Asuras. Overcome the debate of those that debate against us, render them devoid of force, O plant!34

Der suparṇās-Vogel wurde von Malandra als der mythologische Vogel Śyena (av. Saēna) identifiziert,35 der mit soma/haoma in enger Verbindung steht.36 Wahrscheinlich ist pāṭā ein spezieller indischer Name


34. Übersetzung Bloomfield 1897, 137-138


36. Malandra 1979, 220-221 and n. 13. Die ausführlichere Darstellung des zentralen Mythos des Śyena („Falke“ [in Geldners RV-Übersetzung bevorzugt die ersten Bücher eine Bedeutung „ Adler“, während in den späteren Teilen Geldner mit „Falke“ übersetzte]) im RV bilden die Lieder RV 4.26&27. Sie halten einen Bericht Indras vor den Maruts fest: Der prā śyenāḥ śyenébhya āśupāṭvā „den Śyenas voraus schnellfliegende Śyena“, der „gedankenschnelle“ (mánojavā) habe sich, als ein „Ausgesandter“ (iśītās, RV 9.77.2), auf den Weg zur Herbeibringung der Opferspeise, des „somischen Met“ (mádhunā somyénotá, gemacht. RV 4.26.6-7a erzählen das mythische Urbild dieses Tuns: „Vorausschließend, den Stengel (aṅśúm) haltend, brachte der Adler, der Vogel aus der Ferne (parāvātah [vgl. RV 9.68.8, 10.144.4]) den erfreulichen Rauschtrank, der Götterfreund den Soma, ihn festhaltend, nachdem er ihn aus jenem höchsten Himmel geholt hatte. Nachdem er ihn geholt hatte, brachte der Adler den Soma, tausend und zehntausend Trankopfer auf der Erde (āyopāśtis ādreḥ, s. RV 1.93.6], wobei er, als der “Eisenkrallige” [śatám … púra ā́ yasīr, RV 8.89.1) Soma ermöglicht es erst dem keulentragenden Indra, den Widerstand der Asuras zu überwinden (s. dazu auch den madirām anśūm „berauschenden Stengel“ [RV 6.20.6 vom Felsen [ādreh, s. RV 1.93.6) wobei er, als der “Eisenkrallige” [āyopāśtis], die Dasyus tötet, s. RV 10.99.8), und er bringt den Soma, „von den hohen (Himmels)rücken zu den Indraanhängern“ (RV 4.27.4; RV 8.89.2 sagt, er habe den Soma von Indra „mit dem Fuß gebracht“ (padābharat), während der Schütze lediglich eine Feder des Śyena herabschießen konnte (s. dazu noch Geldner 1951 I, 455-456 n. 4.27.4c). Die Bedeutung des Soma-Raubs besteht in folgendem: 1. In Parallelität zur Herbeibringung des Feuers (Agni) wird durch den Raub das Opfer erst ermöglicht (s. dazu RV 1.93.6); 2. Der Genuß des „vom Śyena ge
dazu noch Geldner 1951 I, 455-456 n. 4.27.4c). Die Bedeutung des Soma-Raubs besteht in folgendem: 1. In Parallelität zur Herbeibringung des Feuers (Agni) wird durch den Raub das Opfer erst ermöglicht (s. dazu RV 1.93.6); 2. Der Genuß des „vom Śyena ge
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Im vierten Zauber ist der Zaubergegenstand ein Stein. Er wird näher bestimmt als siγūire. bzw. siγūire. ciϑra-, (vermutlich) „von siγūirischer Herkunft“. Das Wort siγūiria- scheint mit den altindischen śígrava-s, einem im RV erwähnten Stamm, verwandt zu sein:38

Yt 14.59

Der Sohn eines Herrn (ahura) [„Söhne“<bezeichnet> die Herren über 10000], er trägt den Stein von siγūirischer Herkunft <auf dem stand / über den gesprochen war>: „Er ist der Starke (amaunant-), vərəϑrauuan- ist sein Name; er ist der Widerstehende (vərəϑrauuan-), amaunant- ist sein Name. Die Passage weist in die Sphäre militerischer Macht.40 Der Ausdruck „Herr der 10000“ (baēuuarə. pataiiō.), der im Text m.E. als inneravestische Glossie zur Definition von puṭrō- „Prinz“(!) geführt wird, gehämt an die berühmten 10000 Odhavroti (Her. 7.83) bzw. „Immortales“ (Quintus Curtius 3.3.13) des achämenidischen Heeres der antiken Historiker:

Proximi ibant quos Persae Immortales vocant, ad decem milia. Cultus opulentiae barbarae non alios magis honestabat; illi aureos torques, illi vestem auro distinctam habebant manicatas tunicas, gemmis etiam adornatas.

Als nächstes marshierten zu 10000 diejenigen, die die Perser „Unsterbliche“ heißen. Niemand anders wurde im Rahmen der Verehrung barbarischer Opulenz mehr geehrt; goldenen Halsschmuck, ein goldgeziertes Kleid besaßen sie, sowie langärmelige Tuniken, sogar mit geschnittenen Edelsteinen (gemmis) besetzt.41

Auch hier tragen die Elitesoldaten Steine/Gemmen als Teil ihrer militärischen Bekleidung. Man mag in solcher Praktik eine Erinnerung an Zeiten sehen, da (geschnittene) Steine nicht bloßer Schmuck, sondern die eigentliche, nämlich magische „Rüstung“ darstellten.

Der in Yt 14.59 zitierte Zauber spruch ist aufgrund seiner chiastischen Struktur interessant:

amaunə. ās. vərəϑraua. nəma. X
vərəϑraua. ās. amaunə. nəma.

Folgen wir der allgemeinen Meinung, die eine Niederschrift des Avesta vor der Sasanidenzeit für unwahrscheinlich hält – ausgeschlossen ist eine solche Niederschrift in einem semitischen Alphabet

37. Śyena hatte das Eberbild von Avesta: Rüstung und magischer Schmuck 389
39. 3.Sg.Impf. (?); oder ṝaibre. (Geldner 1884, 91).
nicht, da der korrekte avestische Vokalismus durch die orale Tradierung abgesichert ist –, so müssen wir von einem Besprechen des Steines ausgehen. Diese Praktik, einen Kleidungsgegenstand magisch zu besprechen, ist im zoroastrischen Iran nicht unbekannt. Sie erfolgt z.B., wenn die Gürtelschnur der Zoroastrier vom Webstuhl genommen wird.42

Zauber mit Federn (Zauber 1)


Yt 14.34

yat. baunānī. aifi. sastō. aifi. šmarzātō.
+pouru. narqm. +īshiaṇtqm. ciš. +āihe. asti. baēšazō.

Wenn ich von feindlichen Männern mit Worten und Gedanken verflucht sein sollte, was ist das Heilmittel dagegen?


43. Yt 14.39-40: Welche <Kraft und Kraft der Widerstandsbrechung> bei sich führten die Herren, bei sich führten die Ruhmreichen (?) (ahūrīrdīhō. ... ahūrīrdīhō. ... haosrauaneganō.), die bei sich führte Kauui Usan ... <und> der starke frāētana trug/besaß, welcher die Schlange Dahāka erschlug, ...“.

44. In späterer Zeit: „When the custom of making passes was introduced among the Parsees, though the Parsee priest used his handkerchief for making passes over the patient, the foreign word 'pichhi,' (feather) came into use with the custom. I have more than once seen the Ardibehest Yasht recited over a patient but have never seen the use of feathers.” Modi 1924, 66; vgl. Jackson 1906, 379; Callieri 2001, 20.

durch Federn und Knochen bewirkte Widerstandskraft macht in Yt 14 den Bestrichenen unüberwindlich:

Yt 14.36

\[\text{\'yō. nā. baraiti. astauūō. vā. taxmahe. marγαhe. parεnauiō. vā. taxmahe. marγαhe. nαēδa.ciš. raēuwa. mašίia. jaiṇtı. nαēδa. fraēšieiti/\text{\'fraēšauuiieiti. (?)} paouruua. ĥε. nαmō. baraiti. paouruua. xαrənā. viōdraiieiti. upatąm.}\]

<Denn> welcher Mann <am Leib> <sie> trägt, ob der mit Knochen des starken Vogels Versehene, ob der mit der Feder des starken Vogels Versehene, kein <noch so> prächtiger Mensch 46 schlägt <ihn dann>, und keiner vertreibt <ihn dann>. Ihm zuerst bringt sie (die Feder des Vogels) Ehrerbietung <und> zuerst die xαrənahs; 47 sie verteilt Beistand, die Feder des Vogels der Vögel.

Yt 14.37

\[\text{tā. ahurō. sāstroanq. dainhupaitiš. nōi̇t. satōm. jaiṇtı. viρa. nōi̇t. hakar̄at. jaiṇtı. \text{\'vaē̄si̇fō. ōim.}{/\text{\'aēm. jaiṇtı. \text{\'fraēšieiti/\text{\'fraēšauuiieiti. (?)}}\]}

Dadurch <geschieht folgender>: Der Herr unter den Gebieten (ahurō. sāstroanq.),
der Landesherr, schlägt/tötet nicht hundert, der <sonst> Männertötende schlägt/tötet nicht auf einmal, – der Bestrichene allein schlägt/tötet <und> vertreibt.

Yt 14.38

\[+\text{\'vespe. tαrες̄nti. spar̄niqe. auwūa. mαw̄iiaicz. (tau̇ui̇o. auwūa. mαw̄iiaicz.) tanuiie. \text{\'vespē. tαrες̄nti. auwūa. \text{\'vespē. tαrες̄nti. du̇s. mainiu̇u. amom̄ca. vər̄aϑraγnəmc. nιδαt̄om. tanuiie. manō.}}\]

Federn als Teil der Rüstung sind aus parthischer wie sasanidischer Zeit bekannt. In Hung-e Kamālwand 48 findet sich ein parthisches Relief, das einen Ritter in einer sehr eigentümlich mit Federn besetzten Rüstung zeigt.

Besser bekannt sind Federn (bzw. Flügel, s. Relief Wahrām II, Sar Mašhad) als Teil der sasanidischen Kronen 49 Der erste Sasanidenherrscher, Ardašīr I, 50

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47. Übersetzung weitgehend nach Hintze 1994, 23. Die Opposition zu baraiti. ... xαrənā. formuliert Yt 10.27 yō ... paiti. xαrənā. váraiieiti. apa. vər̄aϑraγnəmc. baraiti. auwūar̄dē. kiś. aspiuuiieiti. „welcher (Miϑra) die xαrənahs (des feindlichen Landes) abhält“ (Maλandra 1983, 85, sieht bezüglich Yt 14.36 in xαrənā. eine Qualität der Feder (”possessing much (?) xwarənah“).


**Die Zauber Yt 14 (Zusammenfassung)**


Die Bedeutung von vərəϑrə- wäre folglich „Sieg durch Defensivkraft“.

In Yt 14 ist dieser semantische Wandel darum doppelt eigentümlich, als die beschriebenen Defensivwaffen, d.h. die „Rüstungen“, quasi imaginierte, magische, vortechnologische sind. Folglich wären zwei Zeitebenen in Yt 14 überblendet: Eine archaische Zeitebene, auf der die „Rüstung“ des Körpers lediglich von Zauberpraktiken und weitgehend „natürlichen“ magischen Gegenständen abhängig, und eine technologisch fortgeschrittene Zeitebene, die jener von V 14 (oder auch Yt 13.45) entspricht.

Solche Gleichzeitigkeit des Ungleichzeitigen begegnet auch im ŠN (s. N. 45) in anderer antiker sowie
mittelterlicher Literatur, und letztlich stehen auch die achämenidischen Gemmen oder die parthischen Federn in diesem asynchronen Verhältnis. Im Falle von Yt 14 erwecken die geschilderten magischen Gegenstände bzw. ihre Behandlung im Vergleich zum westiranischen Rüstungs-, Schmuck jedoch den Ein druck, als seien sie mehr als sublimierte Erinnerung, mehr als symbolischer Zierrat. Ihnen fällt die Aufgabe des Körperschutzes tatsächlich und ausschließlich zu. Die Zauberpraktiken in Yt 14 dürften darum einen Einblick in militärische 'Kleidungspraktiken' („Rüstungen“) geben, die wesentlich älter sind als die finale Komposition des Yašt.

Anhang: Der priesterliche paiti.dāna


58. In der dritten Aventure des Nibelungenlied redet der Text von „liehten bruneie … veste helmen … schilde schoene vnde breit“ (Hs. A, Aventure 3, Str. 67 c-d), zugleich aber heißt es über Siegfried, er „badete sich in dem (lintrachen) bluote, sin huot wart hurnin“ (Hs. A, Aventure 3, Str. 101). Bisweilen treffen beide Entwicklungsstufen aufeinander: Quintus Curtius 10.7.16-26 erzählt die Geschichte des pugil nobilis Dioxippus, die nackt und mit einer Keule bewaffnet gegen einen gerüsteten Makedonen kämpft, zum allgemeinen Erstaunen, „denn für einen Nackten schien es nichtquippe armato congredi nudum dementia, non temeritas videbatur“ (Hs. A, Aventure 3, Str. 67 c-d), zugleich aber heißt es über Siegfried, er “badete sich in dem (lintrachen) bluote, sin huot wart hurnin” (Hs. A, Aventure 3, Str. 101). Bisweilen treffen beide Entwicklungsstufen aufeinander: Quintus Curtius 10.7.16-26 erzählt die Geschichte des pugil nobilis Dioxippus, die nackt und mit einer Keule bewaffnet gegen einen gerüsteten Makedonen kämpft, zum allgemeinen Erstaunen, „denn für einen Nackten schien es nicht


60. Vgl. Razmjou 2005, 152. 61. Ob das Feuer unter den getragenen Gegenständen sich befindet, ist unklar. Die Wendung hqm.bar- âtromca. barəsmaca. etc. es „Feuer und barəsmān usw. zusammenbringen“ erzwingt diese Interpretation nicht (V 5.39 könnte auch eine metonymische Formulierung sein, vgl. V 5.39 „a) das Feuer, b) das barəsmān, c) die Schalen, d) haoma und Preßgerät“ und V 3.1/Y 62.1 „a) Brennholz in der Hand, b) das barəsmān in der Hand, c) Milch/Fleisch in der Hand, d) das Preßgerät in der Hand.“

Abkürzungen

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Sasanian Exegesis of Avestan Textile Terms

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The Zoroastrian religion, taking its name from the prophet Zoroaster, Greek version of the Avestan name Zarathuštra, developed in South and Central Asia out of the Indo-Iranian religious practices going back to the 2nd millennium BC, and is one of the few ancient Indo-European religions that still survive, concretely in some communities in Iran, India and the diaspora. The most ancient Zoroastrian sacred texts, commonly designated as the Avesta, were orally composed and transmitted during the 2nd and 1st millennia BC in the most archaic Iranian language preserved, known as Avestan, until they were eventually put down to writing in manuscripts going back to the beginning of the 2nd millennium AD. The difficulties of understanding this language, no longer spoken but still needed for the ritual recitations, motivated that several priests rendered the Avestan texts into Pahlavi, the Middle Iranian language of the Sasanian dynasty (AD 224 - 651), from which they were eventually translated into New Persian in Iran, and into Sanskrit and Gujarati in India.

Although Avestan was and still is used by Zoroastrians for ritual purposes, it was no longer a living language since the 1st millennium AD, when Middle Iranian languages had already emerged from the linguistic pool of the ancient period. Of these Middle Iranian languages, Pahlavi acquired special relevance, insofar as it was the language spoken by the Sasanian kings, under the rule of which Zoroastrianism was the main state religion. Pahlavi was spoken in the Southwestern Iranian province of Fārs after the fall of the Achaemenid Empire in BC 330, during which Old Persian was the language of the ruling class, and before the first written documents in New Persian or Fārsi, dating back to the 8th century AD. Since the Sasanian kings, whose creed was Zoroastrian, established the center of their political power in Fārs, this province became a stronghold for Zoroastrianism, and Pahlavi, the language spoken there and used by the Sasanian administration, also became the language of culture for most of the Zoroastrian communities. Indeed, some centuries after Iran was conquered by

1. The most recent descriptions of the Middle Persian language and writing systems are found in Sundermann 1989 and Skjærvø 2009. According to Lazard 1963, 31, the first preserved texts written in New Persian would be the fragmentary inscriptions in Hebrew alphabet found in Afghanistan and dating back to AD 752-753.
the Muslims, Pahlavi was still in use as one of the sacred languages of these religious communities but also for literary compositions, being brief texts composed in Pahlavi by Zoroastrian priests as late as the 19th century AD.

The exegetical schools of Pahlavi-speaking priests during the Sasanian period rendered into their vernacular language most of the Avestan texts that had reached to them, and provided their Pahlavi translations with several commentaries, which reflected the different interpretations of the Avestan texts by the leading priests of each school. When rendering the Avestan texts into Pahlavi, these priests applied diverse techniques, but they mostly tried to accurately reproduce the Avestan originals by means of word-for-word literal translations that mirrored the Avestan syntax. Nevertheless, they sometimes deviated from their models when challenged by terms no longer understood, or customs and regulations that had changed in their contemporary society. How the Pahlavi translators and commentators tried to bridge the exegetical gap between the Avestan and Pahlavi languages and contexts highly determined their (and subsequently our) understanding of the Avestan and Pahlavi texts. In this paper I will show by some examples how this problem affects our interpretation of Avestan textile terms and their Pahlavi translations.

Avestan textile terms were rendered into Pahlavi by means of the following different techniques:

1. As loanwords.
2. By etymological translations based on phonetic similarity.
4. By another word from the same semantic field.
5. By reinterpretations.

Avestan technical terms and words no longer understood were sometimes incorporated into Pahlavi as loanwords. This is the case, for instance, of Av. aṅka- / aṅka- “mantle, cloak,” rendered into Phl. adag <ʾt’k’> in N 74.2:

Av. aṅkāsca. frazušō. vanhasca. upasmaēnī.

pleasing cloaks and garments made of land animals,

Phl. [PWN ’w’ zwťn’ t’pyt’] ’t’k’-ce<γ> pr’c’ h’wstk’ kp’h-HD [’y ’ywt’k] QDM nyh’n’-c [y ’KZY’ lwtk HWE-t AMT mwd <γ> ’ywtk k’ QDM ZK y ’nd gyw’k ’ytwn’ YHWN-yt’ cygwn gwn’k HWE-yh [pad ŏ zōtān tābd] adag-iz <t’ frāz xwāstak kabāh-ē [ay ēw-tāg] <t’ abar nhīn-iz [i’ ah’ rūdag hād ka mōy <t’] ēw-tāg abar ān ī and gyāg ēdōn bawēd ciyōn gōnāg hē]

[spun for the zōi (priests)] and pleasing cloaks (or) an overcoat (that is, in one piece) that is also hidden (of the first shearing, that is, when the hair (is) in one piece over that much place, it is as if it were dyed)

The fact that Phl. adag has no other parallel out of the Pahlavi translation of the preceding passage and is not continued in New Persian indicates that it has to be taken as a loanword, which translated a term scarcely attested in Avestan and probably unknown to the Pahlavi translators.

4. All the Avestan and Pahlavi texts quoted are edited by me according to the oldest manuscripts preserved of each text, the different readings of which I include as footnotes. The English translations are also mine.

5. HJ ʾaḵḵosca.
6. HJ ʾuparsmanātī.
7. Regarding Av. frazuš- “pleasing,” see Kellens 1974, 86.
8. HJ y add.
9. HJ KZY-yh.
10. HJ ʾt’k’.
The second technique, based on phonetic similarity but perhaps also on a basic etymological knowledge, finds some good examples in the Pahlavi translations of Av. vastra-, drafša- and barəziš-. The first, generally applied to clothing and derived from the Proto-Indo-European root *ues- “to wear,” was systematically rendered into Phl. wastarag, also a general term for clothing derived from the same Proto-Indo-European root. Although the Pahlavi translators could have chosen other synonyms for clothing like Phl. jāmag and paymōg, they preferred to render Av. vastra- into its etymological and phonetically related equivalent in Phl. wastarag. The same applies to Av. drafša- “standard, banner,” rendered into Phl. drafš “banner,” both deriving from Proto-Indo-European *drep- “to cut off;” and to Av. barəziš- “cushion,” systematically rendered into Phl. bāliš “cushion,” both deriving from the same Proto-Indo-European root *bhelǵh- “to swell.” Phl. drafš and bāliš are also attested in other passages apart from the Pahlavi translations and continue as NP. derafš and bāliš respectively with the same meaning as in Pahlavi.

Etymological Pahlavi translations also help correctly interpreting Avestan textile terms, as demonstrated by the Pahlavi translation of Av. naδa- in N 77.4:

Av. ʰyōi.¹⁷ ʰvaŋhwənti.¹⁸ naδəsca. ʰsāδaiiantiśca.¹⁹ carəməncə. ʰhiku.²⁰

Who wear reeds, sāδaiiantiś- and dry furs
Phl. OLE-š’n’ MNW ‘nhwmbbynd²¹
KNYA W ‘dyp’k-HD²² [krc] <W> ‘clm’²³ y hwšk
avēšān kē ‘nihumbēnd nāy ud ‘dēbāg-ē [karz] <ud> ‘carm i hušk
Those who wear reeds, a [silk] brocade (and) dry furs

Insofar as Av. naδa- is the object of the verb vah- “to wear,” it is very likely that it designates a sort of clothing, “Name eines Kleidungsstücks” according to Bartholomae 1904, 1038. Waag 1941, 137 and 140, followed by Kotwal & Kreyenbroek 2009, 48-51, went a step further and proposed a highly hypothetical translation as “cap.” Av. naδa- is actually related to Ved. nādā- and naḍā- “cane, reed,” and was rightly understood by the Pahlavi translators, who rendered it into Phl. nāy “reed,” being impossible to know what kind of clothing made of reeds (or similar vegetal fibres) the Avestan term naδa- referred to.

Some examples of the third technique, the synonymic translation, also reveal the Pahlavi translators’ skills to rightly interpreting and translating Avestan words, and are the key to correctly editing them. This is the case of Av. aoϑrauuan- “footwear,” attested in V 8.23a and N 68.2:

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[a] Maker of the material creatures, Righteous one, whoever casts clothes upon this dead, woven or made of goat(‘s leather), in as much as man’s footwear, [b] what is the atonement for it? [c] And Ahura Mazdā said: “four hundred lashes with the horse’s whip one must decree (for him), four hundred with the Sraoša’s lash.”

Phl. [a] d’tl MNW wstlg QDM ŠBKWN-yt’ QDM ‘w’ ZK lyst’ ttk ’yw pwsyst’ ZK y ‘nd cnd GBRA ‘GLGE-p’ nk [b] kt’l OLE AYT’ twcšn’ [c] AP-s gwpt ’whrmzd AYK 400 PWN QDM znşnyh QDM znşn’ ’sp’ ’št1 400 swšclnm

[a] dādār kē wasṭarag abar hilēd abar ō ān rist tagad ayāb pōṣṭēn ān ī and cand mard ‘pāybānag [b] kadār ṣy ast tōzišn [c] u-s guft ohrmzd kū cahār sad pad abar zanišnīh abar zanišn aps aṣṭar cahār sad srōṣcarnām

[a] Maker, whoever casts clothes upon the dead, spun or leathern, in as much as man’s footwear, [b] what is the atonement for it? [c] And Ahura Mazdā said: “one must beat him with four hundred lashes of the horse’s whip, four hundred of the Sraoša’s lash.”

N 68.2. Av. yada. ’aoθrauuana’ bi. paii. bi. paiištān. ’paiištān.e’

When wearing footwear, twice to the middle of the leg

Phl. nd 290 p’dyp’nk’30 [GBRA31 pr’c hwmbyt’] OD OL nymk ‘ptyšt’ n’32 cand dō pāybānag [mard frāz humbēd] tā ō nēmag ‘padištān

As much as [a man wears] two footwear, to the middle of the leg

In the first passage Av. aoθrauu- is written as aoθrauuana in the Iranian manuscripts 4000, 4045, 4050 and 4055. In the passage of the Nērangestān, aϑrauuanō (with a- instead of the diphthong ao-) is the common variant of the manuscripts TD and HJ, the oldest preserving this text. Ch. Bartholomae 1900, 125-127 and 1904, 323 preferred the latter variant and translated it as “Strumpf,” following its Pahlavi translation pāybānag “protecting the feet,” but did not explain it etymologically. Kotwal & Kreyenbroek 2009, 31 also edited Bartholomae’s form aϑrauuanō and translated it as “stockings,” but they were also unable to explain its etymology. Thanks to the Pahlavi translation pāybānag “protecting the feet” we can confirm that the variant aoθrauuana of V 8.23a is the right one, and that aϑrauuanō of N 68.2 is merely a corrupted form out of the former, probably introduced during the written transmission by contamination of the usual word for priest in Avestan: aϑrauuan-. That Av. aoθrauu- “having shoes,” a noun deriving from aoθra- “shoe”33 and going back to
Proto-Indo-European *h₂eu- “to weave,” 34 was identified and rightly translated by the Pahlavi translators is just another proof of their competence.

In other instances the Pahlavi translators did not choose a Pahlavi synonym of the Avestan textile term, but another word from the same semantic field. This is the case of the Pahlavi translations of Av. ubdaēni- 35 and ubdaēna- 36 “woven, made of textile,” rendered into Phl. tadag “spun.” Although the Avestan verbal root vaf- “to weave,” 37 from which the preceding Avestan adjectives are formed, also existed in Pahlavi as waf- “to weave,” the Pahlavi translators preferred the verbal root tadan, tan- “to spin,” from which tadag “spun” derives, to render these adjectives into Pahlavi. Although spinning is certainly not the same as weaving, the Pahlavi translators simply picked up another term from the common semantic field of verbal roots related to textile production.

Finally there are also examples in which the Pahlavi translators reinterpreted the Avestan terms, either because they did no longer understand them or because they were trying to update them to make them fit into their own contemporary context. This is the case, for instance, of the hápax legómenon Av. sāδaiiaṇti- in N 77.4, rendered into Phl. débāg-ē [karz] “a [silk] brocade.” Although Bartholomae 1904, 1570 was again very cautious and just identified this Avestan word as a sort of clothing, “Name eines Kleidungsstücks,” A. Waag 1941, 137 and 140, followed by Kotwal & Kreyenbroek 2009, 48-51, was more imaginative and translated it as “Hose,” that is, trousers. Actually, the only thing we can guess from this word is that it derives from IIr. *scad- “to cover,” present in Ved. chad- “to cover,” 38 and that it would designate something covering the body. Although several Iranian words related to clothing and outfit, like Phl. cādur “sheet, veil” (actually a loanword from Late Sanskrit), its New Persian form cādor “veil” and Paštō psāl “necklace, belt,” 39 go back to this Indo-Iranian root, it is not possible to precise the meaning of Av. sāδaiiaṇti-, which therefore remains unknown. Many centuries ago the Pahlavi translators of the Sasanian period were challenged by the same problem, which they solved by choosing the contemporary terms débāg-ē [karz] “a [silk] brocade” for translating this Avestan hápax legómenon. The reason for this choice might be found in a parallel passage of N 73.1, in which another Avestan textile hápax legómenon, Av. korati-, is mentioned:

Av. *yōi. 40  *vaŋhənti. 41 koratīšca.

(Those) who wear korati-

Phl. OLE-š’n’ MNW “nhymbnyd 42
ZK-cy klyntk’ [cygw twp <y> gytyg hm nmtk cygw krc ‘dypt k-HD 43
AYT’ MNW ‘ytwn’ YMRRWN-yt ‘y HD MNW hm hdyb’1 OL hm’ mnyt’
YKOYMWN-yt’]

awēšān kē ‘nihumbēnd ān-iz kirrēndag
[cyw tōf <ī> gētīg ham namadag cywōn
karz ‘débāg-ē ast kē ēdōn gōwēd ay ēw
kē ham ayār ē ham menīd ēstēd]

Those who wear the kirrēndag (= cut)
[like spun wool of flock together with felt; 44 like a silk brocade. There is (a

35. Attested in V 7.15a.
36. Attested in V 8.23a, 8.24a and 8.25a.
40. HJ yō.
41. HJ vaŋhənti.
42. HJ HWE-d.
43. HJ dypt-HD.
44. cf. NP. namad “felt; a garment of coarse cloth; cloak worn during rain; a rug or coarse carpet on which people sit; a thick veil” and namad dar bar “with a coarse cloak or garment over the shoulders” (Steingass 1930, 1425-1426). Or maybe “wild plum” used as a dye; cf. NP. namak “wild plum” (Steingass 1930, 1425).
commentator) who says: “all have agreed that (it is) one that helps for everything.”

It is noteworthy that the Pahlavi translators of this passage were still able to identify that Av. *karəti-* was related to the verbal root *kart- “to cut,” as their Pahlavi translation kirrēnīdag “cut” suggests. However, it seems that the exact meaning of both Av. *karəti-* and Phl. kirrēnīdag was not clear enough to them, because they added a short explanation to it in Pahlavi, according to which this textile term was like a silk brocade. As we observe, the Pahlavi translators and commentators of N 77.4 and 73.1 reached the same conclusion when trying to identify the Avestan hāpax legómena sāδaiiaṇtī- and *karəti-*, which according to them might have been silk brocades. Obviously none of these translators regarded whether or not these types of textiles were used by the Avestan-speaking population of South-western and Central Asia during the 2nd and 1st millennia BC, when the Avestan text of the Nērangestān was probably composed. They were simply interested in finding an equivalent in the Sasanian period for these ancient textile terms. The use of this technique, together with the rest they resorted to, demonstrates that the Pahlavi translations of Avestan texts, in spite of their many inaccuracies, were the product of learned and skilled translators who still were able not only to mechanically render one language into another, but also to reflect on the meanings of the very difficult texts they were confronting, and to provide the best possible contributions to their interpretation.

### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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<tr>
<td>Av.</td>
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<td>Gr.</td>
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<td>Ilr.</td>
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<td>N</td>
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<td>NP.</td>
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<td>V</td>
<td>Wīdēwdād</td>
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<td>Ved.</td>
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<td>ViD</td>
<td>Wizargard ī dēnīg</td>
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<td>VN</td>
<td>Vaēϑā Nask</td>
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<td>Vyt</td>
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<td>Y</td>
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25. Sasanian Exegesis of Avestan Textile Terms

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W enn man sich als historisch-vergleichender Sprachwissenschaftler mit einem speziellen realienkundlichen Thema einer ausgewählten Epoche einer altindogermanischen Sprache beschäftigt, so ist man aus Erfahrung darauf gefasst, dass Informationen zumeist lückenhaft vorhanden sind und die Erschließung der Texte mit den unterschiedlichsten philologischen und linguistischen Schwierigkeiten verbunden sein kann.


die als Bezeichnung für wissenschaftliche Texte dienen, aus der Sprache der textilen Technik stammen: *grantha-*, ein Nomen zur Verbalwurzel *grath/-granth-* „knüpfen, binden, verbinden“ bedeutet also nicht nur „das Binden“ oder (konkretisiert) „Knoten“, sondern bezeichnet auch eine kunstvolle Verskomposition (vorwiegend den šloka-Vers mit 32 Silben), eine wissenschaftliche Abhandlung oder ein beliebiges literarisches Produkt. *-tantra-*, eine Ableitung zur Wurzel *tan-* „spannen, dehnen“, einerseits der Aufzug eines Gewebes, die Webkette, ist aber vor allem in seinen vielen übertragenen Bedeutungen bekannt: ausgehend vom Bild der „Hauptsache“, dem „durchlaufenden System“, einer Norm oder Lehre steht es eben für Regeln, Theorien bzw. wissenschaftliche Abhandlungen, die in mündlicher Tradition oder in schriftlicher Fixierung als Texte überliefert sind. – In *nibandha- und prabandha-* erkennt man unschwer die Verbalwurzel *bandh-* „(zusammen)binden“, wobei die beiden Ableitungen je nach Belegstelle für „Vertrag“ oder „Kommentar“ stehen können, jedenfalls aber einen Text im allgemeinen bezeichnen. – *sūtra-*, eine Ableitung zum Verbum *sīvy-* „nähen“, ist in seiner Bedeutung „Folge, Sammlung von Regeln“ wohl das geläufigste Vokabel mit der allgemeinen Bedeutung „Text“, das seinen Ursprung im textilen Handwerk hat.2 Diese Beispiele könnten noch erheblich vermehrt werden; es ist also offensichtlich, dass vor allem die Philosophen und Dichter des Alten Indien ihre Arbeit mit textilen Metaphern bezeichneten: Jemand, der einen Text (*grantha-*) erstellt, knüpft oder bindet etwas zusammen; wer eine Folge von Regeln (*sūtra-*) verkündet, spint gewissermaßen die einzelnen Regeln wie Fasern zu einem (Leit)faden zusammen; und jemand, der einen wissenschaftlichen Text (*tantra-*) verfasst, spannt gewissermaßen Kettfäden auf einen Rahmen, also im übertragenen Sinn Gedanken in ein Bezugssystem. Allen diesen sprachlichen Bildern ist gemein, dass ein vorhandener Rohstoff mit Geduld und Geschick zu einem neuen Gebrauchsgegenstand verarbeitet wird.

Im Folgenden seien einige Beispiele für diese metaphorische Verwendung der Textilterminologie im Rigveda präsentiert. Meine Herangehensweise ist aus beruflichen Gründen – die eines Lexikographen; als solcher gehe ich zunächst an die Erstellung eines Wörterbuchs (Lemmas) für das hier wohl wichtigste Verbum *o-* „weben“; die durch langjährige Praxis bewährte Form der Behandlung und Darstellung3 führte zu folgendem Ergebnis:

### *o- (v.) facientiv-transitiv „WEBEN“ – “WEAVE”; ápa, prá (sich hin- und herbewegen, weben, entstehen – move to and from, weave, emerge); ví (*„auseinanderweben“, ausbreiten – “weave apart”, spread out); sam (zusammenweben – weave together)

Tiefenkasus-Schema (semantische Rollen):

- **Deep Case Scheme (semantic roles):**
  1. **ACTOR – THEME** „jmd. webt etw.“; **ACTOR = Nom. +bel., -abstr.; THEME = Akk. -bel., +/-abstr.;** (Simplex; sam); Aktiv [optionaler BENEFATIVE (Dat. +bel., -abstr.) ist mit * gekennzeichnet]; Aktiv
  2. **ACTOR – THEME „s.o. weaves s.th.“** **ACTOR = Nom. +bel., -abstr.; THEME = Akk. -bel., +/-abstr.;** (Simplex; sam); Aktiv [optional BENEFATIVE (Dat. +bel., -abstr.) marked with *]; active
  3. **Partizip, substantiviert: „die Webende“; ACTOR kept in nominalisation; THEME left out; active**
  4. **PARTIZIP (beide Belege mit ví): „auseinander gewoben“, i.S.v. „ausgebreitet“; ACTOR ausgespart; THEME = Nom. -bel., +/-abstr.; Passiv**

Stefan Niederreiter in *Textile Terminologies* (2017)

4 Infinitiv (final); THEME unspezifiziert
* infinitive (final); THEME unspecified

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Präensstamm themat. (X. Kl.) *(váya-)*:

**Aktiv**

*Indikativ Präs. 3.Pl. váyanti 1 6,9,2; váyanti 1 5,47,6*; 9,99,1*; 10,130,1*

*Imperativ 2.Sg. vaya 1a 10,130,1 *(ápa)*; 10,130,1 *(prá)*; 2.Pl. vayata 1 10,53,6*

*Partizip Präs. Gen.Sg.m. váyatas 1 2,28,5*; Nom. Pl.m. váyantas 1 7,33,9*; Nom.Sg.f. váyantí 2 2,38,4; Nom.Du.f. váyantí 1 2,3,6 *(sam)*

Perfektstamm *(ū-)*:

**Aktiv**

*Indikativ Perfekt 3.Pl. āvar 1 1,61,8*

Futurstamm *(vay-īṣyā-)*:

**Aktiv**

*Partizip* Nom.Sg.m. vaisyán 1 7,33,12*

-ṭa-Partizip

Akk.Sg.m. utam 3 1,122,29 *(vi)*; Lok.Sg.m. āte 3 3,54,10 *(vi)*

Infinitiv


-

1 Selbstgespräch der Väter, die „weben“ [an dieser Stelle (10, 130,1) metaphorisch-allegorischem für das Weben des „Opfersteppichs“ (= Zubereitung des Opfers)].

• Soliloquy of fathers, who “weave” [in this passage (10,130,1) metaphorical-allegorical for the weaving of the “sacrifice carpet” (= preparing of the sacrifice)].

2 Das THEME („Faden“) ist zu ergänzen. – In der „Webeallegorie“ auf die Dichtkunst angewandt, vgl. ōtave- „Schussfaden“ (s.d.).

3 Metaphorisch für die Opferhandlung.

4 Metaphorisch für die Opferhandlung.

5 In der „Webeallegorie“ auf die Dichtkunst angewandt, vgl. Fn. 2.

6 THEME metaphorisch für die Generationsfolge, vgl. Ge. Kommentar z.St.

7 THEME metaphorisch: Preislied *(arkām)*.

8 Vgl. Fn. 6.


Wie bei den Lemmatainträgen für Verben üblich, wird zunächst eine allgemeine Übersetzung (in Großbuchstaben, deutsch und englisch) gegeben; es folgt ein grau hinterlegter Block mit syntaktischen Informationen. Im darunter befindlichen morphologischen Teil wird jede belegte Verbalform mit der Nummer der jeweiligen syntaktischen Konstruktion verbunden. Diese Kreuzklassifikation ermöglicht ein Höchstmaß an Information auf möglichst geringem Raum. Besonders an den Fußnoten zu einigen Belegen ist sofort zu erkennen, dass auch bei diesem Verbum der metaphorische Gebrauch häufig anzutreffen ist, wie z.B. in RV 10,130,1-2:

10,130,1a yó yajñó · viśvátas tántubhis tatá ékaśataṃ devakarmébhir āyataḥ |
10,130,1c imé vayanti pitáro yā āyayúḥ prá vayāpa vayét āsate tātā ||
10,130,2a púmān énaṃ tanuta út kiṇnati pūmān vi tatrā ādhi nāke asmin |
10,130,2c imé mayúkñhā úpa sedur ū sādāh sāmāni caksur tāsarkāni ōtave ||

„(1) Das Opfer, das nach allen Seiten mit seinen Fäden aufgespannt ist, das mit hundert und einem gottes(dienstlichen) Werken aufgezogen ist, das weben diese Väter, die herbeigekommen sind. Sie sitzen bei dem aufgespannten und sprechen: Webe hin, webe her!“

(2) Der Mann spannt es auf, zieht den Faden aus, der Mann hat es an diesem Firmament festgespannt. Dies sind die Pflöcke. Sie haben sich an ihren Sitz gesetzt; sie haben die Melodien zu Webschiffchen gemacht, um zu weben."


| nā | háṃ | tán | tuṃ | nā | vi | jā | nā | m/ | ó | tuṃ |
| nā | yāṃ | vá | yān | ti | sa | ma | ré | tâ | mā | nāḥ |
| kā | sya | svit | pu | trá | i | há | vāk | tu | vā | ni |
| pa | rō | va | dā | t/ | á | va | re | nā | pī | trā |

In vertikaler Richtung sind so in diesem (sprachlichen) Bild elf Kettfäden (tántu-) ausgespannt, die jeweils eine Stelle für eine Silbe repräsentieren. ótu-, der Einschlag, läuft horizontal von links nach rechts mit seiner festgelegten Abfolge von langen und kurzen Silben: Die langen Silben sind hier schwarz hinterlegt, die kurzen grau; auf weißem Grund sind diejenigen Silben, die hinsichtlich ihrer Länge nicht festgelegt sind. Hier wird die die strengere Reglementierung der Kadenz, die auch für andere Metren

7. Gängige Kennzeichnungen sind: - für eine lange, - für eine kurze Silbe und * oder x für eine kurze oder lange Silbe („anceps“). – Die hier gewählte Darstellungweise soll eine der fixierte „Breite“ des Textstücks veranschaulichen, die farbliche Kennzeichnung lässt andererseits das Entstehen eines (Web-)Musters erkennen.
gilt, deutlich sichtbar. Diese Darstellung zeigt, dass der Dichter innerhalb des Tristubh-Metrum zwischendrei Verstypen wählen konnte: Pāda a folgt dem Vers-Typ 1,8 die Pādās b-d dem zweiten möglichen Muster.9 Wie zu erkennen ist, werden die für dieses Metrum vorgegebenen Muster genau eingehalten; bezogen auf den Inhalt der Textpassage kann man demnach sagen, dass der junge Poet wohl keinen Grund hat, unsicher oder nervös in den Dichterwettstreit einzutreten.

Diese Nervosität und Unsicherheit kann freilich vor dem Hintergrund gesehen werden, dass das metrische Muster wieder durch das Triṣṭubh-Versmaß bestimmt ist, wir sehen also elf Kettfäden bzw. Silben in jedem der vier Halbverse (Pādās) als Einschläge mit der festgelegten Abfolge von langen und kurzen Silben.

Nicht nur das Material, also Webkette und Schussfaden, sondern auch Wörter für den Weber selbst – oder seltener die Weberin, wie im folgenden Beispiel – konnten in verschiedenen Kontexten metaphorisch gebraucht werden, vgl. z.B. RV 2,3,6:

2,3,6a sādhū āpāṃsi sanātā na ukṣītē uṣāsānākātya vayyēva rāṇvītē | 2,3,6c tántuṃ saṃvāyantī samīc' ya-jāsya pēśāḥ sudūghe pāyasvatī ||

Hier werden die Tageszeiten Nacht und früher Morgen10 mit Weberinnen11 verglichen; tánuntu-, die
Webkette, kann hier als die vorgegebene Zeit interpretiert werden, während der Einschlag als pēṣas-, also das eingearbeitete Muster bzw. die Verzierung erscheint und wohl auch für das Opfer steht,12 das diese wichtige Tageszeit ausfüllt.

<table>
<thead>
<tr>
<th>sā</th>
<th>dhū</th>
<th>á</th>
<th>pāṃ</th>
<th>si</th>
<th>sa</th>
<th>nā</th>
<th>tā</th>
<th>na</th>
<th>u</th>
<th>kṣi</th>
<th>té</th>
</tr>
</thead>
<tbody>
<tr>
<td>uā</td>
<td>sā</td>
<td>nāk</td>
<td>tā</td>
<td>va</td>
<td>yī</td>
<td>ye</td>
<td>va</td>
<td>raṇ</td>
<td>vi</td>
<td>té</td>
<td></td>
</tr>
<tr>
<td>tán</td>
<td>tum</td>
<td>ta</td>
<td>tām</td>
<td>saṃ</td>
<td>vā</td>
<td>yan</td>
<td>tī</td>
<td>sam</td>
<td>ī</td>
<td>cī</td>
<td></td>
</tr>
<tr>
<td>ya</td>
<td>jāna</td>
<td>sya</td>
<td>pē</td>
<td>śaḥ</td>
<td>su</td>
<td>dú</td>
<td>ghe</td>
<td>pā</td>
<td>yas</td>
<td>va</td>
<td>tī</td>
</tr>
</tbody>
</table>

An dieser Strophe sieht man, dass sich eine Zuordnung zu einem bestimmten Metrum bisweilen schwierig gestalten kann bzw. dass Unregelmäßigkeiten in der metrischen Ausformung der Verse immer wieder auftreten. Die hier gegebene Darstellung zeigt (bis auf Pāda c) 12 Silben pro Pāda, was einem Jagatī-Metrum entspricht.13 RV 2,3,6 wird von Van Nooten & Holland als zwölfsilbige Triṣṭubh geführt, mit Pāda c als katalektischem Vers.14 Bedenkt man nun, dass der übrige Hymnus RV 2,3 sich im allgemeinen sauber an das Triṣṭubh-Vermaß hält und die Strophe 7 klar als Jagatī einzuordnen ist, könnte man von einem spielerischen Changieren der beiden Metren bzw. einer kunstvollen Überleitung in den Zwölfsilbler der siebten Strophe sprechen, was gerade in dieser Passage, in der die Metaphorik des Webens anklingt, als das „Einfliechten“ eines auffälligen Musters in einen sonst metrisch gleichförmigen Text verstanden werden könnte.

Richtet man den Blick wieder auf thematische Kerngebiete des behandelten Themas, so fällt immer wieder die zentrale Rolle der rituellen Handlungen auf, und so wird, wie in der folgenden Stelle, der Opferpriester als Weber angesprochen und eingeladen, sein Werk weiterzuführen:

10,53,6a tán̄tuṃ tanvān rájaso bhānūm ánv ihi jyōṭiṣmataḥ pathō rakṣa dhīyaḥ kṛtān | 10,53,6c anulbaṇāṃ vayata jōgūvāṃ āpo mānur bhavā15 janāyā daīviyaṃ jánam ||

„Deinen Faden weiterspannend geh du dem Lichte des Luftraums nach; nimm die lichten Pfade, die mit Kunst bereiteten, in acht! Webet ohne Knoten das Werk der Sänger! Sei du Manu, schaffe das göttliche Volk (herbei)!“

Hier ist die Webkette tán̄tu-, die ausgespannt wird, das Opfer selbst (in 2,3,6 wird ja eher die entsprechende Zeitspanne gemeint, s.o.), und die Verse, die es begleiten, sollen „ohne Knoten“ sein, das heißt ohne Fehler in der metrischen Gestaltung:

<table>
<thead>
<tr>
<th>tán</th>
<th>tum</th>
<th>tan</th>
<th>vān</th>
<th>rá</th>
<th>ja</th>
<th>so</th>
<th>bhā</th>
<th>núm</th>
<th>án</th>
<th>vi</th>
<th>hi</th>
</tr>
</thead>
<tbody>
<tr>
<td>jyō</td>
<td>tiṣ</td>
<td>ma</td>
<td>taḥ</td>
<td>pa</td>
<td>thō</td>
<td>ra</td>
<td>kṣa</td>
<td>dhi</td>
<td>yā</td>
<td>kr̥</td>
<td>tán</td>
</tr>
<tr>
<td>an</td>
<td>ul</td>
<td>ba</td>
<td>nām</td>
<td>va</td>
<td>ya</td>
<td>ta</td>
<td>jó</td>
<td>gu</td>
<td>vām</td>
<td>á</td>
<td>po</td>
</tr>
<tr>
<td>má</td>
<td>nur</td>
<td>bha</td>
<td>vā</td>
<td>ja</td>
<td>nā</td>
<td>yā</td>
<td>daí</td>
<td>vi</td>
<td>yām</td>
<td>já</td>
<td>nam</td>
</tr>
</tbody>
</table>

15. bhavā nach Arnold 1905, 320; Van Nooten & Holland 1994, s.v. bhava.
Man sieht hier, dass die geforderte Silbenanzahl für Jagati-Verse genau eingehalten wird (4x12); bezüglich der Silbenquantität kann zumindest den diesbezüglich so wichtigen Kadenzen Regelmäßigkeitszuschreibung werden; Pāda a und d folgen dem ersten von zwei möglichen Jagati-Mustern, während Pāda c dem zweiten, sich in der Zäsur unterscheidenden Typ folgt. Die auffälligste Unregelmäßigkeit stellt jedoch die Zäsur in Pāda b dar, die sich in keines der gängigen Schemata eingliedern lässt.

Der metaphorische Gebrauch von tánantu-, der Webkette als das Opfer kann nun selbst wieder in einem erweiterten Sinn aufgefasst werden, vgl. RV 1,142,1:

1,142,1a sámiddho agna ā vaha devānān
adyā yatāsruce |

Klar tritt wieder die Einhaltung des metrischen Musters in den Kadenzen hervor; die ersten vier Silben der Verse werden, wie üblich, freier behandelt, obwohl häufig versucht wird, sie einem Grundmuster anzunähern (vgl. Fn. 18).

Dass dieses oft sehr komplexe System von Metaphern auch dazu führen kann, ein Wort wieder in einer – manchmal schwer zu ermittelnden – konkreten Bedeutung zu verwenden, soll an einer Strophe aus einem Hymnus an Soma gezeigt werden. Soma ist das heilige Getränk des vedischen Opfers; seine Zubereitung wird zwar ausführlich, aber meist mit vielen schwer aufzulösenden Metaphern und Allegorien im neunten Buch des Rigveda geschildert. In der folgenden Stelle werden die Somasäfte als die „raschen Gürse“ bezeichnet:

9,69,6a sūryasyeva raśmáyo drávayitnávo
matsarásah prasúpáh sákám īrate |
9,69,6c tánantu tatám pári sárgasa āśávo
nénrdá ṛté pavate dháma kim caná ||

„Gleich den Sonnenstrahlen, die die Schläfer auf die Beine bringen, kommen die berauschenden (Säfte) auf einmal her vor. Die raschen Gürse umkreisen den ausgespannten Faden. Ohne Indra läutert sich kein Ding.“

16. Typ a nach MacDonell 1916 (= 1990), 442.
17. Typ b nach MacDonell 1916 (= 1990), 442; Arnold 1905, 320 nimmt vayatā an, um Pāda c an a und d anzugleichen.
Die Wörter, die uns hier besonders interessieren, sind *tántum tatám*, der ausgespannte Faden: Im speziellen Kontext dieses Hymnus kann man sie als das Opfer, das als Kettfäden die Verbindung zu den Götern herstellt, sehen, aber zugleich wird das Bild von Fasern der Somaseihe evoziert: Der Somasaft wird während seiner Herstellung durch ein Sieb gegossen, um sich zu läuten. Diese wie so oft sehr voraussetzungsreichen poetischen Bilder werden auch hier in einem klaren metrischen Schema dargebracht, was erneut auf die Parallelität von Dichtung und Webkunst verweist:

<table>
<thead>
<tr>
<th>sūr</th>
<th>yas</th>
<th>ye</th>
<th>va</th>
<th>raś</th>
<th>má</th>
<th>yo</th>
<th>drā</th>
<th>va</th>
<th>yit</th>
<th>ná</th>
<th>vo</th>
</tr>
</thead>
<tbody>
<tr>
<td>mat</td>
<td>sa</td>
<td>rā</td>
<td>saḥ</td>
<td>pra</td>
<td>sū</td>
<td>paḥ</td>
<td>sā</td>
<td>kām</td>
<td>ṭi</td>
<td>ra</td>
<td>te</td>
</tr>
<tr>
<td>tán</td>
<td>tuṃ</td>
<td>ta</td>
<td>tām</td>
<td>pá</td>
<td>ri</td>
<td>sār</td>
<td>gā</td>
<td>sa</td>
<td>ā</td>
<td>šā</td>
<td>vo</td>
</tr>
<tr>
<td>nēn</td>
<td>drād</td>
<td>ṭ</td>
<td>té</td>
<td>pa</td>
<td>va</td>
<td>te</td>
<td>dhā</td>
<td>ma</td>
<td>kīm</td>
<td>ca</td>
<td>nā</td>
</tr>
</tbody>
</table>

„Ich rufe die gut zu rufende Rākā mit schönem Loblied; die mit gutem Anteil soll es von selbst bemerken. Sie soll (ihr) Werk mit unzerbrechlicher Nadel nähen; sie soll einen hundertfachen Anteil habenden, preiswürdigen Heldensohn schenken.“


Überblickt man den Rigveda in seiner Gesamtheit, so kann man beobachten, dass die Dichter dieser Zeit nicht nur im Kontext der Dichtkunst auf Metaphern aus dem Handwerk des Webens zurückgriffen. Diese poetischen Kunstgriffe erfüllten freilich eine wichtige

20. Diese verbindende Funktion begegnet wie bei Agni immer wieder, vgl. z. B. RV 9,22,6-7:
9,22,6a tāntum tanvāṇām uttamāṁ ānu pravātā aśata |
9,22,6c utēdāṁ uttamāyāṁ |
9,22,7a tuvāṁ soma paṁibhyā ā vāyu gāvāṁi dhārāyaḥ |
9,22,7c tatāṁ tāntum acikradaḥ |


Bibliographie


Der Text als Gewebe: Lexikalische Studien im Sinnbezirk von Webstuhl und Kleid

Oswald Panagl


(1) Buck (1949): 6.33 WEA
(Auswahl) - gr. ὑφαίνω, lat. texere, ir. figim, an. vefa, ae. wefan, ahd. weban, lit. āusti, aksl. tskati, ai. u-

Ich verweise, ohne auf etymologische Details einzugehen, auf die Varianten im germanischen, baltischen und slawischen Bereich sowie auf die lateinisch-keltische Evidenz. Über die Differenzierung einer gleichen Wurzel durch morphologische Veränderungen oder Erweiterungen, etwa im Verhältnis zwischen den griechischen, germanischen und altindischen Formen, informieren in Einzelheiten jeweils die entsprechenden etymologischen Nachschlagewerke.

Ein vergleichbar heterogenes Bild bietet Bucks Liste zu den Bezeichnungen des Dichters:

(2) 18.67 POET (Auswahl) - gr. ποιητής, lat. poeta, (vātēs), ir. faith, fīli, an.

(3) - themo dihtôn ih thiz buah (Otfrid, Widmung an König Ludwig, 82)
- dizze buoch dihtôte zweier kinde muoter diu sageten ir disen sin (Jüngstes Gericht bei Diemer 292,13)
- der ime daz buoch wider liez und skald, ae. scop, ahd. scoff, mhd. tihtaere, poète, lit. poētas, skr. pjesnik, russ. poet, stichotvorec, ai. kavi-

Auch in diesem Bereich dominieren die Unterschiede vor den Gemeinsamkeiten, die sich ihrerseits zumeist sekundären Lehneinflüssen verdanken, wie die Verbreitung von gr. ποιητής z.B. im lateinischen, mittelhochdeutschen, slawischen und litauischen Lexikon darlegt. Das alternative lateinische Wort vātēs, das man mit einem Etymon „wehen“ in Verbindung bringen wollte, wurzelt wohl im kultisch-magischen Bezirk. Es bezeichnete in älterer Zeit ein eher unheimlich-dämonisches Wesen, einen Hexer quasi, ehe es in der augusteischen Periode zu einem besonders rühmenden Ausdruck für den inspirierten und begnadeten Autor aufstieg.⁴


4. Vgl. Tacitus Dialogus de oratoribus 9.2: “Quis Saleium nostrum, egregium poetam vel, si hoc honorificentius est, praeclarissimum vatem, deducit […]?”
iz in vol tihten hiez (Veldeke, Eneit 13,311)\(^6\)


Wenden wir uns nun dem Spezialfall von lat. texere zu:


Die angeführten, reichhaltigen, durchwegs früh bezeugten innerlateinischen Derivate zeigen die feste Verankerung des Ableitungsparadigmas im Fachwortschatz, doch in der Folgeperiode auch in der Standardsprache. textor ist der Berufsname, textilis das Adjektiv für alle Produkte, textus zunächst der vollzogene Prozess, textūra das Gewebe, tēla (< *teks-la-) ist das fertige Tuch, aber auch der Webstuhl. subtīlis bezog sich auf den feinen Faden bei der Verarbeitung und praetexta ist als besonderes Epitheton der Toga sogar zu einem Gattungsnamen des römischen Drahmas geworden.

An ursprünglich verwandten Verben nennt das jüngste etymologische Wörterbuch des Lateinischen,\(^7\) wie oben unter (4) vermerkt, Beispiele aus dem Hethitischen, Germanischen und Avestischen. Deren Bedeutungen lassen auf eine zunächst konkrete Werkätigkeit schließen, die sich (lat., ahd.) auf die Flachsverarbeitung spezialisiert hat, aber auch schon Ansätze zur semantischen Sublimierung bzw. zu bildlichem Gebrauch (heth., avest.) zeigt.


Meiser geht auch auf eine alte Beobachtung von Darmesteter\(^11\) ein, der in der Junktur dieses Verbums und seiner Derivate mit einem Ausdruck für „Rede, Wort“ als Objekt eine frühe grammatikalisch-poetische Metapher erkennen wollte. Die Beispiele aus dem Widschen und Griechischen (ved. vācāṃsi ... takṣam, RV 6,32,1; gr. ἐπέων ... τέκτονες, Pind. Pyth. 3,199) lassen für das Verbamb an eine Bedeutung „zimmern“ denken, das avestische Kompositum vacastašti- „Strophe, Hymnentext“ weist bereits auf eine Verfestigung zum Terminus technicus der Poetik hin. Für die folgende Plautusstelle, in der sermones die Objektstelle besetzt (quamvis sermones possunt longi texier Plaut. Trin. 797, „wiewohl lange Reden gefügt/gewoben werden können“), bieten sich zwei

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5. Zitiert nach Grimm 1860, s.v. dichten.
7. Vgl. Fn. 5.
Erklärungswege an: entweder ist die Fügung vor der Spezialisierung des Verbums zur Semantik „weben“ entstanden, oder das Syntagma ist insgesamt als Textilmetapher zu verstehen. Die letztere Lösung hätte vielleicht den Vorzug, dass in diesem Fall sermo als Ableitung von serere „reihen, knüpfen“ ursprünglich auf eine anschauliche Lesart hindeutet.

Als Stellen, die bereits den Übergang des handwerklichen Vokabels zu einer bildlichen Verwendung für sprachliche Vorgänge markieren, empfehlen sich die drei lateinischen Beispiele unter (5):

(5) Cic.Fam. 9.21.1: epistulas ... cotidianis verbis texere; Cic.Qu.fr. 3.5/6.1: sermo ... in novem et dies et libros distributus ... de optimo cive (sane texebatur opus luculentum);
[Quint.] Decl. 3.B.2: ita calldissimus actor orationem suam ordinavit et texuit, ut ... tribunum impudicitiae crimenetur.

Im Brief Cic.Fam. 9.21.1 verwendet der Autor eine Konstruktion epistulas ... texere für den Prozess einfacher verbaler Verknüpfung; im Schreiben an seinen Bruder Cic.Qu.fr. 3.5/6.1 wird ein auf neun Tage und Bücher verteilter sermo als texebatur opus resümiert. In einer pseudoquintilianischen Schrift ([Quint.] Decl. 3.B.2) erweisen bereits die beiden verbundenen Verben ordinavit „gliederte“ und texuit „verknüpfte“ neben dem Objekt orationem, dass das Sprachbild schon zur unmarkierten Ausdrucksweise verallgemeinert worden bzw. verblasst ist. Übrigens findet sich auch beim litauischen Verbum āusti „weben“ eine Tendenz zur metaphorischen Verwendung, die allerdings leicht pejorativ gefärbt ist und nur in spöttischem Jargon auftritt: „Geschwätz, Lügenreden, Phantasien“ sind die typischen nominalen Ergänzungen.

Das Nomen acti textus ist in der lateinischen Literatur gut belegt, hat aber über einen langen Zeitraum seine fachsprachliche Lesart konsequent bewahrt. Als Schalstücke für die zunächst bildliche, später terminologische Verwendung, in der sich der Ausdruck in allen germanischen sowie romanischen Sprachen, später auch als internationales Vokabel durchgesetzt hat, bietet sich ein Beleg aus Quintilian an:

(6) Quint.Inst. 9.4.13: verba eadem qua compositione vel in textu iungantur vel claudantur.

In dieser Passage wird die kontextspezifische Geltung angesprochen und die Anwendung auf Wortverbindungen erörtert. Ich verweise auf den unter (6) zitierten Entscheidungsteilsatz innerhalb einer längeren Periode: „In welchem Zusammenhang (qua compositione) dieselben Wörter (verba eadem) entweder im Gewebe (scil. textlich eingebettet) verbunden werden (textu iungantur) oder als Klausel am Satzende auftreten (claudantur).“

Im mittelalterlichen Schrifttum wird die eben beprochene Bedeutung und Verwendung von textus alsbald ganz üblich, was wenigstens an drei Beispielen aus Urkunden bzw. Protokollen belegt sei:

(7) „Urkunde“: donationum nostrarum textus ostendant; de venditione quam textus iste continet; „Evangeliar“: dedit rex quatuor evangeliorum librum qui textus dicitur.


Wie die unter (8) stehenden Beispiele erweisen, treten bisweilen zwei konkrete handwerkliche Tätigkeiten, nämlich weben und kneten, als Metaphernspender in Konkurrenz zueinander:

(8) lat. fingere mit gutem idg. Anchluss (ai. deh-, arm. dizanem, got. digan, toch. tsik-, gr. τέιχος, got. daigs u.a.

Das gilt im Lateinischen etwa für texere und fingere. Das Verbum fingere „kneten, plastisch formen“ hat sich als technischer Ausdruck für die Verarbeitung von Lehm, also Tonerde etabliert, was auch Ableitungen wie figulus „Töpfer“, figūra „aus Ton gebildete Gestalt“ und effigiēs „geformtes Bild“ bezeichnen.

Das Etymon ist in den indogermanischen Einzelsprachen weit verbreitet, was die oben zitierte Auswahl an Belegen bezeugt. Wie eine Grundbedeutung lexikalisch verschieden aufgefasst wird, zeigt sich u. a. in der Gegenüberstellung von gr. τεῖχος „Mauer“, τοῖχος „Wand“ und got. daigs, dt. Teig, denen das gleiche ursprüngliche Muster eines plastischen Gebildes aus Lehm zugrunde liegt.

Betrachtet man die Wortgeschichte von fingere im Detail, so führt der Weg der Bedeutungsentwicklung von „kneten“ über allgemein „plastisch gestalten“ (mit bereits künstlerischer Ambition) zu verbalem „dichten, ersinnen“ und schließlich pejorativem „lügen“. Alte Derivate wie figulus oder figūra haben diesen semantischen Prozess nicht mitvollzogen; jüngere- auch als Fremdwörter geläufige - Ableitungen wie fictiō oder fictīvus hingegen begegnen in beiden Richtungen und mit den gleichen Resultaten als „(Er-)Dichtung“ wie als „Lüge“.14

In der Diskussion über die Rekonstruktion einer indogermanischen Dichtersprache spielt eine Wendung aus Toch. A, auf die Wilhelm Schulze in einem Aufsatz erstmals hingewiesen hat,15 eine wichtige Rolle: In einem Text, der ein wenig an den Mythos von Pygmalion und Galatea erinnert, wird eine Phrase tseke ṣi peke ṣi pat arämpāt, die sich als eine Junktur mit Reimwörtern präsentiert, zur Bezeichnung von plastischer und malerischer Gestaltung (tseke ṣi peke ṣi) und künstlerischer Schönheit (arämpāt) verwendet. Etymologisch wie idiomatisch kann man diese festgefügte Wendung mit lat. figura vel pictura paraphrasieren.


- Als Schildbeschreibung spiegelt sich das große Vorbild in einer analogen Episode der Aeneis Vergils, in der die entsprechende Schutzwaffe des Titelhelden mit den Stilmitteln der epischen Tradition dargestellt wird16.

- In einem Chorlied der euripideischen Tragödie Ion zeigen sich die Frauen des Kollektivs von den ästhetischen Eindrücken und bildlichen Details begeistert, die ihnen die Metopen, Friese, Säulenkapitelle und anderen Architekturelemente des Apollontempels von Delphi vermitteln.17

- In einem von mir als Student der Universität Wien erlebten Vortrag hat der Gräzist Joannis Theophranes Kakridis aus neugriechischer Volksdichtung die Ekphrasis eines kunstvoll gewebten Teppichs nacherzählt, in der in gut homerischer Tradition Ensembles, Situationen, Konstellationen, ja ganze Handlungszüge in den materiellen Gegenstand als dekorative Elemente einbezogen sind. Auch und gerade bei einem solchen physisch begrenzten Kunstobjekt ist die Frage nach der Plausibilität redundant, ja verfehlt: es handelt sich demnach gerade nicht um einen überdimensionalen Zierrat.18
sonst das narrative Genre behauptet sich vor und gegenüber den gegenständlichen Fakten.


(9) Puluinar uero diuae geniale locatur
Sedibus in mediis, Indo quod dente politum
Tincta tegit roseo conchyli purpura fuco.
Haec uestis priscis hominum uariata figuris
Heroum mira uirtutes indicat arte.
Namque fluentisono prospectans litore Diae
Thesea cedentem celeri cum classe tuetur
Indomitos in corde gerens Ariadna furores,

,,Doch inmitten erhebt sich das bräutliche Lager der Göttin,
Schimmernd von Elfenbein, in Indiens Ländern gewonnen,
Und darüber sich breitet ein purpurfarbener Teppich.

Mannigfache Gestalten der Vorzeit, Taten von Helden
Zeigte in vielerlei Bildern der kunstvollendete Teppich:
Sorgsam späht Ariadne von Naxos' flutenumrauschem Strand hinaus in die See nach Theseus' fliehenden Schiffen,
Und unendlicher Kummer ihr Innres aufs tiefste erschüttert.\textsuperscript{20}

In epischer Breite wird sodann die Geschichte von Theseus und Ariadne in Gestalt einer Ekphrase wie dergegeben. Die Aussetzung der Heroïne auf der Insel Dia/Naxos gipfelt in einer weitgespannten Klagehore von 70 Versen, die später zum Vorbild der zahlreichen \textit{Lamenti di Arianna} in Oper und Oratorium geworden ist. Die endliche Befreiung, Erlösung und Tröstung durch den Gott Bacchus/Dionysos/Iachus fehlt auch in dieser Fassung nicht, doch wird ihr nur ein bemerkenswert knapper Raum zugestanden, und das wohl aus künstlerischen Gründen: entweder weil die erhobene Frau als trauernde Gestalt im Zentrum bleiben sollte oder gleichsam aus kunstökonomischen Gründen, indem auf die Bildbeschreibung ohnehin erneut der Festesjubel folgt, der sich an die Verse 265f. anschließt:

(10) Talibus amplifice uestis decorata figuris
Puluinar complexa suo uelabat amictu.
,,Mit solchen Gestalten verschwenderisch geziert war die Decke,
die das Lager rings als Überwurf umhüllte.\textsuperscript{20}

Nur am Rande erwähnen möchte ich eine andere Variante bildlicher Darstellung eines Geschehens, das sich zur Ekphrase gewissermaßen spiegelverkehrt verhält. Hatte diese die visuellen Eindrücke von plastisch oder malerisch gestalteten Vorgängen in Worte umgesetzt, so vertritt im folgenden Fall eine nonverbale Botschaft den vereitelten Bericht. Es geht um den Mythos von König Tereus, der Philomele, die Schwester seiner Gattin Prokne, vergewaltigt und ihr,


Wonnig aus Weh’ web ich mein Lied: 
nur Sehnende kennen den Sinn.

An mehreren Stellen meiner Auseinandersetzung mit Dramaturgie, Mythenrezeption und Sprachkunst des Bühnenschaffens von Richard Wagner habe ich mich mit dieser und vergleichbaren Passagen seiner Dichtersprache auseinandergesetzt.22

Wie produktiv der metaphorische Wirkungsbereich von Webstuhl und Spinnwirtel auch und gerade unserer heutigen Zeit geblieben - oder vielleicht wieder geworden - ist, mag zum Ausklang eine keineswegs vollständige Liste von englischen Fachtermini belegen, die drei einschlägige Ausdrücke unseres Forschungsgegenstandes (weben, spinnen, Netz) aufgreifen und zu verbindlichen technischen Begriffen des internationalen Wortschatzes der neuen elektronischen Medien verfestigen:

(12) web address, on the web, web based, web browser, web designer, webcast, web forum, webhead, webmaster, web page, web-site; spin doctor; network, internet, net speak

Dass dabei auch das Randgebiet der Augenblicksbildungen mit eingeschlossen ist, zeigt das letzte Beispiel der Liste, denn net speak wird von rezenten Wörterbüchern des Englischen unter Hinweis auf den Funktionalstil als informelle Bezeichnung des Internetjargons gebucht.

Bibliographie


Weaving a Song. Convergences in Greek Poetic Imagery between Textile and Musical Terminology. An Overview on Archaic and Classical Literature

Giovanni Fanfani

For if each tool could perform its own task either at our bidding, or anticipating it, and if – as they say of the artefacts made by Daedalus or the tripods of Hephaestus, of which the poet says, “self-moved they enter the assembly of the gods” – weft-beaters should beat the weft of their own accord, and plectra should pluck the *kithara* of themselves, then master-craftsmen would have no need of assistants and masters no need of slaves.

In an analysis of the household-management (οἰκονομία) in the first book of the *Politics*, Aristotle discusses the nature and use of tools (ὄργανα), both inanimate (τὰ ἄψυχα) and animate (τὰ ἔμψυχα). While such a distinction is functional, in Aristotle’s argument, to illustrate the priority of the latter group (represented by the assistant, ὁ ὑπηρετής, and the slave, ὁ δοῦλος) over the first, what interests us here lies mainly within the realm of inanimate tools. As commentators to the passage have not failed to notice, a first literary frame of reference for Aristotle’s *exemplum fictum* is to be found in the conflation of two motifs: the myth of self-moving (ἀυτόματα) artefacts created by divine or divinely-gifted craftsmen (Hephaestus’ wheeled tripods...

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1. I would like to thank the three editors for both their work on this volume and for the organization of the conference in Copenhagen back in June 2014; I am grateful to the Danish National Research Foundation’s Centre for Textile Research for hosting my postdoctoral research in the last two years in a stimulating environment. Deborah Steiner, whom I sincerely thank, has generously given me access to a draft version of a forthcoming discussion of hers on weaving and chorality. The research for this chapter has been generously supported by the Danish Council for Independent Research and FP7 Marie Curie Actions – COFUND (DFF – 1321-00158) through a MOBILEX grant.

Greek texts are quoted from the most recent OCT (Oxford Classical Texts) editions, unless otherwise stated. English translations are adapted from the most recent Loeb editions. Double quotation marks are only used for direct quotations (in translation) of passages from classical authors and for quotations of modern scholars; single quotation marks are adopted in all other cases.


3. A further, significant distinction is operated by Aristotle between assistant and slave: while the first can be defined as “a superior tool among tools” (ὄργανον ἀπὸ ὀργάνων, 1253b33, literally “a tool that is prior to/ouperforms other tools”: see Barker 1961, 10 n.1; Newman 1950, 138; on ἀπὸ as conveying here a notion of superiority in status see Schüttrumpf 1991, 244-245; on the whole passage see now Besso & Curnis 2011, 226-228), the slave is rather “a sort of animate possession” (κτήμα τι κτήσις, 1253b32), granted that “a possession is also a tool for the purpose of life” (καὶ τὸ κτήμα ὀργανον πρὸς ζωῆς ἐστι, 1253b31).
and Daedalus’ statues), and the Old Comedy utopia of a golden age when no slaves were needed, as household utensils would move and perform their task by themselves. In addition to that, however, a further underlying element that joins together the τέχναι (crafts) alluded to in the Politics passage can be detected in the relationship these entertain with the concept (cum technology) of weaving, reflected at the level of poetic imagery by patterns of textile terminology. This may seem pretty obvious in the case of the verb κερκίζειν, i.e. the action of beating the weft threads into place by means of a weft-beater (κερκίς). As a fundamental principle in the mechanics of weaving on the vertical warp-weighted loom, striking the threads with a κερκίς had a distinctive visual and acoustic dimension: it was one of the most typical gestures of the weaver, and, more important, it seems to have produced a recognizable rhythmic sound. Both these features explain, to a certain degree, why in a number of literary as well as iconographic sources the technique of striking the strings of a lyra or kithara with a plectrum (κιθαρίζειν is the verb used in Politics 1254a1) is assimilated to the act of hitting and strumming threads on a loom with a weft-beater. Aristotle’s juxtaposition of κερκίδες and plectra is a case in point: while the focus is kept on the similar function performed by the two objects in the realm of their respective (and thus comparable) τέχναι, the passage may, if only indirectly, reflect the long-standing association in ancient Greek musical imagery between the craft of weaving and the craft of playing (mainly stringed) instruments. At the root of this connexion lies a terminological convergence grounded on the semantics of the verb κρέξειν (‘to weave’, ‘to pluck the strings, play’ and ‘to cause

4. Aristotle quotes from Il. 18.376: the passage (vv. 373-377) describes Hephaestus who “was fashioning tripods, twenty in all, to stand around the wall of his well-built hall, and golden wheels he had set beneath the base of each so that of themselves they could enter the assembly of the gods (δόρα οἱ αὐτόματοι θείον δυσαίατ᾽ ἀγῶνα), a wonder to behold”. As it happens, the elaborate tripods’ handles have a ‘daedalic’ connotation (οὔατα ... δαίδαλεια, v. 378-379): see below on the series δαιδάλεος, δαίδαλον and δαιδάλλο. For Daedalus as “human double of Hephaestus” see Power 2011, 78 and n. 29, in the context of a fine discussion of the choral features of Hephaestean and Daedalic automata (77-82). The reference works on Daedalus in Greek literature and art are Frontisi-Ducroux 1975 and Morris 1992; McEwen 1993 brings architecture into the picture.

5. Several Old Comic passages on the topic are collected by Athenaeus in a section on slavery in the sixth book of his Deipnosophistai (267e-270a); a fragment from Crates’ Beasts (Ὀνοία), fr. 16 K-A = Ath. 267e, explicitly connects needlessness of slaves and self-moving household equipment (τὰ σκευάρια). Interestingly, a number of literary references to Daedalus’ moving figures are also found in humorous context in drama (satyr play: Aeschylus Theoroi fr. 78.6-7 Radt (TrGF vol. 3); Euripides Euristheus fr. 372 Kannicht (TrGF vol. 5.1); comedy: Aristophanes’ Daedalai, frs. 191-204 K-A; Cratinus fr. 75 K-A and Plato Comicus fr. 204 K-A, both in Σ Eur. Hec. 838) and in Plato (Euthphr. 11b-c; Men. 97d-e): see the rich discussion in Morris 1992, 215-237. Cf. Besso & Curnis 2011, 229; Newman 1950, 138 ad loc.

6. For an excellent discussion of the multiple functions of the κερκίς in ancient weaving see Edmunds 2012, §40-§51; in addition to beating the weft threads, two further uses of the device were “to even out the warp threads by strumming across them” and “to pick the shed, especially in pattern weaving” (§46). See also Crowfoot 1936-1937, 44-45; Barber 1991, 273-274; Andersson Strand & Nosch 2015. Moxon 2000 surveys the Greek sources on the ‘sound of the κερκίς’ and argues for a use of the device as a “laze rod” to create the shed(s) in a “properly vertical” loom (p. 25). On the term κερκίς see chapter by Flemestad, Harlow, Hildebrandt & Nosch in this volume.

7. Pomeroy 1978, 19 points out the “physical resemblance between the loom and the lyre”, drawing on two vase paintings depicting a woman sitting and weaving on a tapestry hand-loom (fig. 1, 2 p. 22): the posture of the weavers is remarkably similar to that of female string instruments players (fig. 3 p. 22). See McIntosh Snyder 1981, 194-195 on the “structural similarities between looms and lyres” as a key-element in shaping the imagery of the ‘web of song’ in archaic Greek lyric. For a more nuanced and convincing view see Restani 1995, 99-100: the analogy in the posture between hand-loom weavers and barbitos-players is rather meant to recall, metonymically, the auditory experience of (i.e. the sound produced by) weaving on the warp-weighted loom. Keuls 1983, 219 argues that the prominence of depictions of hand-loomed over warp-weighted looms in vase paintings is the result of them being more “aesthetically pleasing or symbolically meaningful”. See Power 2010, 122-134 for an exhaustive discussion of the technical and performative features of both lyre and kithara, including the use of the plectron. On the musical terminology related to the technē of lyre-playing in the Homeric Hymn to Hermes, where the invention of the tortoise-shelled instrument is narrated, see Franklin 2003.

8. Restani 1995, 106 sees the Politics passage as an instance of a persistent and effortless “associazione concettuale dell’utensile da telato con il suono percussivo degli strumenti a corde”, thus laying emphasis on the acoustical sphere.
to resound’ in the new GE s.v.),9 which has been traced back to the idea of ‘hitting strings noisily with sharp instruments’.10 Literary and lexicographical sources help locating certain stages in the semantic development of the term. In the first part of this chapter, a sustained pattern of interaction between textile and musical terminology is shown through a survey of passages where κρέκειν, or the cognate term κηρκίς, occur in musical context in archaic and classical Greek poetry. Perceived similarities in craft, technology and auditory experience seem to favour the exchange; what we also see is the appropriation of the technical lexicon of weaving by emerging discourses on musical innovation in Greek poetry,11 in the context of the imitative poetics of early lyric as well as in the late 5th century BC musical ‘revolution’, the so-called New Music.12

In the second part of this chapter, such a pattern of terminological interaction is positioned within the broader area of textile imagery for poetry-making. Instances of κρέκειν governing an internal accusative of the type of song/poem or musical mode being executed invite comparison with a group of metapoetic metaphors mapping aspects of the crafts of weaving, plaiting and interlacing onto poetic (and musical, the two notions being largely co-extensive in archaic and classical Greek literature) composition and performance. The metaphorical domain of textile crafts is in turn to be seen as part of the larger system of Greek craftsmanship imagery for poetic creation:13 this is particularly evident in the case of cross-craft terminology, as a number of weaving metaphors are generated through the semantically marked use of verbs and adjectives that, while being applied to different crafts in the literary record, convey a specific technical meaning when used in a textile-related context. To illustrate the point, a few instances of textile imagery are shown as produced by two families of terms whose roots, δαιδαλ- and ποικιλ-, seem to express the structural and aesthetic quality of an intricate and variegated pattern in association with skilfully craftsmanship.14 Finally, the juxtaposition of Hephaestus and Daedalus in the Politics passage points back to a Homeric case of interaction between δαιδαλ- and ποικιλ- terms, weaving, and choral dancing.

More than beating threads: κρέκειν in (musical) context and the sound of the κηρκίς

In a study of the semantics of κηρκ- and κρेक- terms – a vast cluster of words encompassing material objects,
plants, and animals (notably birds) – J. Manessy-Guitton detects the basic concept of the two cognate roots in the idea of a sharp, pointed object: thus κερκίς ‘weft-beater’, a sharp tool used to beat up the weft in weaving, generates κρέκειν ‘to beat the weft with a κερκίς’ and (with extension) ‘to weave’; the same basic gesture of ‘beating rhythmically with an object’, analogically applied to the sphere of music-making, would be at the root of the prevalent usage of κρέκειν with the meaning ‘to strike the strings of/play an instrument’ and ‘to cause [the voice, a song] to resound’ i.e. ‘to sing’;


Sweet mother, I really cannot weave my web/strike the loom [with the κερκίς],

for I am overcome with desire for a boy because of slender Aphrodite.

The etymological and semantic relationship between κερκίς and κρέκειν is presented by lexica and etymologica in connection with the earliest occurrence of the verb, Sappho 102 V., a short poem drawing on a traditional motif of popular song:

16. See Manessy-Guitton 1977, 253: “De « battre un chant, scander un chant », serait issu le sens de « faire retentir un chant », de κρέκειν as ‘weave’ in Euripides’ Electra, where the verb governs the accusative πέπλους ‘peploi’ (εἰ δὲ κἄκρεκον πέπλους “and even if I had been weaving clothes [lit. peploi], 542), closely following a mention of κερκίς three lines earlier (κερκίδος... ἐξύφασμα σῆς “a garment of [i.e. woven by] your κερκίς”).

Back to Sappho 102 V., the occurrence of κρέκειν has called for semantic and etymological

17. As Raimondi 2000, 138-146 shows through a systematic survey and typology of the occurrences of κρέκειν, such a motif is parallelled by the sustained pattern of imagery, similarly found in the genre of epigram, where κρέκειν designates the sound of singing birds or insects.

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interpretations by ancient lexicography:20 interestingly, the first line of the poem is quoted, and the meaning of ρρέκειν discussed, in the explanation of the lemma ρρεκίς. The etymologica and lexica present ρρεκίς as a noun derived from the verb ρρέκειν,21 which they gloss as ἠχεῖν ‘to resound/echo’: παρὰ τῷ ρρέκειν δὲ ἐστὶν ἠχεῖν ‘(derived) from ρρέκειν, that is to resound (ἢ χεῖν)’; ρρεκίς is thus an instrument that resounds (ἢ χεῖσα in Pseudo-Zonaras), and ρρέκειν may have originally referred to the sound or noise produced by the κερκίς on the loom, as suggested by Donatella Restani.22 The occurrence of ρρέκειν with internal accusative (τὸν ἱστὸν ‘loom’ or ‘web’) in Sappho’s poem suggests that the semantic overlap with ἠχεῖν includes the causative meaning of the verb ‘to make/cause something to resound/echo’: in this perspective ρρέκειν τὸν ἱστον in Sappho 102 V. may mean “to make the loom resound (with the sound of the κερκίς)”. The idea of a resounding instrument is especially at home in the semantic field of music: Alcman’s compound formation κερκολύρα (PMGF 140 = fr. 196 Calame), a one-word fragment, represents the earliest instance (the poet was active in 7th century BC) of the long-standing connection between the roots κρεκ- / κερκ- and stringed instruments – a lyra in this specific case.23 The term, preserved by ancient lexicography, is traced back to ρρέκειν (again, through alleged metathesis: ἀντὶ τοῦ κρεκολύρα “in place of κρεκολύρα”) and, according to the equivalence ρρέκειν = ἠχεῖν, it describes a “re-sounding, echoing lyra” (ἠχητικὴ λύρα in Pseudo-Zonaras): in this explanation, the supposed onomatopoeic nature of ρρέκειν is also part of the picture (as Pseudo-Zonaras illustrates in his gloss: τὸ γύρ ρρέκε κρέκε ἠχεῖν ἤστι τῆς κιθάρας “for ρρέκε κρέκε is the noise of [the strings of] the kithara”). Modern interpretations of κερκολύρα entertain the possibility that, in fact, the first component of the term may be κερκίς: the compound would express the functional analogy between the action of the weft-beater on the threads and that of the plec trium on the strings.24 A more nuanced interpretation locates the fragment within the archaic Greek poetics of mimesis: the poet-musician devises and composes through the imitation of nature and other crafts,25 and Alcman offers indeed early instances of such a conceit when he claims to know “the modes of song of all the birds” (fr. 40 PMGF ὠνήκα δ’ ὀρνίχινον ὑμώος / πάντων) and to “have devised verses and song by putting into words the tongued cry of partridges” (fr. 39 PMGF ῥέπε τάδε καὶ μελός Ἀλκμάν / ἔφη γεγολοσαμέναν / κακκαβίδων ὅσα συνθήμενος).26 Though we lack a broader literary context for Alcman’s κερκολύρα, the image of a lyra imitating or echoing the

20. In chronological sequence (9th to 12th century AD): Etymologicum Gudianum β p. 183 Miller = Etymologicum Magnum 505.57-61; Etymologicum Gudianum 316.35 Sturz; Pseudo-Zonaras col. 1190 Tittmann (κερκίς). Etymologica and lexica only give the first line of the poem; Sappho 102 V. (lines 1-2) is transmitted by Hephaestion in his metrical treatise Encheiridion (10.5 p. 34 Consbruch) as an instance of antispastic tetrameter catalectic (scheme ⏑ ‒ ⏑ ‒ / ⏑ ‒ ‒ ⏑ / ⏑ ‒ ⏑ ‒ / ⏑ ‒ ‒ ‒ , where only the second unit has the form of an antipast – ⏑ ‒ ‒ ⏑ used by Sappho in her seventh book: on the antispastic and glyconic sequences see Gentili & Lomiento 2003, 154-166.

21. The derivation is explained as a transition from the unattested form ρρεκίς (κρεκ- + the nominal suffix –ις) to κερκίς through internal metathesis (our sources call it ὑπερβιβασμός ‘transposition’). I thank Marco Ercoles for helpful suggestions on the Etymologicum Gudianum gloss of κερκίς.


23. The testimonia of Alcman 140 PMGF are: Etymologicum Gudianum s.v. (p. 33 Calame); Etymologicum Magnum 506.18 Gaisford; Pseudo-Zonaras col. 1190 Tittmann.

24. Cf. Manessy-Guitton 1977, 252, who sees the root κερκ- in κερκολύρα as referring to the plectrum, and the compound thus designating “la lyre dont on joue avec le plectre, la lyre à plectre”.

25. See Restani 1995, 98-99, who interprets Alcman’s κερκολύρα as “a lyra echoing the sound of the κερκίς” (p. 99 “una ‘lyra riecheggiante il suono della kerkis’”). The poetics of mimesis is elaborated by Gentili 1988, 50-54 in relation to the archaic Greek view of poetic creation and music-making: as he puts it, imitation is often presented as “re-creation, through voice, music, dance, and gesture, of the actions and utterances of men and animals” (51).

26. See Gentili 1988, 54: “[I]t is in terms of this poetics – a poetics of heuristic imitation rather than of aesthetic creation – that an author’s reference to the novelty of the modes and techniques found in his own work are to be understood. […] To “know the songs of all birds” is to have at one’s disposal a full assortment of natural modules to be used in devising melodies”. For the connections of κρεκόλυρα and κερκίς with singing birds (or insects) and stringed instruments in Hellenistic epigram, see note 16 above.
sharp sound of the κερκίς may lie somewhere at the origin of the semantic extension of κρέκειν (in the sense of ἴγεῖν ‘make something to resound’) as to include stringed instruments – a connotation which encompasses as well the more specialised meaning ‘to strike the strings of a musical instrument’. This is reflected by a strand of ancient lexicography that connects κρέκειν to the sphere of instrumental music, often in association with κρούειν ‘to beat, strike’, a verb undergoing a similar semantic extension into the technical language of music-making, with particular regards to the area of stringed instruments. In this respect, the peculiarity of κρέκειν seems to lie in the fact that its semantics is originally grounded in the craft and technical language of weaving, and the terminological convergence with the domain of music reflects an exchange (via mimesis) at the level of τεχναί that Alcman’s κερκολύρα may express in terms of musical novelty.

When we meet again κρέκειν in a music-related context, we are in late 5th century Athenian drama, at the height of a phase of musical innovations (conventionally labelled as ‘New Music’ in modern scholarship) investing the sung sections of tragedy and comedy, and the lyric genres of dithyramb and kitharodic nomos: it is probably not a coincidence, therefore, that three out of four occurrences of κρέκειν feature in the lyric sections, both choral and monodic, of the re-edition, and the lyric genres of dithyramb and kitharodic nomos. 28 In this respect, the peculiarity of κρέκειν seems to lie in the fact that its semantics is originally grounded in the craft and technical language of weaving, and the terminological convergence with the domain of music reflects an exchange (via mimesis) at the level of τεχναί that Alcman’s κερκολύρα may express in terms of musical novelty.

For a survey of these two semantic areas of κρέκειν, and of further sub-types, see Raimondi 2000, 139-142 (groups 2 and 3).

28. Hesychius s.v. 4044 Schmidt κρέκειν καθίστά τις κρούειν καθό τὴν κρούσαν κρούειν “in most cases κρέκειν (means) to strike the kithara”; Pollux 4.63 lists κρέκειν among “instruments that strike/beat” (ὄργανα τὰ κρουτάον οὐκ ἀλλὰ κρούονται) together with καθίσταν, ψάλλειν (‘pluck the strings with fingers’) and others: see the fine observations by Restani 1995, 107; on the semantic extension of ψάλλειν and κρούειν into the technical terminology of music see the comprehensive discussion by Rocconi 2003, 26-51: the pattern seems to be one of extension and abstraction within the domain of musical, from the more specific meaning ‘strike the strings of an instrument with a plectrum’ to ‘play an instrument’.

29. On the socio-economic context that favoured the rise of New Music in theatrical genres see Csapo 2004; cf. Csapo 1999-2000 on Euripides and New Music; LeVen 2014 is the most comprehensive study of late 5th century lyric.

30. See Rocconi 2003, 27 n. 124 for a different interpretation of magadis here as a kind of musical accompaniment (“più che uno strumento, […] una pratica di risponsione tra due fonti sonore”), suggested by the musical context of the fragment, a description of rituals connected to the Asian cult of Semele, where at v. 9 two other instruments of the harp family are mentioned, the σιστίς and the τρίγωνος (on which see Gentili & Lomiento 2003, 85). The passage is transmitted by Athenaeus 14.636, who quotes the verses to argue that Diogenes considered πηκτίς and μαγαδίς two different instruments.

31. The text of Birds is quoted from Dunbar 1995. The Loeb translation (by J. Henderson) tries to restore the textile semantics of the verb: “weaver of springtime tunes on the fair-toned pipes”. The opening section of the parabasis is an astrophic system in aeolio-choriambic metre (682-683 are both glyconics). See Dunbar 1995 ad loc.

32. Translation Dunbar 1995, 427; see commentary ad loc.
in the two Aristophanic passages has been explained in different ways. Raimondi sees a derivation of the meaning ‘play a wind instrument’ from the broader connotation of κρέκειν = ἠχεῖν as applied to the vocal expression (“to make a voice resound”, “to sing”). Locating the original semantics of κρέκειν in the concept of ‘beating, striking with a beating tool’, Manessy-Guitton proposes to set the image of the wing-beats accompanying the swans’ song in Birds 771-772 against its textile counterpart, the beating action of the κερκίς on the loom that provides the rhythm for the weaver; the direction of the semantic extension is in this case ‘to beat, to rhythm a song with a beating instrument’ → ‘to make a song resound’, and a similar development invests the specific meaning ‘to strike a stringed instrument’ to encompass the use of κρέκειν in reference to other families of instruments. While a similar pattern of semantic extension – from the domain of stringed instrument to that of the αὐλός – has been illustrated as taking place in the same chronological range for another verb meaning ‘to strike, beat’, κρούειν, the distinctive textile background of κρέκειν may add to the texture of imagery of the two passages from the Birds. The same syntactic structure, in reference to the sound of the αὐλός, is found in a fragment of a ‘New Musician’, the dithyrambographer Telestes (late 5th century BC), where a weaving verb, ὀμφαστέκειν ‘to plait/weave around’, is used in place of κρέκειν: the passage, quoted by Athenaeus (14.617b = PMG 806), depicts the “Phrygian king of the fair-breathing holy auloi”, probably Olympus, as the first “who fit together (Λυδὸν ἄρμοσε … νόμον) the Lydian tune, rival of the Dorian Muse, weaving around (ὁμφαστέκειν) his reeds of quick-moving forms (αἰολομόρφος καλάμος) the fair-winged breeze of his breath (πνεῦματος εὔπτερον ἀὔραν)”. As Pauline LeVen has recently pointed out, a distinctive stylistic feature of the New Music that emerges in Telestes’ archaeology of aulos-music of fr. 806 is the innovative exploitation of “the materiality of language to evoke musical features”: the ‘breeziness’ connected to the art of playing the αὐλός is expressed through paronomasia at v. 4 (in the consonantal roots of the terms for ‘breathe’, ‘wing’ and ‘weave’ πνεῦματος εὔπτερον … ἀμφιπλέκειν), and through the metaphor of the winged and volatile nature of Olympus’ breath. The archaizing rhetorical strategy of Telestes, who traces back the intricacy of his style of αὐλός-playing to the invention of the Lydian mode by the mythical musician Olympus, is one of self-legitimation: by adopting the technical term ἀμφιπλέκειν ‘to weave/plait around’ to illustrate the variegated and composite nature of the Lydian νόμος, Telestes may have in mind the use of another compound of πλέκειν ‘plait, weave’ in a similar context (a previous musical revolution investing αὐλός-music) in a victory ode by Pindar. In Pythian 12 (performed in 490 BC), an epinician ode in celebration of a victory in the aulos competition by Midas of Acragas, Pindar describes the invention of the αὐλός-music by the goddess Athena. The poem begins with an invocation to Acragas (the Sicilian city), requested to receive Pindar’s choral song as a crown of victory (στεφάνωμα) from Pytho, and to

33. See Raimondi 2000, 145: “L’espressione vocale è assimilata all’emissione di uno strumento a fiato”.
34. See Manessy-Guitton 1977, 236-237, who sees in the occurrence of κρέκειν ‘to weave’ governing πέπλους at Eur. El. 542 a similar case of semantic extension from the original connotation of the verb as ‘strike the weft-threads’.
35. See the exhaustive discussion by Rocconi 2003, 32-43, esp. 35 n. 180 (on PMG 878 where κρούειν is found together with ἄμφιλεκτον ‘to play the aulos’).
36. Translation: LeVen 2014, 104 adapted; the reading νόμον αἰολομόρφος at v. 3 is the result of two conjectures (Dobree and Walmowitz respectively): the manuscript reads νομοαίολον ὀρφναι. See the discussion of the fragment in LeVen 2014, 113-15 in the context of the New Musicians’ self-presentation of their intricate musical style as variegation (poikilia) through reference to different musical modes (the Lydian and the Dorian in Telestes 806 PMG). See Steiner 2013, 190-191 for a discussion of the technical aspects of aulos-playing mentioned in Telestes’ fragment, and for the fascinating hypothesis that the dithyrambographer may allude in the final verse to an actual change in the shape of the mouthpiece of the aulos, which would have taken place in the late 5th century BC.
37. LeVen 2014, 166.
40. As the scholium 12a (p. 265 Drachmann) to the passage points out, the reference is to ἡ σύλλητική τεχνή ‘the art of playing the aulos’; later in the ode Pindar refers to the melody that Athena “fashioned with every sound of auloi” (αὐλὸν τεῦχε πάμφονον μέλος,
welcome Midas, who “defeated the Greeks in the art (τέχνη) which Pallas Athena once invented (ἔφευρε) by weaving into music the fierce Gorgons’ deathly dirge (θρασσαῖαν Ἐφοργόνων / οὐλόμα τρήφον πυλµέλλεσαι Ἀθήναι) (vv. 5-6). In the act of heuristic mimesis represented here, the goddess devises (ἔφευρε) the craft of playing the αὐλός by imitating the “echoing lament” (ἐρικλάγταν γόον, v. 21) of the two Gorgons as they are slaughtered by Perseus, and by weaving it into a τρήφος ‘dirge’, a structured form of music – the term designates as well a sub-genre of choral lyric.

While it is difficult to imagine the exact musical effect of διαπλέκειν and ἀμφιπλέκειν in association with the art of playing the αὐλός, the use of compound forms of πλέκειν in the context of programmatic declarations of musical poetics suggests that the craft of weaving represented a favourite source of techniques and technical terminology for illustrating innovations in instrumental music; the composite nature of the αὐλός, made of two reeds, resulted in a highly mimetic and variegated sound according to the sources, and the semantic domain of interlacing, plaiting, and weaving (especially the technique of pattern-weaving) may have been perceived as aptly conveying the complexity of the αὐλετικὴ τεχνή. Occurrences of κρέκειν in association with the αὐλός, and in general the use of the verb in musical context, may thus gain a further layer of connotations if set against the term’s semantic origin in the craft of weaving.

This is especially the case when κρέκειν is matched by the cognate κερκίς, as in a sung monody from Euripides’ fragmentary Hypsipyle, a tragedy dating to the last decade of 5th century BC and, as far as the text conserved in the Bodleian papyrus (POxy. 852) allows to conclude, displaying significant metrical variation and sustained musical imagery in its lyric sections. The first conserved fragment of the play transmits the end of Hypsipyle’s opening lyric monody, which the girl sings to the baby Opheltes: the theme of the song, and of the following lyric dialogue with the Chorus, is a metamusical reflection on just what kinds of song are appropriate for Hypsipyle to sing as she wishes to amuse the baby. A reference to the rhythmical sound of castanets (ἴδοι, κτύπος δὲ κορτάλων “Look, here is the sound of castanets”, v. 8) is followed after a one-line lacuna by a recusatio, where Hypsipyle mentions the work-songs she is not going to sing, as the norm of generic appropriateness (a fundamental principle of archaic aesthetics) requires her to turn to “what is fitting for a tender young boy” (ὅτι … παιδὶ πρέπει νεαρῷ, v. 14):

οὐ τάδε πῖνας, οὐ τάδε κερκίδος ἱστοτόνου παραμύθια Λήμνι᾽ ἄ Μοῦσα θέλει με κρέκειν’ (…)

Eur. Hyps. fr. 752f 9-11 K. (TrGF vol. 5.2)

v. 19) and “called it the many-headed tune” (ὁνύμασεν κοράλαν πολλάν νόμος, v. 23), the nomos polykephalos, a melody for the αὐλός which might have been used by Midas in his victorious performance.

41. The text of Pindar is Snell-Maehler (Teubner).

42. The “echoing wail” of v. 21 is referred to just one of the sisters, Euryale: however, as also the scholium 35c (p. 268 Drachmann) makes explicit, the γόος is issued by both the Gorgons. Held 1998, 384 makes the different point that “[T]he singling out of one of the Gorgons implies the singling out of the other”, which supports his view that the deathly dirge woven into music by Athena is composed of two strains of sound, i.e. the groaning of each of the two sisters.

43. Through a survey of the occurrences of διαπλέκειν in pre-Hellenistic literature, Held 1998 persuasively argues that in most cases the verb refers to the woven product, rather than to the materials that are interlaced to fashion it: in this perspective, the αὐλός τρήφος composed by Athena is the final product of her interweaving.

44. I draw in this section on the detailed discussion of the parodos of Hypsipyle by Battezzato 2005; other important studies of the fragments of the play are Bond 1963 and Collard, Cropp & Gibert 2004. The reference edition is Kannicht 2004 (TrGF vol. 5.2, ffr. 752-769). As Collard, Cropp & Gibert 2004, 230 synthetically remark in their introduction, the style of the Hypsipyle “is that of the ‘New Music’ of which Euripides was a leading practitioner, characterized by freedom and variety of form and emotional expression, especially through female voices, and mimetic musical performance such as Hypsipyle” castanet-song”.

45. On this crucial principle of distinction between poetic genres see Ford 2002, 13-22.

46. At the end of v. 10 I print Battezzato’s proposal of reading Λήμνια ἄ, with the relative pronoun ἄ introducing the following clause (“… the Lemnian songs that the Muse..”) in place of Λήμνια of the papyrus, thus linking the double τάδε at v. 9 to the sound of the
These are not the Lemnian songs, relieving the labour of [inserting] the weft-threads and (the labour) of the sounding-on-the-loom [or ‘stretched-on-the-loom’] kerkis, (these are not the Lemnian songs) that the Muse desires me to make resound; (...)

The “Lemnian alleviations” (παραμύθια Λήμνια, v. 10) that the Muse wants Hypsipyle to κρέκειν (“cause to resound”) are at first sight songs sung at the loom to relieve the boredom and labour of weaving: the weft (πήνη, v. 9) and the κερκίς are generally taken as referring metonymically to the act of weaving on the loom. The rare compound adjective ἱστότονος is generally taken to indicate the area of application of τόνος, a nomen actionis from the verb τείνειν (“to stretch, put under tension”) meaning ‘tension’, but undergoing a semantic shift into musical terminology with the connotation of ‘sound’ (generated by the tension of a string) and ‘note’. It is inviting to speculate that the adjective may bear here its entire semantic range, and that the notion of ‘tension’ associated with the κερκίς invests both the physical (the striking of the stretched threads) and the auditory sphere of the tool’s action; this seems to be supported by Euripides’ choice of the verb κρέκειν, whose perceived connexion with κερκίς (in terms of the ‘resounding’ of the weft-beater on the loom) is well attested by the lexicographic tradition, as we have seen. Aristophanes’ parody of Euripidean lyric in the Frogs (staged in 405), sung by the character of Aeschylus, includes a citation of Hypsipyle monody in a passage mimicking the hyperrhythmic and densely imagistic New Musical style of Euripides’ late production. In this case, the adjective ἱστότονος is connected to weft-threads (πηνίσματα), in turn defined as “practisings of singer kerkis” and wound by spiders with their fingers – an image with no apparent logical coherence, as it is aimed at mocking Euripides through a juxtaposition of excerpts from his lyric verses:

αἱ θ᾽ ύπωρόφιοι κατὰ γωνίας
εἰειειειλίσσετε δακτύλοις φάλαγγες
ἱστότονα πηνίσματα,
κερκίδος ἄοιδον μελέτας

Aristophanes Frogs 1313-1316

and you spiders in crannies beneath the roof who with your fingers wi-i-i-i-i-nd
the weft-threads stretched across the loom,
practisings of singer kerkis

The focus on the sound/noise produced in weaving is mimetically rendered by the repetition of the first syllable of εἰειειει - “you who wind”, signalling “the setting of a single long syllable to a cluster of shorter notes, forming an ornamental turn”. When referred to the weft-threads, ἱστότονος makes good sense as ‘stretched across the loom’, in this case by the action of the “singer kerkis” κερκίδος ἄοιδο - also a Euripidean quotation, according to the scholia ad loc. (ascribed to the fragmentary Meleagros, fr. 523 N.2 = fr. 528a K. TrGF vol. 5.1).

The topos of the ‘tuneful κερκίς’, with the variant sound/voice of the κερκίς’, surfaces in 5th century BC drama in two fragments of Sophocles, but enjoys a new popularity in a number of votive epigrams collected in the sixth book of the Anthologia Palatina.
where weavers dedicate the implements of their fatiguing work on the loom to the goddess Athena, patron of handicraft, often with the purpose of abandoning textile activity to turn hetaeae.  

51. This group of epigrams, and the dynamics of variation on the model, are discussed in Tarán 1979, 115-131.


53. See the systematic survey of the occurrences by Raimondi 2000, whose starting point is Theocritus A.P. 9.433.

54. Ford 2002, 120, in the context of a fine discussion of “singer and craftsman” (113-130).

55. The range of sources attributed to the κηρὰς in this group of epigrams encompasses several birds’ cries (the swallow, the halcyon, the nightingale): such an ornithological characterization of the sharp noise produced by the striking of threads on the loom may be positioned within a broader pattern of imagery in Hellenistic epigram, where we find instances of κρέκειν in association with singing birds and insects whose cry is compared with the sound of stringed instruments. This seems to have become at this stage a literary topos, very far from the imitative poetics of Alcman’s singing birds and κερκολύρα, and it certainly does not retain the semantic proximity with the domain of textile craft that we have seen in fifth century occurrences of κρέκειν in musical context.

Metapoetics of weaving and cross-craft terminology: the case of ποικίλαι- and δαίδαλ- terms

Very similar in structure and theme to PMG 806, another fragment by Telestes (PMG 810) is concerned with projecting innovations in instrumental and sung music back to an archetypal time and to barbarian, Oriental origin; the Phrygian νόμος (‘mode’ or ‘tune’) was introduced in Greece by “the companions of Pelops; and the Greeks began to make the Lydian hymnos to resound (κρέκον / Λύδιον ὕμνον) with the κρέκον / Λύδιον ὕμνον) with the shrill-voiced plucking of the péktis”. While in PMG 806 the Lydian νόμος was composed through the act of weaving around (ἀμφιπλέκειν) the composite sound of the αὐλός, here Telestes chooses κρέκειν to convey the image of a song executed with the accompaniment of a harp-instrument. The Lydian ὕμνος (‘song’) which is made to resound in PMG 810 could be set against a sample of metaliterary metaphors that conceptualize the composition and the performance of a choral song in terms of weaving, plaiting and interlacing. As it has been aptly noted, craftsmanship imagery in Greek choral lyric, especially in the well-attested genre of victory ode (epinikion), often presents the analogical relationship between the poem/song and the artefact as qualified by “a word for ‘loud’ or ‘sounding’”.

56. Bacchylides plays on this (par)etymology in two well-known passages (5.9-10 ὑφάνας ὕμνον “weaving a hymnos”; at 19.8 ὑμνησιν ὑμνάω: we have juxtaposition but no syntactical relationship). A systematic survey of ὕμνος and ὑμνεῖν in archaic poetry and especially in Pindar is presented by Maslov 2015, 286-307, who discusses as well the prehistory of the term and convincingly proposes as its original meaning ‘cult choral song’. A comprehensive argument supporting the different view that hymnos is grounded in the semantics of fabric-making and, pointing to a pervasive conception of poetic performance as weaving, should always be taken as ‘fabric, weave’ in archaic poetry, is built by Gregory Nagy in a number of works of his: see e.g. Nagy 2002, 70-98.

57. See the systematic survey of the occurrences by Raimondi 2000, whose starting point is Theocritus A.P. 9.433.
song-making in Pindar are drawn from the semantic domains of weaving (ἱφαίνειν: fr. 179 S-M), plaiting (πλέκειν: Ol. 6.8.68-87), and interlacing (ἐἴρειν: Nem. 7.77): they are thus integral to, and should be set against, the communicative strategy of the poet, who may want to illustrate the chorus’ performance or dramatize the author’s process of composition, and often makes these two temporal levels interact within the structure of the poem.  

A distinctive characteristic of textile metaphors within the wider frame of craftsmanship imagery to which they belong is the capacity to appropriate cross-craft terms and integrate them into the imagery of weaving.

It is with regards to the τέχναι of metal-working, carpentry and especially weaving that the semantic range of the series (adjective-verb-noun) δαϊδάλεος/δαϊδάλλειν/δαϊδάλον and ποικίλος/ποικίλλειν/ποικίλμα partially converge in archaic and classical Greek literature: both formations point to an underlying model for the different techniques used to craft artefacts of different material (bronze, wood, fibre), and both reflect the perception of the beauty and complexity of elaborately wrought objects (in the case of the adjective ποικίλος, the concept of variegation entails as well the sensory dimensions of colour and sound). The particular weaving techniques that let the intricate, variegated and multicoloured quality of δαϊδάλεος and ποικίλος emerge in the shape of in-woven designs and patterns in fabrics have been identified with tapestry and pattern-weaving.  

Two samples of literary imagery featuring ποικιλ- or/and δαϊδάλ-terms bear special relevance for the purpose of this chapter: a) occurrences of the syntactical construct ποικίλλειν τι ἐν τινι, which in a textile-related context can be rendered as ‘to in-weave something (a pattern or pictorial motif) in/on something (the structure of a fabric)’, and b) the metaphorical use of δαϊδάλεος/δαϊδάλλειν and ποικίλος/ποικίλλειν in association with the poem/song as metapoetic markers: this seems to be a distinctive trait of choral lyric poetics, as the extant instances of the trope feature prominently in Pindar and may serve to advertise the composite nature of the choral performance (made of music, singing, dance, and their respective rhythmic, melodic and orchestic patterns) as well as the complexity and variety of the poem’s structure.

Among the extant instances of the phrasing ποικίλλειν τι ἐν τινι in archaic and classical literature, the only occurrence in prose is represented by the scene of cosmic weaving described by Pherecydes of Syros (6th century BC) in his cosmological work, the earliest depiction of earth as a work of craftsmanship: on the occasion of the wedding between Zas and Chthonie, the god “fashions a beautiful and large robe, and in-weaves into it Gē [the earth], Ogēnos [the see] and Ogēnos’ dwellings” (ποιεῖ φάρος μέγα τε καὶ καλὸν, καὶ ἐν αὐτῷ ποικίλλει Γῆν καὶ Ὠγηνὸν καὶ τὰ Ὠγενοῦ δόματα fr. 68 Schibli = D-K 7 B2). Pythian 9.76-79 is a typical statement of epinician poetics on the part of Pindar, who advertises the interlacement of different themes within the ode: “great achievements are...
always worthy of many words; but to in-weave ancillary themes into the structure of the main themes of the ode (βαίνει δ' ἐν μακροσία ποικίλλειν, v. 77) is something that (only) wise men can understand (ἀκοαὸς σοφοίς, lit. ‘that can be heard by sophoi’), for the kairos maintains the cohesion of the whole structure (ὁ δὲ καιρὸς ὁμοίως / παντὸς ἔχει κορυφάν)”.

It is significant that the image gains in coherence once it is set against its material background in textile technology: the poetic technique of inscribing minor themes within larger ones, making them surface in a way that only the sophoi in the audience can fully appreciate, is described in terms of pattern or tapestry-weaving. The picture acquires a further layer if, as Bernard Gallet suggests, the term καιρός ‘due measure, right time’ is traced back to its homograph καῦρος, the ‘chained spacing cord’ that keeps the warp-threads separated and in due order: Gallet sees a further connotation of the weaving term καῦρος in the starting-border of the weave, and applying this meaning to kairos at vv. 78-79 sees it in a description of the function of the starting band, which “holds the summit of the whole fabric by keeping the threads constantly in order”.

Two lyric passages in Euripides present the construct ποικίλλειν τι ἐν τινι associated with the craft of in-weaving (through pattern- or tapestry-weaving) episodes of the myth on fabrics or garments destined to cultic or ritual functions: the Chorus of Trojan captives in Hecuba 466-471 envisages the weaving of the Panathenaic peplos for Athena in terms of “pattern-weaving into Athena’s saffron-coloured peplos in weft threads intricately quilted with flowers (ἐν δαίδαλέαισι ποικίλλουσι / ἀνθοκρόκοισι πή / ναις) the joking of her lovely chariot mares, or the race of Titans”, with an interesting juxtaposition of δαιδαλ- and ποικίλ- terms in the same line. The motif of the sound of the loom in connection with the κερκίς surfaces in the parados of the Iphigenia among the Taurians, where Iphigenia laments that she is not allowed to sing in honour of Hera at Argos, nor is she able to “pattern-weave with the κερκίς on the fair-sounding looms (ἰστοῖς ἐν καλλιφθόγγοις / κερκίδι, vv. 222-223) the likeness of Athena Pallas and the Titans”.

The second sample of imagery marks Pindar’s appropriation of δαιδαλ- and ποικίλ- terminology as a vehicle of metapoetic metaphors, integrating or substituting υφαίνειν and πλέκειν, and adding a connotation of intricateness and variegation that may refer to the musical and rhythmical features of the song. The metaphorical use of the verb δαιδάλλω with the meaning ‘to ornament, to adorn with song’ is a Pindaric innovation: we find instances of this image both in epic verse (Ol. 1.105 “to ornament in famous folds of songs” κλυταίσι δαιδαλωσέμεν ὕμνοι πτυκαῖς, see also Nem. 11.17-18) and in a Theban daphnephorikon (fr. 94b.31-32 S-M δαιδαλλοῖς ἑπέσαν “adorning with verses”). The usage of ποικίλος/ποικίλλω is more regularly associated with weaving imagery: the adjective qualifies both the variegated and multi-coloured aspect of the woven object (fr. 179 S-M ὑφαίνειν δ’ ἀμθανόντας ποικίλον / ἀνδήμα “I am weaving a pattern-woven headband for the sons of Amythaon”) and the composite nature of the hymnos that is being performed (Ol. 6.86-87 “I shall drink [sc. the lovely water of Thebe], as I plait for spearmen a pattern-woven choral song” ἐρατεῖνον ὕδωρ / πώμαι, ἀνδράσιν αἰχματαῖσι πλέκων / ποικίλον ὑμον). 

While the metaphor of ‘weaving a hymn’ is widely attested in Vedic and Avestan poetry, instances of the ‘weaving a choral dance’-motif suggests that Greek literature appropriates the image of poetic weaving in a rather genre-specific way.
This brings us back to the *Politics* passage, with the mention of τά Δαιδάλου (“the artefacts of Daedalus”, 1253b36) and Hephaestus’ tripods from *Iliad* 18: a constellation of δαιδαλ- terms is used by Homer in that same book — a celebration of the art of the smith-god culminating in the ekphrasis of the Shield of Achilles, that Hephaestus “crafted cunningly in every part” (πάντοσε δαίδαλλων, 479) and on which he “made many δαίδαλα” (482). One of these wondrous creations is a scene of choral dancing (590-606) represented on one of the outer circles of the shield; indeed, the opening lines see the only appearance of Daedalus in Homer:

ἐν δὲ χορὸν ποικύλε περικυλτός ἀμφιγυήεις τῷ ίκελον, οἰον ποτ’ ἐν Κνωσῷ εὔρειτε δαίδαλος ἣς καλλιπλοκάμω Ἀριάνδην. ἔνθα μὲν ἠίθεοι καὶ παρθένοι ἀλφεσίβοια ὄργανον ἐπὶ καρπῷ χείρας ἔχοντες.

Hom. *II*. 590-594

On it furthermore the famed god of the two lame legs inlaid (ποικύλε) a dance (χόρον) like the one which once in wide Cnossus Daedalus fashioned for fair-tressed Ariadne.

There youths and maidens of the price of many oxen were dancing, holding their hands on one another’s wrists.

The passage offers a comparison between Hephaestus and Daedalus as fashioners of a χορός: in its Homeric usage the term can denote both a dancing floor and the actual dance of a choral formation; the choice between the two meanings seems to have troubled already ancient commentators to these lines, as shown by the interpretations provided by the scholia. While the locative adverb ἐνθα (‘there’) at v. 593 seems to suggest that χορός designates here the dancing floor, a scholium connects Daedalus’ χορός for Ariadne to the circular choral dance that Theseus ‘wove’ (ἐκπλεκτεῖν, lit. ‘plaited’) after his victorious exit from the labyrinth with the fourteen youths (seven young men and seven girls); the image of ‘weaving a chorus’ of dancers (the ensemble of youths) may as well have been generated here, as the scholiast suggests, by the fact that the choreography of the dance, created by Daedalus and transmitted to Theseus and the youths, was inspired by the “twists and turns of the labyrinth”. In the first line of the Homeric passage (590), χορός is

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66. See Morris 1992, 226: “*Iliad* 18 is the richest source of such expressions [sc. artefacts endowed with “legendary, divine, or exotic craftsmanship”] in their full range, convening Hephaistos, Daidalos, every variant of δαίδαλ- words, and the power of movement in art”. Occurrences of δαιδαλ- terms in *Iliad* 18: adjective δαιδαλεός, vv. 379, 390, 612; noun δαίδαλον (pl. δαίδαλα), vv. 400, 482; verb δαιδάλλειν, 479.

67. χορός indicates the choral ensemble later in the passage, at v. 603 (where a crowd of spectators take delight in the “lovely chorus” ιμερόεντα χορόν) and in the choral performance executed for Odysseus by Phaeacian dancers in *Od*. 8.264 (whereas at 8.260 χορός is the dancing floor). See Morris 1992, 12-15 for a thorough discussion of our passage and its significance for later traditions about Daedalus (“[R]eaders since antiquity have made him an architect, sculptor, or choreographer on the basis of this passage and its possible interpretations, beginning with the scholia”, p. 14); cf. Power 2011, 80-82 on Daedalus and chorality, and on this passage as “an impetus to the metaphoric elaboration of the choral singer-dancer as a ‘bionic’ statue of stone or metal” (82).

68. See Scholia A *ad* 18.590a (Erbse *IV* p. 564) τὸν τόπον χορόν εὑρίσκειν, οὗ τὸ σύστημα τῶν χορεύοντων “[Homer] calls χορός the place [of the dance], not the formation of dancers” and Scholia BT *ad* 18.590b (Erbse *IV* p. 564) χορόν: τὸν πρῶτος χορεύον τόπος “χορός: the place for choral dance”, adding that this is made explicit by the following ἐνθα ‘there’; Scholia T *ad* 18.590c (Erbse *IV* p. 564) introduces architectonical ποικίλα (‘variegation’), explaining that Hephaestus adorned the dancing floor with columns and statues in circle. See Morris 1992, 14 on ancient ‘architectural’ interpretations of Daedalus’ χορός, especially Pausanias 9.40.3 (a marble relief with dancers in Cnossos).

69. Schol. *AB* 18.590 (Bekker p. 514, II. 33-37) ἐξελθόν δὲ μετὰ τὸ νικῆσαι ὁ Θησεύς μετὰ τῶν ἠιθέων καὶ παρθένων χορὸν τοιοῦτον ἐξέλεκτιν ἐν κύκλῳ τοῖς θεοῖς, ὧν οἴον καὶ ἡ τοῦ λαβυρίνθου ἐπισθοῖς τε καὶ ἔξοδος αὐτοῦ ἔγερσιν. τῆς δὲ χορείας τὴν ἐμπειρίαν ὁ Δαίδαλος αὐτοῖς ὑποδείξας ἐποίησεν “When Theseus emerged after his victory [over the Minotaur] with the young men and the young girls, he wove such a χορός in a circular formation for the gods, just as his entrance and exit from the labyrinth had been. Daedalus devised the craft of the choreia and showed it to them” (transl. Power 2011, 82).

70. Muellner 1990, 91. In other sources this choreography is associated with the ‘crane dance’ (γέρανος), performed by Theseus and the youths in Delos: on the mythical episode, and Daedalus’ role in it as both choreographer and architect, see Frontisi-Ducroux 1975, 145-147; Power 2011, 80-82. Cf. the exhaustive discussion on the ritual prerogatives of Theseus as chorus-leader of circular dances in Calame 1997, 53-58.
direct object of the verb ποικίλλειν in what is our earliest instance of the construct ποικίλλειν τι ἐν τινι, often occurring in textile-related contexts to describe pattern-weaving or tapestry, as we have seen. The choice of the verb (ποικίλλε, 590, a hapax legomenon as well as Δαίδαλος at 592) in relation to a choral performance has been seen as pointing towards weaving imagery. However, the cross-craft nature of ποικίλ- terminology and its semantic focus on techniques rather than materials provide the verb with an entirely satisfactory meaning as ‘to inlay’ in our passage: the Homeric verse seems rather to offer an interesting instance of terminological convergence between τέχνη.

While the loss of the totality of the melodic patterns of ancient Greek music accompanying the performance of archaic lyric – a loss that should be paired with that of the choreography of dramatic and non-dramatic choruses – makes it difficult and tentative any discussion on the nature of the relationship between the craft of weaving and the τέχνη of musical and poetic composition and performance, certain patterns of convergence at the level of terminology seem to suggest a profound dynamics of exchange between the two arts. The usage of κρέκειν in 5th century BC lyric and drama, and its partial overlapping with instances of other technical terms of weaving applied to instrumental music, invite further considerations and a more systematic study of aspects of musical imagery and poetic technique (metrical and rhythmical patterns, stylistic and structural features) that can still be detected and analysed, and that may reveal precise correspondences between certain instrumental practices, musical modes and rhythmical patterns, and particular techniques of the craft of weaving. The generic appropriation by archaic Greek choral lyric of a repertoire of metapoetics of craftsmanship of Proto-Indo-European origin should be seen as a distinctive tract of poetics, and as the frame against which to explore the prominent role of weaving imagery in illustrating and conceptualizing song-making.

Abbreviations


TrGF Tragicorum Graecorum Fragmenta. vol. 1 Didascaliae Tragicae, Catalogi Tragicorum et Tragoediarum, Testimonia et Fragmenta Tragicorum Minorum (ed. B. Snell; Göttingen 19711, 19867); vol. 2 Fragmenta Aeschylia (eds R. Kannicht and B. Snell; 1981); vol. 3 Aeschylus (ed. S.L. Radt; 1977); vol. 4 Sophocles (ed. S.L. Radt; 19853, 19993); vol. 5 Euripides (ed. R. Kannicht; 2 parts; 2004).


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Xie, a Technical Term for Resist Dye in China: Analysis Based on the Burial Inventory from Tomb 26, Bijiatan, Huahai, Gansu

Le Wang and Feng Zhao

In May 2002, a burial site was found in Bijiatan, Huahai, in the Gansu province. During the following two months, the Gansu Institute of Archaeology excavated the graveyard and 55 tombs were excavated in total. A female corpse wrapped in several layers of silk garments was found in tomb 26 together with a burial inventory.1

The Burial Inventory from Tomb 26

A burial inventory is a list of buried items that would accompany the deceased to the afterlife. It was commonly found in the tombs in northwest China during the 4th to 7th centuries AD. The inventory of Tomb 26 is a rectangular pine wood tablet with characters written on both sides. On one side of the inventory are the names and numbers of the garments and other articles buried in the tomb; on the other side is the name of the tomb owner and the year in which she had died. According to the record, the tomb occupant was “the eldest daughter Gounv Sun” who lived in the Eastern Jin Dynasty and died in the year 377 AD.

Three columns and a total of 35 items are recorded in the inventory:

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Quantities</th>
</tr>
</thead>
<tbody>
<tr>
<td>As used by the owner, gan-gua [dark red coarse silk] (headscarf?)</td>
<td>1 piece</td>
</tr>
<tr>
<td>As used by the owner, chou-tou (headscarf?)</td>
<td>1 piece</td>
</tr>
<tr>
<td>As used by the owner, red chan-xiang (headscarf?)</td>
<td>1 piece</td>
</tr>
<tr>
<td>As used by the owner, hairpins made of copper alloy</td>
<td>3 pieces</td>
</tr>
<tr>
<td>As used by the owner, navy blue hood</td>
<td>1 piece</td>
</tr>
</tbody>
</table>

1. Zhao et al. 2008, 94.
2. According to the research by Dou Lei, gan-gua, chou-tou, and chan-xiang could all belong to headdresses, maybe headscarves. Dou 2013, 96.
As used by the owner, shawl (?) – 1 piece.
As used by the owner, face cover made of lian – 1 piece.
As used by the owner, silk floss – 1 jin.
As used by the owner, shirt made of lian – 1 piece.
As used by the owner, red gauze vest with embroidery – 1 piece.
As used by the owner, green jacket – 1 piece.
As used by the owner, purple jacket with embroidery – 1 piece.
As used by the owner, green trousers (with crotch) – 1 piece.
As used by the owner, red trousers (without crotch) with embroidery – 1 piece.
As used by the owner, hemp skirt – 1 piece.
As used by the owner, skirt in red and green – 1 piece.
As used by the owner, green socks – 2 pieces.
As used by the owner, tou-xi (uncertain) shoes – 1 pair.
As used by the owner, silver box for shoes – 1 piece.
As used by the owner, hemp [text missing] – 1 piece.
As used by the owner, navy blue quilt with a lining made of lian – 1 piece.
As used by the owner, bian-[text missing]-nang (uncertain) – 1 piece.
As used by the owner, lv-nang (uncertain) – 1 piece.
As used by the owner, hand towels made of lian – 4 pieces.
As used by the owner, hemp shirt – 1 piece.
As used by the owner, green bamboo mat – 1 piece.
As used by the owner, mirror cover/box (?) – 1 piece.
As used by the owner, silver mirror – 1 piece.
As used by the owner, hair cutting knife – 1 piece.
As used by the owner, iron – 1 piece.
As used by the owner, shu (combs?) – 2 pieces.
Gem formerly put into the mouth of the corpse (?) – 1 piece.

As used by the owner, colourful silks – 500 bolts.
For the ritual:
As used by the owner, ladle decorated with colourful silks – 1 piece.
Pine coffin – 1 piece.

Most of the items listed in the burial inventory are the clothing items and accessories used by the owner of the tomb and 25 of them are associated with textiles or costumes. The materials for the costume include silk and hemp. Lian, degummed plain weave silk, were used mostly. The smaller quantities are more likely to be descriptions of real items while larger quantities (500 bolts) probably represent desired amounts for use in the next world. The burial inventory is important for identifying the accurate date of the tomb, and for providing the names of garments to match with the excavated items.

The Silk Garments Found in Tomb 26

The clothes worn by the female corpse are not in good condition. Only the textiles on the upper part of the body were relatively well preserved, while those on the back were decayed. These garments were conserved by the China National Silk Museum. With the aid of the burial inventory, the silk fragments were grouped into eight garments, one quilt and one face cover.

According to the study by Feng Zhao, the eight garments are: a purple jacket with resist dyed pattern, red trousers (without crotch) with embroidery, a red gauze vest with embroidery, a green jacket, a skirt made of lian, green pants (with crotch), and navy blue hood. The weave structures of the fabrics include plain weave, gauze and weft-faced compound tabby. Other techniques used for the pattern are embroidery and resist dye. Most of them match the burial inventory very well except the purple jacket with resist dyed pattern.

This jacket was reconstructed from two fragments (fig. 1), which were the two front sides. It has an overlapping collar with right over left and has loose sleeves. The main fabric of the upper part of the jacket is purple tabby with resist dyed patterns and
Fig. 1. Purple jacket with resist dyed pattern. Gansu Institute of Archaeology

Fig. 2. Reconstruction of purple jacket with resist dyed pattern. Drawn by Wan Fang.
the lower part is white tabby. There is a piece of red triangular resist dyed tabby sewn between the collar and the panel and a strip of checked pattern silk sewn between the panel and the sleeve (fig. 2).

The design of this purple jacket is quite similar to the green jacket found in the same tomb. The green jacket also has overlapped collar with right over left and loose sleeves. The main fabric is green and white tabby. The collar was made of white tabby and purple resist dyed tabby. There is a piece of checked pattern silk sewn between the collar and the panel and a strip of red resist dyed silk sewn between the panel and the sleeve (fig. 3).

The pattern of these resist dyed silks are similar: small, white spots on purple/red background. The spots are about 1 cm ×1 cm in size with small irregular tiny dots in the centre. The four edges of the spots are 45 degrees from both the warp and the weft directions. About six spots are arranged in 10 cm in warp direction, and 4 spots in 10 cm in weft direction (fig. 4). The technique of this kind of resist dye is called xie in Chinese.

According to the burial inventory, there were only two jackets buried with the tomb owner: one purple jacket with embroidery and one green jacket. Looking through the archaeological findings, there are indeed two jackets: the purple jacket with resist dyed pattern and one green jacket. We can deduce that the purple jacket described as with embroidery and recorded in the burial inventory should be identified as the purple jacket with resist dyed pattern.

The Appearance of Resist Dye (xie) in China

The origin of dyed silk in China could date to West Jin dynasty (265-316 AD) in northwest China. Closest to Huahai in location, a piece of blue tabby with resist dyed patterns was found in tomb M1 which is date to 405 AD at Foyemiaowan in Dunhuang.4 Another deep red tabby with resist dyed patterns was

Xie, a Technical Term for Resist Dye in China

found in tomb 63TAM1 in Astana dating to 417 AD. In tomb 95BYYMC in Yingpan which dates from the 4th to 5th century AD, a red tabby with resist dyed pattern was excavated (fig. 5).

However, the Chinese character xie appeared much later, in about 5th to 6th century AD. Wei Shu [The Book of Wei] is an important text recording the history of the Northern Wei and Eastern Wei dynasties from 386 to 550 AD. In a proposal presented by Yuan Yong (470?-528 AD), the Prince Wenmu of Gaoyang, he suggested Empress Dowager Hu to forbid the servants wearing damasks and xie. Luoyang qie lan ji [The monasteries of Luoyang] is a report of all Buddhist monasteries in the Northern Wei dynasty (386-534 AD). It recorded the wealth of Yuan Chen, one of the richest men in the Northern Wei dynasty. In his warehouses there were countless jewels and textiles, including jin, gauzes, damasks, embroideries and xie etc.

From the records above we know that the character xie appeared in the Northern and Southern dynasties. This kind of silk was different from embroidery and was precious during that period.

In China the original meaning of xie was tie dyeing. Before dyeing, a series of knots are made in the textile by stitching or binding, so when it is dyed, the dye will not penetrate the knotted area. The textile then gets a resist dyed pattern. The resist dyed silk for the purple jacket found in Tomb 26 at Huahai and other silks dated from the 3rd to 5th centuries found in northwest China were all made by the technique of tie dye.

The reason, therefore, for using the term “xiu [embroidery]” for “xie [tie dyeing]” in the burial inventory of Tomb 26 might be the following: firstly, tie dyeing was still a new technology and a new type of decoration at that time and the patterns made by tie dyeing look like those made by embroidery; secondly, the Chinese character for tie dyeing appeared later than the technique itself, so people first used xiu as a term which also covered the meaning of xie.

The Types of Resist Dye in China

Though the original meaning of xie is tie dye, it gradually became a general term for resist dye in ancient China, including: tie dye, clamp resist dye, wax resist dye and ash resist dye.
**Tie Dye**

Tied with knots first and then dyed, the textile gets a resist dyed effect. This method appeared in the 3rd to 4th century AD, became prevalent in the 7th to 9th centuries and is still used today. The methods of tie dye typically include stitching, binding and knotting. Stitching is the most widely used method in ancient China: sewing stitches into a pattern and then bunching the fabric along the seams before dyeing. Net, floret and coin patterns were commonly seen on the tie dyed silks found in Turfan, Xinjiang.

Fig. 5. Red tabby with resist dyed pattern found in Yingpan. Xinjiang Institute of Archaeology
A tie dyed silk with net pattern was found in Astana Turfan. It was dated to about 683 AD. There are obvious folds and needle holes on the silk (fig. 6). The tying process was: folding white tabby first; then sewing long stitches into a zigzag pattern; in the end, tightly gathering the stitching (fig. 7). When the tabby was dyed, the brown dye could not penetrate the stitched area, resulting in a white net pattern on brown background.

The binding method is very simple: wrapping the fabric and then binding it tightly with threads (fig. 8). The areas of the fabric that are under the binding

will remain undyed when dipping in the dye. Compared to the stitching method, the binding method usually results in a limited range of patterns, usually small dots. If the binding areas are small enough, the pattern will result in tiny square spots. The purple jacket found in Tomb 26 was made by applying the binding method. The tie dye in China probably derived from this method.

The knotting method is the simplest one among all the tie dye methods. No needle or thread is required when applying the knotting method. It is just to knot the textile, and the knotting area will remain undyed and commonly results in a striped pattern. The damask with grape motif found in the Dulan Qinghai province was an example dyed by the knotting method. It was dyed into alternating stripes of green and white (fig. 10).

**Clamp Resist Dye**

By using two symmetrically carved concave blocks to clamp the folded textiles and dye, the pattern of the convex part is obtained. It is said that the sister of Liu Jieyu during the reign of Emperor Xuanzong in the Tang dynasty invented this method. A piece with a floral pattern created by using carved blocks was presented to the Empress Wang, whereupon Xuanzong ordered more pieces to be made within the palace. The technique was kept secret at first, but gradually spread until clamp resist dyed textiles became commonplace.

The written records give us a preliminary understanding of clamp resist dye. First, it was invented in the middle of the Kaiyuan period (713-741) but before 724; second, clamp resist dye is a technique involving the use of two symmetrically carved blocks, which are placed on either side of the textile, clamped together, and placed in a dyeing vat; third, the earliest pattern attested by clamp resist dye was a floral pattern.

Actually most of the clamp resist dyed textiles from Dunhuang and Turfan have floral motifs. Clamp resist dyed textiles with animal motifs appeared later, mainly in the mid-late Tang and Five Dynasties (9th-10th century AD).

By using blocks with areas specially designed for different colours of dye, clamp resist dyed textiles could be dyed with more than one colour. Clamp resist dyed textiles of the Tang dynasty were usually dyed in blue and orange (sometimes in reddish brown, which would originally have been red, but later faded). However, clamp resist dyed textiles could also be in more than two colours. Most examples from Dunhuang were dyed in blue and red, then yellow was added by brush to some blue areas to create green, and to some red areas to form orange, such as the plain woven silk with clamp resist dyed confronting geese in a roundel (fig. 11). In this way, textiles that were clamp resist dyed with two wooden blocks in two colours could achieve four colours.
Fig. 10. Damask with grape motif dyed in stripes. Qinghai Institute of Archaeology
Clamp resist dye was very popular in the Tang and Song dynasties and still applied for the Tanka cover in Ming and Qing dynasties.

**Wax Resist Dye**

When painting with melted wax on the textile first and dyeing then, the dye will not penetrate the wax.
Painted areas. Wax resist dye did not originate in China. The earliest wax dye textile found in China is a piece of wax dyed cotton excavated from an Eastern Han dynasty (25-220 AD) tomb in Niya. The images on the fabric are all Hellenistic: the woman holding a cornucopia in the left bottom corner is the Greek goddess Tyche; the image on the top right might be Hercules wrestling the Nemean lion. This wax dyed fabric is probably not a Chinese production and possibly comes from India.

The technique of wax resist dye was probably introduced into northwest China along the Silk Road between the 3rd and 5th centuries. The wax resist dyed pattern on silk began from dots. Several single dots were arranged to form a more complicate pattern, such as floret or lozenge (fig. 12). Wax resist dye became popular in the Tang dynasty. After that, this method became very limited to the minority area of southwestern China.

**Ash Resist Dye**

As wax was limited in China, people turned to use ash or other alkaline materials as the resist agent instead of wax. This will achieve a similar result to wax resist dyeing. The alkaline paste adopted in the Tang dynasty was mainly plant ash or alkaline lime. According to Wu Min’s research most of the paste resist dyed silks found in Turfan are ash resist dyed. Sometimes ash resisted dye was combined with clamp resist dye technique. Applying the paste made of an alkaline substance on the convex parts of blocks and then clamping the textile, a paste pattern was created. The areas of the fabric that are coated by the paste will remain undyed when dipping in the dye. Such technique was commonly applied to the ash resist dyed silk in northwest China in the Tang dynasty (fig. 13).

Since then ash resist dye was adapted to cotton cloth and became the popular blue-and-white printed clothes known in modern times.

**Conclusion**

Our study of the textiles and burial inventory found in tomb 26 Huahai, Gansu province, confirmed that the textiles match the textual records in the burial inventory well. The purple jacket with *xiu* [embroidery] recorded in the burial inventory should be the purple jacket with *xie* [resist dyeing]. The reason might be: firstly, tie dyeing was still a new way of decoration in the late 4th century and the patterns made by tie dyeing look like those made by embroidery; secondly, the Chinese character for tie dyeing appeared later than the technique itself, so people used *xiu* as a loan word for *xie* before *xie* appeared.

The original meaning of *xie* was tie dyeing. It gradually became a general term for resist dye in ancient China, including: tie dye, clamp resist dye, wax resist dye and ash resist dye. Tie dye appeared in the 3rd to 4th centuries, became prevalent in the 7th to 9th centuries and is still used today. Clamp resist dye was invented in the early 8th century. At first floral motifs were prevalent. Animal motifs appeared later, mainly in the 9th to 10th centuries. The technique of wax resist dye was probably introduced into northwest

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17. Xinjiang Uyghur Autonomous Region Museum *et al.* 1973, pl. 49.
China along the Silk Road in the 3rd to 5th centuries, and became popular in the Tang dynasty. After that, this technique became very limited to the minority area of southwestern China. As wax was limited in China, people turned to use ash or another alkaline material as the resist agent instead of wax. After the Tang dynasty, ash resist dye was adapted to cotton cloth and became the popular blue-and-white printed clothes.

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Fig. 13. Ash resist dyed silk with a pattern of confronting ducks and flowers (c. 721 AD) found in Tuffan. Xinjiang Uyghur Autonomous Region Museum


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The Textile Terminology in Ancient Japan

Mari Omura and Naoko Kizawa

This paper investigates key Japanese words related to textiles and their production in ancient Japan that is during the 1st millennium AD. At this time the language known as ‘Old Japanese’ evolved and eventually systems for writing it down emerged, based on borrowing the Chinese characters. Textiles used for clothing, coverings, tax items, and ritual objects played an integral role in the society, and thus terms related to textiles provide insight into the life style, politics, religion and economy of Japan as it emerged from a tribal-based localized society into a centralized nation state. The linguistic study also points to cultural pathways along which inventions, materials, and processes passed, tying the island country to the distant areas on the neighboring continent.

Words, their meanings, and their written forms change over time, making it difficult to pinpoint clear definitions. We have therefore approached the subject from several directions in hopes that superimposing the information from each will help clarify the picture. The core of the essay presents terms in the textile section of the earliest Japanese dictionary. It supplements these with examples of the use of the words in ancient Japanese literary resources and with iconography. The second half turns to actual tools excavated at sites ranging from the 1st millennium BC through the 1st millennium AD.

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The earliest use of Chinese characters in Japan appears as inlaid inscriptions found on some excavated iron swords and cast bronze mirrors dating to around the 5th century AD. Until then the Japanese had no writing system, though China already had a well-developed one and a nationwide political system. Inscriptions found on wooden tablets and Buddhist sculptures show that in Japan a systematic writing system started about the early 7th century AD at the same time as a nationwide administrative system has emerged. It is believed that the innovative Japanese use of Chinese characters merely for their sound, known as Man’yōgana, in order to express elements of their grammar not found in Chinese, such as particles, started about the late 7th century.

The terms concerning textile materials and production first appeared in the Chronicles of Japan such as Kojiki (edited in AD 712) and Nihon Shoki (edited in AD 720). These texts trace the genealogy of the imperial family from historical figures back to mythological times. In the former text, for example, the fiber of wisteria (fuji in Japanese) is mentioned as a material for weaving, and the Japanese madder (akane in Japanese) as a dye material. In the latter, textile terms are reflected in the names of families or clans attached to the Court or government during the Asuka period (6th-7th centuries AD), such as Nishiki-goribe <nishiki+ori+be (“compound-weave weavers clan”), Kinunuike <kinu+nui+be (“garment tailoring clan”), etc.

Sources

About the end of the 1st millennium AD in the 930s, one of the earliest dictionaries called the Wamyō Ruijushō or Wamyōshō was edited by a poet and man of letters, Minamoto no Shitagō, at the request of the Emperor Daigo’s (885-930) daughter, Princess Kinshī. It includes vocabulary for textile technologies, fabrics and clothing. In addition, the Engishiki (Codes of the Engi Era), written between 907-927 (the Engi era: 901-923) details regulations of dress, including their production during the Heian period.

It is significant that most of the textile terms found in these Heian-period sources were already in use around the 7th to 8th centuries (the Asuka and Nara period), as evidenced by the Man’yōshū, a compilation of older and newer poems edited in 759. This continuity of textile terminology corresponds to the continuous use of similar tools and materials for the textile production during ancient times.

Some of the terms are also found in the documents edited in the Shōsōin-monjo (Documents from the Shōsōin Repository) dating mostly to the first six decades of the 8th century. Many of these documents concerned the office managing the copying of sutras. The paper for this national project was frequently dyed, and the materials used for dyes, often also used for medicines, can be found mentioned in it.

Because some of the tools, such as spindle whorls and beaters (probably for back strap looms), were used long before the development of the Old Japanese language, it is important to go further back in time and look at related archaeological remains throughout Japan. The earliest fabrics are of twining excavated from the Neolithic (Jōmon) sites. These are thought to have been made with weights and bars. Woven textiles have been found from the late Neolithic (Jōmon period) and the early Bronze/Iron Age (Yayoi period).

The mention of textile production at the end of the Yayoi period appears in Chinese documents on Japan, but exactly when bast fiber weaving and sericulture began in Japan is still open to debate, particularly since carbon 14 dating suggests pushing the beginnings of the Yayoi period back to around 800 BC. It is at the sites (e.g. Sasai site, Fukuoka Prefecture) dated to this period where the earliest wooden textile tools (presumably for weaving circular warped cloth) were excavated.

<table>
<thead>
<tr>
<th>Period</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paleolithic</td>
<td>200,000(?)-11,000 BC (*13,000 BC by AMS)</td>
</tr>
<tr>
<td>Jōmon (Neolithic)</td>
<td>10,500-400 BC (*800 BC by AMS)</td>
</tr>
<tr>
<td>Yayoi (Bronze and Iron Ages)</td>
<td>400 BC (*800 BC by AMS)-about AD 250</td>
</tr>
<tr>
<td>Early, 200,000(?)-30,000 BC</td>
<td>Incipient, 10,500-8000 BC</td>
</tr>
<tr>
<td>Late, 30,000-11,000(or 13,000) BC</td>
<td>Initial, 8000-5000 BC</td>
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<td></td>
<td>Early, 5000-2500 BC</td>
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<td>Middle, 2500-1500 BC</td>
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<td></td>
<td>Late, 1500-1000 BC</td>
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<tr>
<td></td>
<td>Final, 1000-400 (or 800) BC</td>
</tr>
<tr>
<td>Kofun</td>
<td>About AD 250-600</td>
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<tr>
<td>Asuka</td>
<td>AD 6th century-710</td>
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<tr>
<td>Nara</td>
<td>AD 710-794</td>
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<tr>
<td>Heian</td>
<td>AD 794-1185</td>
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<tr>
<td>Kamakura</td>
<td>AD 1185-1333</td>
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<tr>
<td>Muromachi</td>
<td>AD 1333-1573</td>
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<tr>
<td>Momoyama</td>
<td>AD 1573-1603</td>
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<tr>
<td>Edo</td>
<td>AD 1603-1868</td>
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<td>Meiji</td>
<td>AD 1868-1912</td>
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<tr>
<td>Taishō</td>
<td>AD 1912-1926</td>
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<tr>
<td>Shōwa</td>
<td>AD 1926-1989</td>
</tr>
<tr>
<td>Heisei</td>
<td>since AD 1989</td>
</tr>
</tbody>
</table>

(cf. *Ancient Japan* by the Arthur M. Sackler gallery, Smithsonian Institution and the Agency for Cultural Affairs.1992)

Map 1. Map of the sites.
Senchū Wamyō Ruijūshō (Dictionary of Japanese words with notes)

The Wamyō Ruijūshō dictionary of Japanese is based on one style of Chinese dictionaries, like the Erya (the 3rd century BC), and covers vocabulary for various fields, including textiles, noting the source, the meaning, the annotation, the Chinese-derived pronunciation and the Japanese reading, using the Man’yōgana. This kind of dictionary was required by an increasing number of educated readers, including women like Princess Kinshi, who wished to read and understand texts written in Chinese, including records and tales. Most of the official documents and academic pieces were written in Chinese. Although the original manuscript of the Wamyō Ruijūshō was lost, it was copied and exists today in variant texts (printed and manuscript versions). What follows is based on the Senchū Wamyō Ruijūshō revised by the Japanese scholar Ekisai Kariya, in 1827 during the Edo period. He compared several versions of the texts in great detail providing a clear overview of the material.

Man’yōshū

The anthology Man’yōshū (ten thousand leaves collection) was edited by Ōtomo no Yakamochi (about AD 718-785), a famous poet during the Nara period. In the Man’yōshū, over 4500 pieces of waka, traditional Japanese poems, are collected. They include poems by people of all ranks, composed during 400 years before AD 759. The poems contain many native Japanese words, called wa-go, and show little Chinese language influence. The original texts are lost, but the earliest poems seem to have been written down using Chinese characters purely as phonetic symbols known as the Man’yōgana.

We will introduce how these words were used to represent the scenes in the poems. It is difficult for modern readers to understand the poems in their original orthography. They were written down using Chinese characters both for meaning and at other times for phonetic value and several different characters could express the same sound.

Terms Appearing in Senchū Wamyō Ruijūshō

Here we have kept the category and the word order as it appears in the Senchū Wamyō Ruijūshō. According to the classification, the terms for cloth and clothing (costume) are categorized independently under the main heading (bu, literally section or part). The terms for tools for cutting (tatsu or kiru: to cut) and sewing (nufu: to sew), dyeing (somu: to dye<shimu: to soak into, in modern times it is written someru and shimiru), weaving (oru: to weave), sericulture (kogahi), interior etc. correspond to subheadings (rui, literally kind or sort), which are included under the main headings for the ‘furnishing’. This paper focuses on the terms related to cloth and tools for textile production.

Although the headings are originally Chinese terms written in Chinese character, here they are replaced with the Japanese style reading corresponding to those found in the text. Their sounds shown here are based on the old use of kana, the Japanese syllabary at that time. Because the modern use of kana appeared in instructions given in 1946, until then the old use of kana, which started at early Heian period, had continued almost uninterrupted with few changes. It is said that in many cases the sound would have shown the characteristic of those pronunciations from the South Chinese dialect called Wuyin. If there are multiple Japanese readings, they are written down together. The problem is that some of the terms have not been given native Japanese words in the dictionary, which are to be replaced as headings here. Ōtsuki mentioned that it was because some terms would have been read using the Chinese terms’ sound and the rest would have no source to refer to in the author’s materials even if they had Japanese style readings. Others
which show Japanese readings surely have the reference noted. In the latter case the Japanese readings are covered by those from other parts of this dictionary or archaic word dictionaries. The former is placed in single bracket ( ), and the latter is placed in double bracket (()).

Since both Chinese and Japanese style readings have changed, these terms do not always correspond to modern ones. In addition, there are often multiple Chinese style readings for one Chinese character, depending on the region and period.

Illustrations are taken from an Edo-period publication of the Wakan Sansai Zue, originally edited in 1712 by Ryōan Terajima, and from the Kishoku Ihen, a manual for textile technology during the Edo period edited in 1830 by Masunari Ōzeki, one of the feudal lords.

The terms for silk and the bast fiber processing found in these books follow a traditional style that is consistent from ancient times through the end of the Edo period (middle of the 19th century) when Japan opened the country to foreign trade and diplomatic relations.

**Cloth**

In the following, the Chinese-style reading reconstructed of the Early Middle Chinese, from the Sui to Tang dynasties or earlier of a character will be preceded by a ‘Ch’ for China, and the Japanese style by a ‘Jp’ for Japan. When needed, modern Japanese reading will be added for references preceded by a ‘MJp’.

The terms for the cloth, bast fiber cloth, silk cloth, consist of two parts. These include bast fiber cloth (Ch: pɔh, Jp: nuno) and silk cloth or fabric: (Ch: baijk/βaijk, Jp: haku-no-kinu) and others. They are divided into patterned silk fabrics such as compound weaves and patterned in weft and warp faced twill, on the one hand, and plain weave and other materials on the other.

**Terms for nishiki (compound patterned weave) and aya (patterned in weft and warp faced twills)**

**Nishiki**: a general term for multicolored patterned weaves of various structures. At the time the dictionary was written, it probably referred to samite, a weft-patterned twill compound weave. In the Asuka- Early Nara period, nishiki referred to warp-faced compound weaves, introduced already in the 5th century, and weft-faced compound weaves, some with a plain weave ground but many with a twill ground, introduced in the 8th century. The dictionary specifies several types of nishiki: ungen nishiki, a samite with gradated stripes including small patterns, koma nishiki, compound weave with Korean (Koguryo) patterns, ryōmen nishiki, two-sided multicolored pattern weave, possibly a double weave. Because nishiki textiles were valued as highly as gold, the Chinese character for nishiki 錦 combines gold 全 as a radical on the left with silk fabric 布 on the right.

**Ori-mono/ kamuhata**: 紹 (Ch: kʰjĭē'/kʰjì) woven cloth with a woven pattern in more than one color, ori<oru: to weave, mono: thing

**(Tokachi)**: Fabric made from spun hare or rabbit hair. Headdresses (caps or hats) were made with this fabric. Rabbit is called Jp: usagi (Ch: t’o).

**(Kaukechi)**: clamp-resist dye, Jp: itajime. Because the original heading is nowadays read kyōkechi, clamp-resist dye, this term seems to be confused with kōkechi, tie-dye, Jp: yu-hata, yufu: to tie or to knot, hata: fabric. Even though E. Kariya mentioned that later it was (and still is) called Jp: itajime. Ita: board(s), jime<shimu: to tighten. (MJp: shimeru).

**(Numu-mono)**: embroidery, nufu: to sew (MJp: nū), mono: thing or material. In the chronicles it is read nuhimono.

**Aya**: 纜 twill (often patterned in weft and warp faced...
twill). *Man’yōshū* poem no. 3791 mentions a violet dress made of silk twill. (Ch:liŋ).

(Ra) / ((Semi-no-ha)): (Ch: la) Leno or gauze i.e. crossed warp weave called also *usu-mono* or *usu-hata*, in the Chronicles. *Usu*(*<usushi)*: thin or transparent, *mono*: thing, *hata*: fabric. *Man’yōshū* poem no. 3791 mentions gauzy cloth. *Semi-no-ha* means wings of the cicadas.

*Kome/kome-no-kinu*: a type of patterned gauze-silk, E. Kariya suggests the reading: *kome<kagome* (woven pattern of the basketry, *kago*) and *kinu* (silk fabric) and suggests that the surface of this fabric looks like the spreading rice grains.

**Katori**: closely woven silk cloth with fine raw silk threads.

**Terms for kenpu (kinu and nuno): (silk and bast fiber cloths)**

**KINU**: 絹 (Ch: kjwian) silk fabric. It seems that there exists a phonetic resemblance between these terms.

*Neri-kinu(<kinu)*: degummed silk fabric

**Ashi-kinu(<kinu)**: coarse silk fabric

**Haku-no-kinu**: fine (or thin) silk fabrics, thin plain weave

(Sha): gauze weave made of fine (raw) silk threads (Ch: ʂai/ʂɛː)

**Nuno**: 布 (karamushi) bast fiber fabrics using the fiber of *asa* hemp, *karamushi* false nettle, or *ku(d)zu* (*Pueraria* lobata, Japanese arrowroot), etc.

**Tezukuri-no-nuno**: hand woven bast fiber cloth. *Man’yōshū* poem no. 3373 mentions the process of bleaching the *tedzukuri-no-nuno* in the Tama River (near present day Tokyo).

**Asa (karamushi)-nuno**: cloth made of false nettle, ramie, *Boehmeria* Jacq., such as *Boehmeria nivea*.

**Tsuki-no-nuno**: cloth for taxation. One of the taxes in kind, *tsuki*. Cloth is also accepted in order to replace a labor tax, or corvée called *yō*.

**Sayomi-no-nuno**: cloth made of threads taken from the inner bark of the Japanese linden tree, *Shina-noki*. *Tilia Japonica Simk* (or lime tree, bass-wood)

**Tani**: cloth made for sale or trade, not for tribute.

**Wata**: silk floss

**Tools and materials for textile production**

### Cutting and Sewing

In ancient times in Japan, no vocabulary existed related to wool and cotton manufacture, though mention was made of cloth made from the hair of *usagi* (hare or rabbit). Yet, beautiful woolen felt carpets from the Nara period were stored in the *Shōsōin* Treasure House, possibly imported as gifts to persons of high rank. The words ‘*hitsuji*’ (sheep),18 ‘kamo’ (felt carpet) and ‘ori-kamo’ (woven carpet) are found under the headings of ‘animals’ and of ‘rugs/mats’. It is significant that even the Chinese might have borrowed their word for sheep from some form of Iranian or Tocharian language.19 The terms for tools related to cutting and sewing follow below.

**Kara-usu**: a (Chinese style) mortar for pounding cloth (in this case). The same style mortars were also used for polishing rice by stepping on a board attached to the mallet. *Kara* means “Chinese or foreign style”.

**KINU-ITA**: a stone block on which clothes are beating to soften them. (MJP: kinuta)

**TSUCHI**: wooden mallet to beat (*utsu*) the clothes.

**KATA-KE**: woodblock carved with a pattern for dye-printing.

**MO-NO-TACHIKATANA**: a knife for cutting clothes.

**Takahakari**: bamboo ruler (*taka*: bamboo, we now call it *take*), *bakari* is from *hakaru* (vb.), to measure.

**HARI**: needle (it is also used for medical treatment, such as acupuncture and moxibustion)
**Materials for dyeing**

The terms for dyestuffs come next. They are mainly names of plants. We have added their Latin names after the Japanese terms for general identification. The dyes were used not only on fabrics, but also to dye papers for sutra-copying. Dye materials were important tribute items and are mentioned in the *Engishiki*. Previous studies about the historical use of dyestuffs proved helpful to our study.20

Color played an important role as an indicator of rank in the Japanese government of ancient times. The concept of wearing garments distinguished by rank-regulated colors was adopted along with other aspects of the Sui and Tang dynasty Chinese administrative system, which was formulated in Japan as legal code known as *ritsuryō*. This included stipulations about textile production, taxation (including threads, fabrics, and dyes) and designation of court ranks. In 603, Prince Shōtoku (AD 574-622) established the “Kan-i (crown rank) jūni-kai (12 levels)”, a system whereby court ranks were distinguished by the color of the headgear.21 Lighter and darker shades of six colors were used to indicate 12 ranks in the court. The order of colors as set by Prince Shōtoku from the highest rank down was as follows, though this order changed over time: Murasaki (purple or violet)/ Awo (blue)/ Aka (red)/ Ki (yellow)/ Shiro (white)/ Kuro (black).

These and other colors were dyed with the following plants.

(Suhau): **LEGUMINOSAE** *Caesalpinia sappan*, L. (sappan wood). Nowadays it is written *suō*.

**Hari-tsutsu**: cylindrical needle case.

**Oyobinuki**: ring-shaped (metallic) thimble. Nowadays we call it *yubinuki*, *yubi* means finger(s) and *oyobi* is its old form. *Nuki* comes from *nuku* which means through something.

**Noshi**: a kind of iron (or presser), a dipper-shaped metallic tool with a charcoal fire to make clothes and fabric smooth.


**Kihada**: **RUTACEAE** *Phellodendron amurense* Rupr. (Amur Cork). Used as dyestuff for sutra scroll papers and binding ribbons. Dyes yellow.

**Kuchinashi**: **RUBIACEAE** *Gardenia jasminoides* Ellis. (Gardenia) Dyes a warm yellow.


**Akane**: **RUBIACEAE** *Rubia akane* Nakai. (Japanese madder). Dyes red. According to the *Engishiki*, *akane* was included among the agricultural tributes through the Heian period, but the ancient dye methods were lost by the Edo period or earlier. Recently, Akiko Miyazaki tried to reconstruct the technique using the material and tools found in the *Engishiki*.22 She discovered that both brown rice (*genmai*) and polished rice (*hakumai*, literally white rice) would have been fermented to extract the red (*aka*) colorant from the plant root at that time. The Japanese name of this plant *aka-ne* (red root) comes from the red color of the plant roots. In the *Man'yōshū*, *akane* is used to express the brightness of evening and the light of day in poems nos. 20. 169 and 916. (cf. *aka-shi* (adj.) means bright, light). (MJp: *akarui*).

**Murasaki**: **BORAGINACEAE** *Lithospermum officinale* L. subsp. erythrorhizon (Sieb. et Zucc.) Hand.-Mzt. (Gromwell). Dyes purple.

Textiles and threads were mordanted with the camellia ash, which is known to contain aluminum, and then dyed with *murasaki* root. According to the *Engishiki*, *murasaki* was an agricultural tribute during the Heian period. The purple

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dyed with *murasaki* was restricted to the people of the highest rank in the Court.

In the *Man’yōshū*, *murasaki* appears as a plant that grew in a field guarded for the Imperial Court (no. 20), also as a color of threads (no. 1340), of clothing (no. 3791), and as a dye for clothing (nos. 395 and 3101). In poem 3101, the use of ash as a mordant is mentioned. Other poems including the term *murasaki* are as follows: Nos. 21, 395, 1825, 2974, 2976, 2993, 3099 and 3500.

**Kure-no-awi:** (MJp: *kurenai*) ASTERACEAE *Carthamus tinctorius*; safflower, (originally introduced from West Asia). Dyes pink to red (also yellow). Jp: *kure* refers to the name of the Chinese kingdom *Wu* (AD 222-280). The flower petals are used to dye red though in other countries they dye yellow. Recent analysis using fluorescence spectrometry on *Shōsōin* items revealed that safflower red was used to dye a carpet, an undergarment, a gown with tie-dye design, and a pair of shoes. In the *Man’yōshū*, *kurenai* is often mentioned as a color that fades easily. The term is found in following poems: Nos. 1044, 1297, 1313, 1742, 2623, 2624, 2655, 2827, 2828, 3877, 3969, 4109 and 4157.

**Awi:** (MJp: *ai*) Two plants names are mentioned here as the contents of the other book of pharmacy or pharmacology *Honzo Wamyō Ruijūshō* written in the Heian period (about 918) by Fukane Sukehito. One is *tsubaki-awi*, The original Chinese term means ‘wood indigo’ (*ki-awi*). Although we do not know exactly which plant corresponds to it, there are two possibilities; one is *ryūkyū-ai*, ACANTHACEAE *Strobilanthes flaccidifolius*, Nees. The other is *indo-ai*, FABACEAE *Indigofera tinctoria*, L. The other is *tade-awi*: POLYGONACEAE *Polygonum tinctorium* Lour. (Originally imported from China for cultivation in Japan). Dyes blue. Lake colour called *awishiru* (sap of *awi*) taken from *kiawi* was mentioned as well.

Note that the *Yama-awi*; EUPHORBIAEAE *Mercurialis leiocarpa*, Sieb.et Zucc., was native to Japan, but is missing from the *Wamyō Ruijūshō*, though it is found in the *Engishiki*. The *Man’yōshū* mentions it as applied by rubbing it into cloth to print blue color (No. 1742). The usage of the *Yama-ai* has already been forgotten in modern days though it had been used to decorate the imperial garment for the coronation ceremony, which is called ‘omi-goromo’. Kiichi Tsujimura studied the materials and reconstructed the dyeing method. He discovered a place where this plant grew naturally and investigated how it can be successfully printed. *Yama-awi* is named after the color of *awi* indigo, though it does not contain indigotin.

**Kaina:** Miscanthus tinctorius. Dyes yellow. (MJp: *kariyasu*)

It was used to dye sutra papers according to the *Shōsōin* documents.

**Tsukikusa:** Commelina communis L.; (Dayflower). Dyes an impermanent blue.

The water-soluble colorant in the dayflower is squeezed from the flower and used to print cloth by rubbing, though the color fades easily (*utsurofu*, MJp: *utsurou*). In the *Man’yōshū* the impermanence of the color appears in poems: nos. 583. 1255. 1339 and 1351.

**Aka-hiyu:** AMARANTACEAE *Amaranthus mangostanus* L.

**Akaza-no-hahi:** ash (MJp: *hai*) from the plant called *akaza*; CHENOPODIACEAE *Chenopodium album* var. *centrorubrum*. Used for degumming. According to the *Engishiki*, *wara-bai* (straw ashes) were prepared to degum the silk threads.

**((Hisakaki-no-hahi)):** ash of the *hisakaki* tree and leaves, THEACEAE *Eurya japonica* Thunb. It is suggested that it would be a kind of *tsubaki-no-hahi*, ash taken from camellia. Used as a mordant. Aluminum is richly contained in its ash. The *Man’yōshū* poem no. 3101 indicates that *murasaki* dyestuff requires ash (presumably taken from *tsubaki*) for mordanting.

**Aku:** lye. Water poured through ashes leaches the alkaline and mineral content and produces lye, used
as an alkaline used for degumming or as a mordant depending on the mineral content.

**Weaving tools and materials**

The Senchū Wamyō Ruijūshō lists weaving tools next. To illustrate this section, we have used pictures of ancient excavated textile tools, of ritual tools from shrines, such as the Munakata Taisha Shinto shrine and later drawings taken from an Edo-period encyclopedia edited in 1712, the Wakan Sansai Zue and from an early 19th-century textile production manual, the Kishoku Ihen. Although these drawings are more recent than the period under discussion, archaeological evidence and early paintings suggest the general form of many of the weaving tools did not alter significantly until recently.

**((Hata)): loom, see Fig. 1**

Taka-hata: (treadle loom, literally ‘high-loom’) was used for weaving silk fabrics. E. Kariya presumes that this included patterned weaves like compound

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26. Munakata Taisha Hukkōkisei-kai (ed.) 1979, Pl. 93
27. Terajima, 1824 (info:ndjp/pid/2569720 [24])
28. Ōzeki, 1830.
29. He was inspired by the opinion of Kotosuga Tanikawa, an 18th-century scholar, who argued that the character for woven patterning 绘 (e) can also be read as 布 indicating the patterns are woven on a loom 機 that has some mechanism to produce patterns.

The exact form, however, of the takahata or takabata loom used in ancient times remains unknown. Old texts supply several hints. For instance, a record from the 8th century concerning the origin of the Dai’anji Temple30 in Nara, lists takahata among cloths for men’s garments, noting it is red, but giving no explanation of its weave structure or pattern.

References to looms in the Man’yōshū use the term tana-bata (literally ‘shelf-loom’). Man’yōshū poems nos. 2027 and 2040 refer to women weavers as tana-bata tsu-me (shelf-loom-weaving girl). No.2062 describes the maneki (foot pedals, literally fumu: to tread or step on with the feet + ki: wood), of her loom being set up by the riverside, which would enable her lover to cross a river, the Galaxy, using them as a bridge, a reference to a local myth.31 Whether the tana-bata was a type of taka-bata needs further research.

The Chinese character for a loom 機 布 is composed of a radical indicating the material the loom is made of: ‘wood’ 木 and the construction

29. Kyoto University 1999 (E. Kariya, Senchū Wamyō Ruijūshō), 310.
31. Perhaps by association with “weaving girls”, the Japanese came to call their seasonal rites on the seventh day of the seventh month Tanabata and incorporated into them the Chinese tradition of honoring the annual tryst of the weaving girl (the star Vega) with her Oxherd lover (the star Altair).
Fig. 3. Clay figurines from the 6th century Kabutozuka Kofun burial mound:

a) Side view of a frame back strap loom (length of the left side frame: 56cm);

b) & c) Reconstruction of the loom with a weaver by CG, the side and back views;

d) & e) A part of loom without frame. (width of the warp threads’ portion: 9 cm).

Courtesy of the Shimotsuke City Board of Education, Tochigi Prefecture.
of the loom showing foot pedals attached to string heddles and/or harness. This style of character is found after the Warring State period in China. Its predecessor does not have the part for wood. The historical development of the looms would have been reflected in the form of the character.

The left side of the character means wood (material to make the loom). The foot pedals are connected to the heddles (he) with threads of harness, as the top right part indicates. This part is the simplified version of the original letter composed from threads and pedals. The bottom right part indicates the sound of the character.

This same 機 character was read as wakatsuri or wokotsuri in a tale in the Nihon Ryōiki (Miraculous Tales of Buddhism, compiled in the early 9th century AD). The tale relates how a crane with wakatsuri or wokotsuri (probably a kind of pulley) was used to rescue people who had fallen into a hole in the mountain. E. Kariya goes on to comment that this might be the origin of the name for heddles, nowadays called kazari. Perhaps the loom might have used pulleys to operate the heddles.

Hi: shuttle, boat shuttle (right center and lower).

Wosa: reed. Fig. 1c (right upper) (MJp: osa)

Reeds in Japan were generally made of finely split bamboo. This tool was not always required to weave cloth. Beaters that seem to have been used for back strap looms have been found in many archaeological sites in Japan. The wood used tended to be hard wood. Wooden combs kushi are sometimes mentioned in a context of combing tangled fibers or threads for textile preparation, though in the Wanyō Ruijūshō combs were categorized among the cosmetic tools.

The Man’yōshū poem no. 1233 describes young girls combing the warp (of bast fiber) with a “magushi <ma-kushi: excellent comb” on the loom. Its historical development and typological analysis reveal some interesting aspects in the context of ritual and cultural interaction among areas.

Chikiri: warp beam. cf. Chimaki (cloth beam)

He: heddles; Fig. 4 (During the Edo period it was also called ayatori, kazari, mojiri and kakeito)

Kutsuhiki: frame back strap looms; Fig. 1

These looms have a foot pull-rope to operate one heddle with the weaver’s foot. Kutsu literally means ‘shoe(s)’, hiki <hiku, to pull. A 6th century clay model of this style of loom was recently found among the clay figurines excavated from the late Kofun period Kabutozuka burial mound in Tochigi Prefecture, northern Tokyo area of the Honshū Island. A part of another clay model presumed to be a back strap loom (for two-layer circular warp) without frame was also uneaed (Figs. 3d & 3e).

32. Katō 1970, 144-146.
34. Kizawa 2011; 2014, 47.
It is significant that the Chinese term which is used as the heading 赴機 in the dictionary literally means ‘lying loom’. It does not mean foot or shoes at all. In addition, the depicted Chinese looms had already been prepared with pedals to operate the heddles since at least the Later Han dynasty. Japanese style reading means that they would have used a foot pull-rope to operate the heddles traditionally in Japan.

In general, the loom in East Asia is not upright (except for that of straw mats ‘mushiro’ and/or bamboo blinds ‘sudare’ and ‘misu’ producing) though in the Orient both types are included. In order to understand the reason for which the character meaning “lying” is added to the Chinese term, further discussions will be required.

The Engishiki mentions a ritual concerning garments made for the kami god twice a year, in spring and autumn. The production of textiles for goddesses was treated as sacred work that was carried out in two different shrines near the grand shrine of Ise in Mie Prefecture, where the sun goddess Amaterasu-omikami and the goddess of grains Toyo’uke-no-omikami are enshrined as the ancestors of the Imperial Household. In one shrine, silk threads were prepared and woven by the Hattori clan: hata (loom) + or ‹oru, to weave). The woven cloth was called nitrogen, fine and soft cloth. In the other shrine, asa (or wo, hemp and false nettle) threads were prepared and woven by the Wumi clan: wo (hemp) + umi (splice or ply-join). The woven cloth was called aratae, coarse cloth.

The existence of the two clans specializing in different fabric production suggests that initially weaving for the Imperial family was a localized art. The Hattori (hata-ori) clan (be) would have specialized not only in weaving but also in tailoring. It is believed that the system was based on that of Paekche, and was replaced in 645 after the Taika Reforms. Again, arguing from the semantics of names, the splicing method of joining bast fibers base to tip into long threads must have been wide spread since we can find villages called Woumi in various places throughout Japan. The members of the Woumi clan belonged to the upper clan Kam-be, (kami, god) section or clan for ritual, which was attached to the shrines and paid taxes only to the shrine. The hemp and false nettle fibers were used for important Shrine purification ceremonies called harahe, MJp: harai, literally meaning to remove or get rid of evil spirits.

The Engishiki mentions gold- and silver-plated bronze tools including tatari, woke (container for spliced threads originally made of steam and bent wood), kasehi, and tsumi. Twenty-one kinds of holy treasures, including textile production tools, such as spindles and fiber stands, have prepared for each 20-year reconstruction of the grand shrine of Ise over the past thousand and more years. Actual examples from the early Heian period still exist. A gilt bronze hata (loom) and hi (shuttle) from the 8th to 9th centuries (Fig. 1) were found in the Munakata Taisha Shinto shrine located on two small islands in the open sea of Genkai nada and northern Kyūshū where three goddesses of sailing, daughters of the Sun goddess, are deified. Munakata Taisha Shinto shrine consists of three shrines (Okitsu-gū, Nakatsu-gū, and Hetsu-gū) situated in different places. Okitsu-gū is enshrined on the small island Oki-no-Shima, half way between Japan and Korea. Nakatsu-gū is enshrined on the small island Ōshima and Hetsu-gū is located on the Kyūshū Island. The shrine has long been held sacred and these tools seem to have been made for the goddess’s use.

Maneki: foot pedals. Nowadays this term is used for harness levers to move a heddle (see model loom, Fig. 1)

Nukikaburi: bobbin winder or winding.

Kuta: bobbin core. MJp. kuda literally means ‘tube’.

Wi-no-ashi: cloth beam (see model loom, Fig. 1)

Literally, the term means foot of the wild boars though the meaning is hoof(s) since the both beam ends look hoof-like in shape. Wi means the wild boars and ashi means feet (or foot). (MJp. of the wild boars: i-no-shishi).

A part of the loom onto which the woven cloth is wound up.

Asa: (Ch: mai/me: / Jp: wo, so)(MJp: o): a generic term referring to bast fibers, such as hemp: taima (Cannabis sativa Linné) (Ch:da⁵/daj⁵+mai/me:) and false nettle (various species of Boehemian, in
the family of the *Urticaceae*, often called ramie or Chinese grass in English, and referring mainly to *cho-ma* (Ch: dǎ’+mai /meː/) or Jp: *karamushi* (*Boehmeria nivea* L. Gaud). Kitamura and Murata mention that the *Boehmeria nivea* L. Gaud was brought from China already in ancient times.36

To splice: *umu* is the verb used for making long threads out of bast fibers (*asa*) like hemp, false nettles, and *bashō* (banana plant fiber). Various splicing or ply-joining methods have been used, but an important key for making all ply-joins (*ito-umi*) is “to join the base of the new element to the tip of the old element by plying them together with a Z or S twist, or a combination of the two.”37

To twist: *hineru* or *yoru*, general terms for adding twist

To spin: *tsumugu*, for silk floss and cotton

In the *Man’yōshū* poem no. 2990, young girls splicing beaten bast fibers (*uchi-so*) set on *tatari* (fiber stands) think of their lovers, their activity of making continuous thread serving as a metaphor for the continuous longing in their hearts. Here, the word *umu* (splice) is pronounced the same way as *umu* (grow tired), creating a play on words, with *umu* meaning both tireless effort for ‘splicing’ and longing for someone without ‘getting tired’.

**Heso**: hollow thread balls. The navel is also called *heso*.

**Tools and materials for silk thread production**

**Kahiko**: silkworm (*Bombyx mori*; silkworm moth) (MJp: *kaiko*).

**Mayu**: cocoons.


**Ko-guso**: silkworm *kuso* (excrement)

**Ebira**: silkworm spinning frames.

**Kuha and tsumi**: mulberry trees including *morus alba* and *morus bombycis*.

**Ito**: threads reeled from silk cocoons.

**Shirite**: threads from the outer parts of the cocoon.

**Waku**: frame spool (Fig. 5) (Ch: ɦɪuak).38 Tōdō mentions that this pronunciation reflects Wuyin during the Sui and Tang dynasties.

**Kurubeki**: (literally ‘reverse turn’) swivel, rotating device on which the skein (*kase*) is set, and from which the thread is drawn out. Although we do not know the exact shape of this device from the name as we do not use this word nowadays but we can suggest its function by the heading written in Chinese characters. Ekisai Kariya suggested that it was *mai-no-ha* (mafu means to turn around, *ha* means blade), turning around horizontally to make skeins, which were still called *kurubeki* in the Kantō region, eastern Japan during the Edo period.39 He also mentioned that it was found in the Chinese *Sancai Tuhui* written in the early 17th century, which was the model of the *Wakan Sansai Zue*, though this type of swivel dated back to the 14th century *Nung Shu* (Book of Agriculture) written by Wang Chen.

A dictionary of Old Japanese states that the noun *kurubeki* derives from the verb < *kurubeku* (also *kurumeku*): “to turn around, rotate”.40 It gives an example of the phrase “turn around like a top” from the 12th century *Konjaku Monogatarishū* (Anthology of Tales from the Past; vol. 20 no. 6). Probably it rotated horizontally (Fig. 6). Some of the ritual clay objects series found from the Myōgajima Kofun no.5 mound in Shizuoka Prefecture show their rough shapes during the 5th century (Middle Kofun period) (Figs. 6c & 6d Important Cultural Properties).41

The *Man’yōshū* poem no. 642 compares King Yuhara’s feelings to a thread, which if it frays/

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38. Tōdō 1995, 975.
41. Iwata City Board of Education 2003, 449, 627.
strays or tangles, he will set on the *kurubeki* and fix. The phrase used is *kurubeki ni kakeru*, “to set on a rotating device” in order to bring the thread(s) together (縁, Ch; yen), a term used also to express a connection or relationship.

**Ohoga**: a silk reeling device to take the silk fibers from cocoons while they are being boiled. (MJp: .gca)

**Tsumi**: spindle whorl (cf. Fig. 2, lower right). It was and still is called *tsumu <tsumugu*, to spin, during and after the Edo period.

**Tatari**: standing skein pole holders

Usually three poles form one set for holding skeins while winding threads onto spools (Fig. 7).

The *tatari* (standing skein holder, Fig. 2) is also found in the Muromachi period (early 1600’s) drawings and Edo period publications. They have the same function and structure as that described in the *Wamyō Ruijūshō*. We have recognized that the term *tatari* refers to two different tools, a skein holder and a fiber stand used while ply-joining bast fiber threads, similar to the votive *tatari* shown in fig. 2, upper right.

**Archaeological evidence**

The Neolithic Period in Japan is named *Jōmon* (rope pattern) after the decorative impressions on the pottery using twisted cords, a practice that deserves special mention. Varied patterns were developed during the period that continued for about 10,000 years (10,000-400 BC). This technique required plying the plant fibers in S or Z directions. Sometimes they combined several twisted fibers together into one cord adding a counter twist. The technique is similar to rope making and also to ply-joining, though weaving had not yet developed. The discovery of weights (*omori*) made of stones and wood from this period suggests they made twined fabrics called *an-gin* (an<amu-, to twine or to net + gin(u) <kinu, cloth or fabric), though the precise technique is unknown.

Basketry and pottery production were already highly developed at this time. In Higashimiyō wetland shell mound site, Saga Prefecture and in the...
northern Kyūshū area, over 700 baskets and woven bags have been excavated. The basket’s fragment is dating back to 5891–5790 cal. BC by AMS dating.\textsuperscript{43} Ropes, braided bark and bracken in two-ridge, material for basketry, as well as a wooden combined comb were found.\textsuperscript{44}

The evidence of woven cloth appeared towards the end of the Jōmon to early Yayoi period (about 800–400 BC to AD 250). The earliest examples of tabby weave were found at the Hirajō shell mound site, Ehime Prefecture in the western part of Shikoku Island.\textsuperscript{45}

In the Yayoi period, before frame back strap looms (see above) appeared, simple stick back strap looms (koshi-bata) would have been used for weaving. Some wooden artifacts from the Sasai site, Fukuoka

\textsuperscript{43} Matsui 2006, 144, 147.

\textsuperscript{44} Saga City 2009, (Fifth volume), 36, 38–39, 412–413, 420–423, 424–454.

\textsuperscript{45} Matsuura 2002, 13.
Prefecture in northern Kyūshū are categorized as this type of textile tool. Although these artifacts have not been precisely dated, pottery fragments excavated from the same site is considered to belong to the final Jōmon period or early Yayoi period.46 The excavated loom parts (Fig. 8a) are now thought to be a pair of bars for holding a circular warp (two-layer circular warp) engaging their v-shaped concave (Fig. 8a upper) and convex (Fig. 8a lower) edges,47 though they were once considered to be weft beaters.48 Their narrow ends would have been tied up with ropes and/or cords to fix them together with the weaver’s back using a back strap. In addition, two clay spindle whorls were found at the same site (Fig. 8b).49 This loom would have been the same type as that of the bronze figurines found from Yunnan, China, early Han dynasty, the loom with tension controlled using toes mentioned by Barber.50 Flat rectangular wooden boards (see Figs. 3d & 3e) have been found from the Kofun period, in exchange for the rod on one end. Some of them were partially cut off on one of its longer sides (presumably the base) to keep the lower warp threads in midair (Fig. 9).51

The area of the Sasai site is located near the open sea and from early on acted as a conduit through which rice cultivation, bronze-casting techniques, metal-smelting techniques, and weaving techniques arrived from the Asian Continent and the Korean peninsula. A gold seal given by the Chinese Emperor Gu- wanjwu in the late Han dynasty in AD 57 was also excavated from this region. In addition, the so-called Indo-Pacific beads reached here already before the Christian era.52 It seems that those innovative technologies were not originally developed in the Japanese archipelago.

Furthermore, tools like the niddy-noddy called kase (桛) or kasebo, are found all over Japan. A wooden I-shaped tool from the Shiraiwa site in Kikugawa City, Shizuoka Prefecture confirms that the niddy-noddy has been used since the Yayoi period in textile production to make kase (綛), skeins, and for warping. It is useful to count the length of the threads required to weave. Interestingly, the pronunciation of the name of the tool and the result of its use are the same, though the Chinese characters used to write them differ. The example shown in fig. 10 is carefully formed and assembled. The estimated date is about the 2nd century AD. An oracle bone and rice husks were also found at the same site.53

This kind of tool has been used in a wide area in East Asia since ancient times (Warring States period Jiangxi, China),54 though the size, the structure and material are different depending on the function.

The following are wooden artifacts (presumed to be textile tools) excavated from the Yōkaichijikata

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46. Fukuoka City Board of Education (Sasai Iseki 3) 1995.
47. Higashimura 2008, 1-21; Okamura 1977, 210-211.
49. Fukuoka City Board of Education (Sasai Iseki 3) 1995, 50. 56.
52. Fransis 1990.
54. 衣笠巻 (A History of Science and Technology in China/ vol. of the textile technology) 2002, 157-158.
Fig. 8. Textile tools from the Sasai site; a) A pair of warp bars; b) Clay whorls owned by the Fukuoka Municipal Center for Excavated Cultural Properties. Courtesy of the Fukuoka City Board of Education (1995, 50 and 53).

site (Fig. 11 Important Cultural Properties),\textsuperscript{55} Ishikawa Prefecture and Rokudai A site (Fig. 12),\textsuperscript{56} Mie Prefecture. The textile tools found at Yōkaichijikata site include spindle whorls, parts of the niddy-noddy, a back strap, a beater, and a pair of flat bars to hold the warp. Wood species were identified as plum-yew for a part of a rotating device and as Japanese mulberry for five objects including the weft beaters and pairs of the flat warp clip bars, though it is popular to use hard wood like evergreen oak in other regions.

\textsuperscript{55} Komatsu-shi Maizō Bunkazai Center 2013, 144-146.
\textsuperscript{56} Mie-ken Maizō Bunkazai Center 2000, 158-161.
The Rokudai A site finds also include spindles whorls, parts of a niddy-noddy, a back strap, a beater, parts of the frame spool (waku), and parts of wooden rotating devices which turn horizontally. We suppose these might be what is called kurubeki, though it is labeled mai-no-ha in Wakan Sansai Zue written in the 18th century (Figs. 6a and 6b). A similar type is also found in ritual clay remains from the Myōgajima Kofun burial mound no. 5 (Figs. 6c and 6d). In China this type of reel is mentioned as being used in the southern area for cotton production.57 Horizontal swivels turn more slowly than vertical ones. Without this kind of tool the threads stored in skeins cannot be used to set up the warp. The species of wood used for these tools were identified as mainly soft woods such as Japanese cedar sugi and Japanese cypress hinoki.

The term kase is found in the Engishiki as kasehi and in the Man’yōshū as kase though it is not found in the Wamyō Ruijūshō. The function of the niddy-noddy is to make skeins or for warping. This tool is still in use in some regions in Japan and the neighboring countries. In Miyakojima Island, Okinawa Prefecture, they use kashigi for making chomafu (karamushi cloth).58 In Kōzuhara, Shiga Prefecture they use kase for hemp cloth production.59 The technique dates back to at least the Yayoi period when the rice cultivation, bronze casting, and iron smelting spread in Japan.

For example, we can find several scenes on cast bronze bells called dōtaku, dated to about the 1st century AD, Yayoi period. These bells are often found with protrusions along their sides, suggesting they were for ritual use. One such bell depicts a person holding a niddy-noddy-like tool in his/her hands, though this is not definitively identified as a textile tool (Fig. 13). Some say that it might be a kind of fishing tool, as fish are depicted nearby the person. These bells are often found alongside weapons and are thought to be ritual items.

From the Sakuragaoka site in Hyōgo Prefecture, a series of the cast bronze ritual items were excavated. On two bronze bells, No. 4 and No. 5, people with I-shaped tools are depicted.

During the Kofun period (3rd to 6th centuries AD), which follows after the Yayoi period, weaving techniques developed along with the evolution of the social structure. Towards the end of the Kofun period, movements began to establish a nation state, many aspects being adopted from China and Korea: the administrative system, ceremonial appearance and manners, etc. They also built their capital according to the Chinese model. In order to carry out all these projects, they needed developed techniques, which of course included the textile technologies.

In the Japanese chronicle Nihon Shoki,60 the entry about the era of the legendary Emperor Ojin mentions the invitation of four specialists from Wu (Jp. Kure), one of the Three Kingdoms in the southern area of China. Indeed, the hata-ori weavers clan is sometimes called kure-hatori (garment and dress makers from Wu). In addition, the name ana-hatori (pit loom weavers),61 another of the four specialists, is well worth consideration in the context of the textile terminology in the Orient.

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58.  濱野, 日本博物館 (Nagano & Hiroi 1999, 57).
59.  濱野, 日本博物館 (Nagano & Hiroi 1999, 39).
60.  高島ほか (Kojima et al.) 1994.
61.  In a similar story found in a different part of the Chronicle, the name ‘aya-hatori’ (Han-style weaver) is found instead of ‘ana-hatori’.
Conclusion and discussion

A discussion of textile terminology in ancient Japan spans a wide geographical and chronological range, being influenced not only by its neighbors Korea and China, but also through them by the Eurasian Continent. The Neolithic Jōmon culture, which lasted for about 10,000 years, produced excellent basketry from the very beginning, and over time pottery with cord impressions came to flourish. During the succeeding Yayoi period, many innovative textile technologies were brought to Japan, leading to the development of weaving, which spread through specialists to many parts of the area.

The terms related to textile production found in ancient records about Japan are mostly related, on the one hand, to bast fibers taken from hemp and ramie and, on the other hand, to silk production along with sericulture. The bast fiber production dates further back than the silk production. The importance laid on bast fiber production reflects the natural vegetation of Japan, but also mimics a similar situation in China, as documented in the Wei Zhi section of the Chinese chronicle Sanguo Zhi (Records of the Three Kingdoms, AD 220–265).

During the Jōmon period items made with bast fibers used the plant fibers without joining them into longer threads. Exactly when splicing to form continuous threads began is as yet unverified, but it is likely to date back to the Yayoi period. This needs further cooperative investigation.

The knowledge of sericulture and the art of weaving silk are thought to have been introduced from China and indeed many of the Chinese characters used to denote the related terms are the same in both languages, though they are read with different pronunciation.

Among all the early textile terms, the kurubeki (swivel) seems particularly important for considering the historical and technical contexts of textile terminologies within the wide area of the Eurasian Continent. The term kurubeki is derived from the word kuru (to wind, reel, spin), which in turn is related to rotating devices. Significantly, kurubeki has phonetic similarities to words for ‘wheel’ (*kʷékʷlo; Jp: kuruma). One might say silk reeling techniques in China were highly developed with the help of the ‘wheel’, which would have been brought with chariots from the West in the 2nd millennium BC. Without these, they could never have manipulated the fine and long silk filaments so efficiently.

62. 林 梅村 Lin Meicun 2005, 228-262. He discusses a similar process for the origin and development of bronze sword production in the Eurasian Continent.
Fig. 11. Wooden textile tools from the Yōkaichijikata site (Important Cultural Properties/ mid. Yayoi period). Courtesy of the Komatsu City Board of Education, Ishikawa Prefecture (2014, 146).
Fig. 12. Wooden textile tools from the Rokudai A site. Courtesy of the Mie Prefectural Center for Excavated Cultural Properties; a) Wooden whorls (nos. 381-383) and parts of niddy-noddies (nos. 384-407) The Mie Prefectural Center for Excavated Cultural Properties (2000, 158);
Fig. 12. b) Parts of niddy-noddis (nos. 417-419), rotating devices (nos. 408-416), and frame spools (nos. 420-426). The Mie Prefectural Center for Excavated Cultural Properties (2000, 159);
Fig. 12. c) Stands of the skein holders and/or fiber stands (nos. 427-433). The Mie Prefectural Center for Excavated Cultural Properties (2000, 160);
Fig. 12. d) Parts of looms (nos. 434-447). The Mie Prefectural Center for Excavated Cultural Properties (2000, 161).
Fig. 13. a) & b) Full view and a figure with a niddy-noddy-like tool on Kamika bronze ritual bell no.5 (height: 39.4 cm) from the Sakuragaoka site (National Treasure), Courtesy of the Kobe City Museum.
Although we cannot know the exact time when the specialists brought textile related techniques into Japan, it was probably during the Yayoi period. This probably occurred in conjunction with the importation of other rotating devices. According to the research on wooden vessel processing, it was also during the Yayoi period that rotating devices, like the lathe (Jp: rokuro) appeared. The lathe, like the wheel, is said to have originated in the West Asia, and the word rokuro also has a phonetic resemblance to other terms from that area.

Parts of wooden rotating devices found in Rokudai A site, Mic Prefecture, which date back to between the 4th to 9th centuries AD, give evidence to the Japanese having such rotating devices by then, though, unfortunately, we cannot be sure what they were called during that period.

It may be that in the Yayoi period, native terms for the tools and techniques had come into common use before the Chinese terms (developed during the Han dynasty) arrived. For instance, the Chinese word che, meaning car, is read kuruma in Japanese. This reading does not follow the modern Chinese pronunciation, but has been treated as a Japanese term (wa-go), since at least the Nara period. At the same time it has a phonetic resemblance to proto-Indo-European words of the same meaning. Other Japanese words related to wheels use the same kuru as a base, such as kurukuru or guruguru (adverbs for mawaru, mawasu or korogaru, korogasu: to rotate or twirl) and kurubushi (ankle). Clearly terms related to wheels provide clues to understanding the cultural interconnections across Asia and invite further linguistic examination.

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65. Mallory & Mair 2000, 326. “The old Chinese word for chariot, the modern Mandarin ch’e, would have been pronounced roughly as *kʰəθa during the Shang dynasty, and this word bears a certain resemblance to one of the Proto-Indo-European words for ‘wheel’ (*kʰʰəʔla) which provided the base for the word for vehicle in Tocharian, i.e., Tocharian A kaka and Tocharian B kaka.” Rather than a direct borrowing from the Tocharian, however, linguists suggests that all the terms for wheels go back to a proto word from an early Iranian language.

66. Among the previous linguistic studies on resemblance of the terminology of not only textiles but also of religion, rice cultivation, etc. between the Old Japanese, Korean and proto-Dravidian was carried out by Susumu Ohno. For example the term for the loom and cloths (hata or fata) is supposed to relate ‘patam’, Dravidian, from ‘pata’, Sanskrit.
the Office of Japanese Language and Japanese Literature, The Faculty of Letters, Kyoto University). Rinsen Shoten, Kyoto.


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**Chinese**

The Textile Term *gammadia*

Maciej Szymaszek

This paper aims to investigate the origin of the term *gammadia* by determining the oldest examples of its use both in source texts and secondary literature. For nearly four centuries this term was commonly applied to the various motifs on mantles of figures represented in art of the 1st millennium AD. These right-angled and letter-like signs attracted the attention of several authors who were seeking to explain their possible symbolic meaning, but they did not pay attention to the correctness of the term adapted to name such motifs. This approach contributed to the terminological confusion and difficulties in understanding the issue at hand.

Dictionaries and travel guides

The semantic scope of the term *gammadia* was defined by the editors and authors of Latin dictionaries and travel guides in the 17th century. The definition of this term most likely appeared for the first time in 1663 in the lexicon *Vocabulista ecclesiastico*, a book which became very popular and was reprinted many times. According to this laconic and anonymous text, the term referred to a garment or chasuble which had woven signs in the shape of the Greek letter gamma. At roughly the same time, Benedetto Mellini gave a similar explanation mentioning the opinions of other authors.

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1. The present contribution is an adapted English version of my study published in Polish: Szymaszek 2013. The paper was supplemented with a catalogue of all passages of the *Liber Pontificalis* containing the term *gammadia*.
4. Forte 1663, 79. It is difficult to point the authorship of this term, as it does not appear in the earlier versions of the lexicon of Giovanni Bernardo Forte, printed for the first time in the year 1480.
6. Forte 1663, 79: “gammadia, ae, & gammodium ij, veste, ò pianeta tessuta con figure del Γ γ lettera greca, non sò, se grande o piccola. Anastas. Biblioht.”.
people who recognized *gammadiae* as signs composed of four gammas forming a cross \( \Gamma \).

A very similar definition and illustration were also included in the *Hierolexicon sive sacrum dictionarium* which was published in 1677. In all three texts the authors referred to Anastasius the Librarian as the origin of the term, more specifically to the Book of Pontiffs, *Liber Pontificalis*, whose authorship was once attributed to him.

### The Book of Pontiffs

The *Liber Pontificalis* (here abbreviated *LP*) is probably the only textual source in which the term *gammadia* appears. The term can most often be found in acc. pl. fem. as *gammadias*, rarely in abl. pl. fem. as *gammadii*

or in acc. pl. fem. without geminamation as *gammadias*. It is present in the sections covering the lives of six popes over a narrow period of only 63 years. It is mentioned for the first time in the

description of the gifts of Pope Leo III (795-816) and for the last time in the biography of Pope Benedict III (855-858). In the text the term *gammadia* is mostly applied in conjunction with the names of various types of utilitarian textiles called *vestis, velum* and *tetravila*. It also appears in relation to the names of architectural elements such as columns and arches.

### Gammadia on altar cloths (*vestes*)

In the *LP* the word *vestis* is one of the terms denoting altar cloths. Such pieces were described as made of 

silk or woven *de fundato* and had a purple, red or white colour. The number of *gammadia* occurring on each fabric is described in three segments of the text, in which four motifs of this type are listed.

Moreover, techniques in which *gammadia* were produced are mentioned in the *LP*. They were woven with gold and silver thread or created by “golden stripes” (*chrisoclabas*). The other two terms which

were produced are mentioned in the *LP*. They were woven with gold and silver thread or created by “golden stripes” (*chrisoclabas*). The other two terms which

7. This information was provided by Giovanni Ciampini who owned a copy of Mellini’s guide and included a Latin translation of his text in: Ciampini 1690, 95: “At istae Gammadiae nihil alium erant, quam Crucium figurae ex quatuor Gammatis co(m)positae, videlicet tam in profanis, quam in sacris: vestem, velum, tetravila...” The lexicon was published after the Macro’s death and it is not possible to state who wrote this entry.

8. Macro 1677, 285: “vestis sacra cum figuris in forma litterae graecae. Gamma Γ contexta, qua utebantur etiam Latini, ut in museis, & antiquis Romae picturis conspicitur. (...) Igitur hoc vocabulum nedum vestem; sed etiam textile hisce characteribus angularibus formatum significat”. The lexicon was published after the Macro’s death and it is not possible to state who wrote this entry.

9. The problem of attribution of the *LP* to Anastasius the Librarian was widely discussed in Arnaldi 1963 and 2000.

10. Fragments of the *LP* are taken from a critical edition of the source: Duchesne 1955 (abbreviated here as *LPDu*). On the historical value of *LP* and its reception in later periods, see among others: Leclercq 1930, 354-359; Geertman 1989; Bauer 2004, 27-38.


12. *LPDu*, 2: “velum alithinum rotatum, habentem periclisin in rotas cum auxcellos et in medio cruce cum gammadias et IIII rotas de tyreo filopares”.

13. *LPDu*, 146: “veste de fundato I, habentem in medio crucem cum gammadias de quadrupulo”.


16. *LPDu*, 3: “vestem de blathin, habentem in medio crucem de chrisoclabo et tabulas chrisoclabas IIII, cum gemmis ornatas, atque gammadias in ipsa veste chrisoclabas IIII, cum periclisin de chrisoclabo”; ibidem, 96: “necnon et aliam vestem rubeam I, cum caballo albo habente alas, cum periclysi de chrysoclabo et gammadias IIII et crucem de chrysoclabo”; ibidem, 125: “vestem de fundato cum IIII gammadiis auro texit I”. No similar information can be found in other sections which may indicate that it was not necessary to specify the number of *gammadia*. 

17. This information was provided by Giovanni Ciampini who owned a copy of Mellini’s guide and included a Latin translation of his text in: Ciampini 1690, 95: “At istae Gammadiae nihil alium erant, quam Crucium figurae ex quatuor Gammatis co(m)positae, videlicet tam in profanis, quam in sacris: vestem, velum, tetravila...” The lexicon was published after the Macro’s death and it is not possible to state who wrote this entry.
appear in this context - *de quadrupulo* and *de obtapulo* - remain unclear.\(^{18}\)

The general descriptions in the *LP* are helpful to determine the location of the *gammadia* on the altar cloths. The author of the analysed section of the *LP* first mentions elements he considered to be the most important, such as a theme or a scene which was usually located in the centre of the cloth.\(^{19}\) The description then continues with other motifs that were placed away from the centre and concludes with information about the borders (*periclisin, lista*).\(^{20}\) Keeping this schema in mind, it can be stated that the term *gammadia* predominantly occurs in the final part of the description, prior to information about the borders.

**Gammadia on curtains (vela)**

*Vela* is the second type of fabric mentioned in relation to *gammadia*. Such curtains were usually donated in sets of four,\(^{21}\) and thanks to the descriptions in the *LP* it can be said that they were suspended, *inter alia*, around the altar. *Gammadia* were made *de obtapulo, de chrisoclabo* or *de tyreo*,\(^{22}\) an expression which may be associated with the colour of the fabric (purple?), the material with which they were made (silk?), or their place of manufacture (Tyre?).\(^{23}\) Neither the number nor the location of *gammadia* on the curtains are defined in the *LP*. The only exception is the section of text acknowledging that these motifs were placed in *circuito*, denoting a location around the edges of the fabric.\(^{24}\)

**Set of four curtains (*tetravila*) decorated with *gammadia***

The third term, *tetravila*, only appears in connection with *gammadia* in the life of Pope Leo III.\(^{25}\) On the semantic and syntactic layers it refers to the four *vela* and specifies a set of curtains that surrounded the altar on all four sides. Both the material used to make *tetravila* and the way it was decorated correspond with information in the descriptions of the curtains. These were fabrics made of silk which were white, purple or red. *Gammadia* were executed *de chrisoclabo*, which can be translated as ‘by the golden stripes’.

**Gammadia as a name of curtain**

The term *gammadia* also occurs in the biographies of Leo III, Paschal I, and Benedict III in connection with architectural elements in churches, such as arches and columns.\(^{26}\) Three passages explicitly confirm their location as in close proximity to the altar, probably in the construction of *ciborium* standing over altar.\(^{27}\)

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\(^{19}\) The issue of figural representations on the fabrics described in the *LP* was discussed by several authors: De Waal 1888, Beissel 1894; Von Sydow 1912, 7-14; Croquison 1964; Phillips 1988; Andaloro 1976; Andaloro 2003.

\(^{20}\) On the relations between the terms *periclisin* and *lista* see: Wiener 1917, 255-258.

\(^{21}\) Among others: *LPDu*, 57-58: “Fecit vela alitina venerabilis pontifex pendentes in circuitu altaris IIII, habentes cruces et gammadias de fundato et quadrupulo”; *ibidem*, 128: “feci in circuitu altaris beati Petri apostoli vela siraica de prasino IIII, habentia tabulas de chrysoclabo, cum effigie Salvatoris et apostolorum Petri ac Pauli, seu ipsius almifici praesulis, et in medio cruces et gammadias de chrysoclabo cum orbiculis, in quibus sunt imaginis apostolorum mirae pulchritudinis decoratas, quae in diebus festis ad decorum ibidem suspenduntur”.

\(^{22}\) *LPDu*, 75: “vela alba siraica IIII, unum habens undique tyreum et in medio crucem et gammadias de chrisoclabo, aliud de stauraci, habens in medio crucem de olvero et gammadias de tyreo”.

\(^{23}\) Cf. Du Cange 1887, 221; Oikonomides 1986, 37; Delogu 1998.

\(^{24}\) *LPDu*, 79: “vela de fundato VI, habentes in circuitu gammadias de obtapulo”.

\(^{25}\) *LPDu*, 26: “tetravila rubea alitina IIII, habentes cruces cum gammadias et in circuitu periclisin de tyreo”; *ibidem*, 30: “tetravila alba olosirica rosata, ex quibus unum habent in medio crucem de chrisoclabo et gammadias de chrisoclabo”.

\(^{26}\) For instance, *LPDu*, 53: “(...) super quem constituit arcora II de argento et gammadias IIII qui simul pens. lib. LX”; *ibidem*, 146: “arcum cum duobus gammadisi ex argento purissimo, pens. insimul lib. XL”.

\(^{27}\) *LPDu*, 3: “feci et confessionem eiusdem altaris ex argento purissimo, pens. lib. CIII, uncias II; columnas argentaeas VIII cum
Table 1. The use of the term *gammadia* in the *LP*

<table>
<thead>
<tr>
<th>Donors</th>
<th>Type and number of textiles with <em>gammadia</em>-motifs mentioned expressis verbis in the <em>LP</em></th>
<th>Number of <em>gammadia</em>-textiles in the <em>LP</em></th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vestis</td>
<td>Velum</td>
<td>Tetravila</td>
</tr>
<tr>
<td>Leo III</td>
<td>2</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Paschal I</td>
<td>-</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>Gregory IV</td>
<td>2</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>Sergius II</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Leo IV</td>
<td>20</td>
<td>12</td>
<td>-</td>
</tr>
<tr>
<td>Benedict III</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Relationships between architectural elements and *gammadia* are not expressed in the *LP*. It is therefore necessary to consider whether the author of the text used the term to name a pattern that appeared in the columns and arches, or an object with a specific decoration. A passage from the life of Paschal I, in which all of these terms occur, is helpful in answering this question. Firstly, there are two columns mentioned, then an arch, and finally two *gammadia*. This may suggest that *gammadia* were seen as separate objects, not as integral part of the decoration of architectural elements.

*Gammadia* is thus used in close conjunction with the names of structural elements and partitions of *ci-boria*. Given the context, it is clear that there were places for the suspension of *vela* and *tetravila*. This conclusion is crucial, as it presents the word *gammadia* not only in relation to the motif on the fabric, but also with a curtain decorated in a certain way.

**Popularity of *gammadia* among papal gifts**

In order to interpret information concerning *gammadia*, it is helpful to compare the quantities and types of fabrics given by donors (tab. 1). On the one hand, it can be observed that the decorative motifs called *gammadia* appear in the context of at least 61 textiles (30 *vela*, 26 *vestes* and five *tetravila*). On the other hand, *gammadia* is also used as a name for a curtain 18 times. This type of gift was most popular during the pontificate of Leo IV, who gave at least 32 *vestes* and *vela* with *gammadia* patterns to the churches, along with a further four curtains which were identified as *gammadia*. Summing up the data, the total number of fabrics listed in the *LP* which are decorated with and defined as *gammadia* could be at least 79. However, it is worth noting that these fabrics do not constitute a dominant part of the papal gifts and account for less than 4% of the total number of curtains and altar cloths donated by Leo III, Paschal I, Gregory IV, Sergius II and Leo IV.30

**Gammadia and gammula**

The results of the analysis indicate that the term *gammadia* referred to a decoration on the altar cloths and curtains, but also that it was used as a term for certain fabrics hung around an altar. The decoration of these textiles probably featured signs constructed of two stripes that met at right angles. They could easily...
31. The Textile Term *gammadia*

be associated with the shape of the *gamma* letter and
gave rise to the term which was seemingly invented
by the author or the authors of papal biographies in
the first half of the 9th century.

A similar term, *gammula*, can be found in a section
of *LP* written more than 100 years prior to the part of
the text featuring *gammadia*. It appears only once in
the life of Pope Benedict II (684-685).\(^{31}\) Analogous to
*gammadia*, the term is a name of an ornamental motif
on a purple altar cloth (*coopertorium*). The context of
use and the similar root of both words may indicate
the decoration of covers and curtains with the signs
of the same shape.\(^{32}\)

**Representations in art**

These hypotheses are confirmed by iconographic and
archaeological sources which include late antique and
early medieval representations and fabrics.\(^{33}\) An ex-
ample of this is a casket donated by Pope Paschal I

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las et clavos IIII auroclavos et al circuitu palergium de olostircum pulcherrimum”.
32. It should also be noted that the similar understanding of the term *gammula* appears in the 14th century in Pietro Bohier’s comments
to the *LP*: “Gamulas: Id est litteras; ad gamma, quod est littera” (Přerovský 1978, 259).
33. For the scope of this paper only some examples will be given. More extensive material is discussed in Szymaszek, forthcoming.
(817-824) which originated from the period in which the biographies of relevance for this work were edited (fig. 1). The central panel depicts the scene of the communion of the Apostles; Christ stands behind the altar covered with a cloth on which a cross and four motifs are visible, each made of two strips joined at right angle. The number and location of these signs, as well as the way in which they were represented on the surface - clearly distinguished and with a different texture than the background fabric - corresponds to the descriptions in the LP.

Gold, purple and black signs in a right-angled shape can be seen on many altar cloths depicted in the representations of a variety of topics. They are dated to the period preceding the redaction of part of the papal biographies discussed here, or are contemporary to them, or later. Among others they appear on mosaics in churches of Ravenna, such as Sant’Apollinare Nuovo, San Vitale and Sant’Apollinare in Classe, but also on the diptych from the National Museum in Warsaw, and on the so-called Vatican dalmatic now kept at the Museo del Tesoro di San Pietro.

35. Szymaszek 2013, 132-133.
In regard to curtains, the paintings at the monastery in Müstair in Switzerland dated to the second quarter of the 9th century are especially valuable. They represent a suspended white hanging with red decorations and most probably mimic fabrics used in the interiors of churches (fig. 2). The cloth is enclosed on four sides with red marks in the shape of two strips at right angles. Such a distribution of motifs is in conformity with the LP in which gammadia occurred on vela along with crosses and circles.

Similar signs also appear in the earlier monuments, for instance, on the mosaic in the church of Sant’Apollinare Nuovo in Ravenna which is dated to the 6th century. It represents the so-called palace of Theodoric with white curtains suspended in the intercolumnia of the façade (fig. 3). Golden motifs in shape of “gamma” with gold squares placed between the arms of the signs can be found on hangings in the central passage of the palace.

37. Szymaszek 2013, 134.
38. Deichmann 1958, figs. 107, 108. The same motifs also appear on preserved textiles interpreted as altar cloths, table covers or hangings. For instance, on a fabric from Egypt dated to the 4th-5th century, two corners are occupied by colored right angled stripes (Turell Coll 2004, 146-148, fig. 1). Another example is dated to the period between the 6th and 9th century and is believed to be a curtain (Schrenk 2004, 114-116). There are two marks formed from two strips at right angles in the corners.
Conclusions

The aim of this study was to reveal the origins of the term *gammadia* through the source texts. This term was found exclusively in the *Liber Pontificalis* and only in the biographies of the popes from the end of the 8th to the middle of the 9th century. In this limited period the term was used both as a name of right-angled motifs placed in corners of altar covers and curtains and also as a name of a textile hanging with such decorations. As such, there is no support in the *LP* for the belief expressed in literature that the term *gammadia* was connected with motifs of other shapes, such as those widely recurring on mantles of figures in the 1st millennium AD.39

The method of decorating curtains with right-angled decoration placed in the corners of the cloth persists to the present day. An example of this is the hangings photographed by the author in 2008 at the Small Metropolis in Athens (fig. 4). These bands correspond to the shape of the motifs appearing on textiles and representations dated back to the 1st millennium AD and to the description of *gammadia* in the analysed part of the *LP*.

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39. Cf. note 3; Szymaszek 2015; 2016. See also the catalogue with over 360 representations with the so-called *gammadia* in: Szymaszek 2014.


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The oscillum Misunderstanding

Francesco Meo

In this passage the Latin term oscillum refers to a particular class of objects: a small face or mask hung on trees during certain religious feasts celebrated by the Ausones in honour of Bacchus (Fig. 1). The Roman oscilla most probably derives from the Aἰῶραι, small images related to Dionysus hung on trees during the Aἰῶρα, an Athenian public feast. They were believed to purify the air as they swung in the wind.2 Both the Greek and the Latin words refer to objects used during particular sacred feasts, in the first case public and in the second case private, inside villae.

However, the term oscillum has also been applied to certain shapes (circular and semicircular) of loom weights (Fig. 2). Italian archaeologists in particular have traditionally used the term oscillum to refer to these weights, reserving the term ‘peso da telaio’ (loom weight) for the traditional shapes (truncated pyramid and truncated cone). Most of the archaeological literature identifies circular and semicircular loom weights as such, although there have been contrasting interpretations of their function ever since the late 19th century. What caused the term oscilla to be transferred from sacred objects to loom weights must surely have been the latter’s unconventional shape and their decorations and inscriptions. But when and why did this take place?

Before 1906 they were studied for their inscriptions and they were generically described as “clay disks”, probably used as labels. Percy Gardner was the first archaeologist to deal specifically with these disks, analysing samples with the inscription hημω.3

1. I would like to thank Marie-Louise Nosch and Cécile Michel for their kind invitation to the Workshop, and S. Gaspa and the whole of the CTR group for their wonderful hospitality. The present paper was developed as part of the project L’attività tessile nell’Italia meridionale preromana: tecniche, tecnologie, materiali e protagonisti (nr. JPCNYJ35), co-funded by the Fondo di Sviluppo e Coesione 2007-2013 – APQ Ricerca Regione Puglia “Programma regionale a sostegno della specializzazione intelligente e della sostenibilità sociale ed ambientale - FutureInResearch”.
3. Gardner 1883. Before his study, discs had never been considered in specific studies but only mentioned in publications on choro-plastic art (Lenormant 1881-82, 166) or inscriptions from Taranto (Barnabei 1882, 387).
He argued the disks “were used to weigh out a half obol’s worth of some commodity”. A few years later, Giulio Emanuele Rizzo proposed that two disks from Agrigento with both faces decorated with a *gorgoneion* could have been terracotta *emblemata* with several functions: toys for children, *ἀποτρόπαια* hung inside houses or loom weights. At the beginning of the 20th century, Wilhelm von Christ saw them as *ex-voto* objects to be hung on a wall or a panel using their two holes.

In 1906, Paolo Orsi understood they could be loom weights, but also gifts for children or *ἀποτρόπαια* in houses. However, he perceived their main use as being hung on trees in order to provide symbolic protection and to prevent birds from entering the fields and eating the crops. Studying their decorations, he saw that some of them may indeed have been related to Dionysus but even if they were not expressly Greek *aἰῶραι* or Latin *oscilla*, their purpose was similar.

This hypothesis would not be revisited until 1945. In the 1920s, Walton Brooks McDaniel suggested that the disks “were attached by custom-house officers who had exacted that amount of duty or some other fee”, as had been partially hypothesised by Gardner in 1883. In the 1930s, Pierre Wuilleumier suggested that the disks could be an indicator of either the value of the goods in the bag they sealed or a tax.

In 1945, Biagio Pace argued they were clearly an attestation of the cult of trees “Più sicuro documento del culto degli alberi…”. He did not use the term *oscillum* but “mascheretta fittile” (small clay mask). However he clearly connected them to *oscilla* because he wrote that peasants hung these objects on trees in honour of Dionysus.

In 1953, Piero Orlandini understood the main value of these objects to be ritual and symbolic. His analysis was very detailed, describing all their

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6. von Christ 1900.
7. Orsi 1906, 753-758, tav. LVI.
10. Wuilleumier 1939, 223.
11. Pace 1945, 460-462.
sacred functions. First of all, noting many of these items were from the foundations of Greek buildings, he proposed that they served a consecratory function. At the same time however, they wouldn’t have been used in such a way if they hadn’t already acquired a sacred meaning, that is, if they hadn’t been hung by their holes. Thus, Orlandini wrote that they had been specifically created to be hung and they are therefore oscilla.\textsuperscript{13}

After these considerations he also wrote: “Una prova di ciò l’abbiamo nello stretto legame che intercorre fra i «pesi» e gli oscilla fittili nel IV e III secolo av. Cr.”. In this sentence, “pesi” (weights) clearly refers to the truncated pyramids, while the oscilla are the circular forms.\textsuperscript{14} However, he also wrote that the truncated pyramids were not actually loom weights either, but were hung on trees even before the appearance of the circular type in the 4\textsuperscript{th} century BC.

The following year, Sebastiana Lagona also insisted that the so-called oscilla served a primarily votive purpose.\textsuperscript{15}

In 1970, Ciro Santoro once more considered the hypothesis that they could represent payment of taxes, analysing the inscriptions on a few examples.\textsuperscript{16}

While not doubting the primary use of these objects as loom weights, in 1974 Paolo Mingazzini proposed a series of secondary uses based on stamps and inscriptions.\textsuperscript{17} His view was shared by Franca Ferrandini Triosi (1986).\textsuperscript{18}

Most of the archaeological literature by now considers the so-called oscilla to be circular or hemispherical loom weights,\textsuperscript{19} in some cases proposing a

\textsuperscript{13} Orlandini 1953, 444.
\textsuperscript{14} Orlandini 1953, 443.
\textsuperscript{15} Lagona 1954.
\textsuperscript{16} Santoro 1970, 149.
\textsuperscript{17} Mingazzini 1974.
\textsuperscript{18} FerrandiniTriosi 1986.
\textsuperscript{19} Some examples are: Dotta 1989; Caminneci 1996; Manganaro 2000, 124-125; Rossoni, Vecchio 2000, 887-891, tav. CLXV.2; Nicotra 2007, 241-248; Spatafora, De Simone 2007, 38-40; Anelli 2008, 224; Bonanno 2008; Foxhall 2011; 2012.
series of secondary purposes for the decorated and inscribed specimens.\textsuperscript{20}

The distinction between truncated pyramid and circular weights is still made in many museum catalogues at two different levels: one is functional, depending on the shape, while the other is based on the presence of decoration or a particular inscription.

As an example of the first case, Angela Marinazzo writes in the catalogue of the museum of Brindisi that “gli oscilla venivano appesi sulle architravi delle porte di abitazione” (the oscilla were hung on the lintels of the doors of houses),\textsuperscript{21} and Alberto Bacchetta subsumes circular loom weights with Roman oscilla.\textsuperscript{22}

Other catalogues reflect the second type of distinction. Simon Besques separates loom weights (pesons) from disks (disques) in the 1986 catalogue of the Louvre museum. In this case the pesons include both truncated pyramid and circular loom weights with engraved and stamped letters,\textsuperscript{23} while disques are discoid weights with at least one fully decorated face and moulded inscriptions.\textsuperscript{24} In the catalogue of the Lagioia Collection in Milan, Federica Giacobello describes one hemispherical and three discoid circular loom weights as oscilla.\textsuperscript{25} The catalogue of the De Brandis Collection in Udine, compiled by Marina Rubinich in 2006 makes a further distinction: circular weights with inscriptions or stamps are pesi (weights) while those with decoration are oscilla (Fig. 3).\textsuperscript{26}

However, in my view the misunderstanding arises from the approach to studying these objects. Most of the published material is from museum catalogues, which never offer a precise picture because the material they are based on is part of a selection. The consequence is that only decorated or inscribed examples usually feature in publications, making it seem as if that all loom weights are decorated or inscribed. However, if we systematically study specific contexts we can see that this is not the case: in the western part of the Collina del Castello district of Herakleia, a Greek town in Southern Italy, about 60% of the specimens (1661 out of 2794) have no decoration or inscription,\textsuperscript{27} and similar situations are seen in the rural settlements near this and other Greek towns in the same area (Fig. 4).\textsuperscript{28}

Italian archaeologists have traditionally focused on decorations and inscriptions, neglecting their functional aspect, and the weights described in the literature are often selected for their decoration or inscriptions. Most of the publications concerning the Vallo of Herakleia, a sacred context in the Greek town, refer only to decorated loom weights, even though more than 67% of the discoid loom weights (51 out of 76) have no decoration or inscription, despite this being a sacred context.\textsuperscript{29}

The systematic study of archaeological materials from various sites along the northern shore of the Gulf of Taranto suggests the presence of a substantial textile industry in the 3\textsuperscript{rd} and 2\textsuperscript{nd} centuries BCE that used circular weights with two holes. Their shape, which has caused so many problems in their interpretation, actually enabled the creation of a denser fabric than the traditional truncated pyramid weights.\textsuperscript{30}

A secondary function for those specimens with decoration or inscriptions cannot be ruled out, but I argue that their main use was as weights. Furthermore, the Latin word oscillum used in this case is inappropriate, since these objects are usually from Greek towns. Even if they were hung on trees or used during religious feasts, the correct term is aiorai rather than oscilla.

\textsuperscript{20} Ad esempio L’Erario 2012.
\textsuperscript{21} Marinazzo 2004, 72-73; 2009, 138-139.
\textsuperscript{22} Bacchetta 2006, 32.
\textsuperscript{23} Besques 1986, 91-92.
\textsuperscript{24} Besques 1986, 92-93.
\textsuperscript{26} Rubinich 2006, 232-236.
\textsuperscript{27} Meo 2015, cap. IV.1.
\textsuperscript{28} Meo 2015, cap. IV.3-IV.5.
\textsuperscript{29} Meo 2015, cap. IV.2.
\textsuperscript{30} Mårtensson \textit{et al.} 2007; Mårtensson \textit{et al.} 2009; Andersson Strand 2010; Meo 2012; Meo 2014a; Meo 2014b; Meo 2015.
nile è stata sostituita la testa di una cievetta. Il medesimo schema è riprodotto nel n. 356, che, a differenza del precedente, discoidale, ha una forma trapezoidale; anche in questo caso non si riesce a leggere l’oggetto tenuto dall’esser mostruosso, ma in entrambi gli oscilla compare, in basso a destra, un kalathos di fibre vegetali intrecciate.

Degli esemplari semicircolari, il n. 357 riporta sui due lati la figura di un delfino che si tuffa in un mare stilizzato da onde correnti, un soggetto ben noto a Taranto perché appartiene all’iconografia del dio fluviale Eponimo della città, Taras, e compare infatti sui suoi tipi monetali. Gli altri due oscilla con questa forma (nn. 358 e 359) presentano invece due busti affrontati, presumibilmente entrambi femminili, ammantati e con il volto sollevato verso l’altro, un altro schema singolare di difficile interpretazione.

Pur essendo tipologicamente diversi, i pesi-oscilla della collezione udinese rivelano una certa omogeneità sia nelle caratteristiche tecniche, con argilla prevalentemente di tonalità arancione, beige-rosate più o meno scure, sia per la scelta dei motivi figurati e lo stile, piuttosto corsivo e sommario. A parte il caso del n. 342, la statuetta con fori dietro al capo, che potrebbe essere un giocattolo per bambini e che trova un buon confronto nella tomba 118 di contrada Vaccarella, alcuni sigilli, come si è detto, potrebbero essere compatibili con una provenienza tarantina e anche con un ambito funerario, ma non sembrano risultare presenze di pesi e oscilla nelle tombe della colonia Iaconica; più frequenti, anche se in realtà abbastanza episodiche, la segnalazione di una oscilla, e anche pesi da telaio, nelle stipe votive, particolare in quelle rinvenute nell’area del necropoli.

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342. Peso o oscillum configurato: vecchetta dolente

**Inventario:** n. 1702.

**Materia e tecnica:** argilla colore 7,5 YR 7/6, più chiara e porosa in superficie, con inclusi litici e granelli di chamosite piccoli e piccolissimi; matrice stanca; retro plasmato a mano; ingobbio 2,5 Y 8/2; tracce di colore rosso scuro sul manello.

**Misure:** alt. 6,8; largh. 4,2.

**Stato di conservazione:** superficie abrasa; mento scheggiato.

**Descrizione:** figura femminile seduta e chinata in avanti, con il braccio destro piegato e appoggiato sulle ginocchia, e il sinistro portato in alto a sostenere il volto; avvolta in un mantello liscio (poche pieghe oblique fra le gambe), sollevato a velare il capo; restano scoperti i piedi, piccoli e informi, appoggiati su una basetta dai contorni indistinti, e, sulla fronte, una corona di capelli a fascia liscia percorsa da radi tratti paralleli verticali; grandi occhi ovali non rilevati con iride rotonda e incavata; naso schiacciato e bocca illeggibile per difetto di impressione o alterazione accidentale; mano sinistra tozza con dita diritte e grassocce. Due fori passanti sul retro della testa.

**Cronologia:** seconda metà del IV – prima metà del III secolo a.C.

**Bibliografia:** inedito.

**Confronti:** GRAEPLER 1994, fig. 216 a p. 287.

343. Peso discoidale con bollo

**Inventario:** n. 1754.

**Materia e tecnica:** argilla colore 5 YR 7/3, con inclusi litici piccoli e piccolissimi; matrice del bollo fresca.

**Misure:** diam. 7,5; spess. 2,3.

**Stato di conservazione:** piccole scheggiature sparse sul bordo.

**Descrizione:** forma regolare; bollo al centro del lato principale: rosetta con otto petali entro cerchio sottile e rilevato. Due fori passanti.

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Fig. 3. Example of misunderstanding about weights and oscilla (after Rubini 2006).
32. The oscillum Misunderstanding

**Cronologia:** IV-III secolo a.C.
**Bibliografia:** inedito.
**Confronti:** DOTTA 1989, tav. XL (il terzo da sinistra).

**344. Oscillum discoidale con sigla impressa**
*Inv. n. 1755.*

**Materia e tecnica:** argilla colore 5YR 6/8, ben depurata; superficie rifinita a stecca; bollo realizzato con punzone.
**Misure:** diam. 7,1; spess. 2.
**Stato di conservazione:** bordi scheggiati.
**Descrizione:** forma regolare, con numerose solcature lasciate dalla rifinitura a stecca; al centro del lato principale, bollo N1 impresso prima della cottura; lettere grandi, regolari e profonde. Due fori passanti.
**Cronologia:** IV-III secolo a.C.
**Bibliografia:** inedito.
**Confronti:** non individuati.

**345. Oscillum discoidale a rilievo**
*Inv. n. 1753.*
**Materia e tecnica:** argilla colore 5YR 6/6-6/8, ben depurata; matrice mediorie; forse ingobbio bianco e tracce di colore rossastro sullo sfondo.
**Misure:** diam. 7,2; spess. 2,3/2,8.
**Stato di conservazione:** superficie consunta e incrostata.

**346. Oscillum discoidale a rilievo**
*Inv. n. 1758.*
**Materia e tecnica:** argilla colore 7.5YR 7/6, con inclusi litici piccoli e piccolissimi; matrice molto stanca.
**Misure:** diam. 6,8; spess. 1,4.
**Stato di conservazione:** superficie consunta e serpentato.
**Descrizione:** forma non perfettamente regolare; lato principale leggermente concavo con bordo rilevato per l'impressione della figurazione a rilievo: fanciullo inginocchiato, con busto in torsione e testa inclinata verso destra, che sta trattenendo e sollevando con il braccio sinistro piegato un oggetto informe, forse un volatilo o un cagnolino; gamba sinistra in primo piano, destra più piccola e parzialmente nasconduta; braccio destro teso verso il basso; forme enfiate e prive di dettagli anatomici. Due fori passanti.
**Cronologia:** IV-III secolo a.C.
**Bibliografia:** inedito.
**Confronti:** BONGHI JOVINO 1972, p. 81, n. 184b.

**347. Oscillum discoidale a rilievo**
*Inv. n. 1759.*
**Materia e tecnica:** argilla colore 2.5YR 6/6, ben depurata; matrice stanca; rarissime tracce di ingobbio bianco.
**Misure:** diam. 7; spess. 2,6.
**Stato di conservazione:** tracce di scottatura su un lato; superficie molto consunta; ingobbio abraso; scheggiature sparse.
**Descrizione:** forma non perfettamente regolare; sul lato principale: figura femminile con busto di prospetto cavalcando ‘all’amazone’ un cigno con ali spiegate rivolto verso sinistra; il personaggio (forse la dea Afrodite) ha il volto completamente fiso, le spalle leggermente sollevate, i seni evidenziati dal contorno curvilineo, le braccia aperte, le gambe di tre quarti, con piccoli piedi informi; con le mani si tiene alle ali del cigno; il volatilo ha il corpo leggermente di tre quarti, con coda di scorciato e zampe prive di dettagli anatomici e come sospese nel vuoto; il muso è di profilo, con testa rotonda e grande becco appuntito; il collo lievemente ricurvo; le ali grandi e appuntite, quella di destra di profilo, quella di sinistra proiettata sul piano frontale. Due fori passanti praticati ai lati della testa femminile.
Therefore, I argue that the term oscillum should no longer be used to refer to circular and semicircular loom weights, since on the one hand it involves applying a Latin term to Greek material and above all because the main function of these discs does not correspond to what the word originally indicated.

Bibliography


Fig. 4. Southern Italy. Archaeological data from a Greek town (Herakleia) and three settlements in Metaponto and Herakleia territories (author).


Orlandini, P. (1953) Scopo e significato dei cosiddetti «pesi da telaio». *RendLinc* 8, s. VIII, 441-444.


Byssus and sea-silk made of the fibre beard of the *Pinna nobilis*—zoollogically called byssus—have both become subjects of scholarly interest in the last decade. The subject is discussed not only in scientific books and journals, but also in mass media around the world. Although scientific research has clarified some old misunderstandings, the double meaning of the term *byssus* has created new doubts and scepticism in the scholarly debate, bearing the danger of new, additional erroneous interpretations. This article recapitulates the present state of knowledge and calls attention to the consequences of assumed ‘old/new knowledge’ entering the scientific discussion.

The *Oxford English Dictionary* shows the following etymological entry for the term *byssus*:

< Latin *byssus*, < Greek βύσσος ‘a fine yellowish flax, and the linen made from it, but in later writers taken for cotton, also

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1. I thank Marie-Louise Nosch and Cécile Michel for the invitation to the key lecture at the CTR congress *Textile Terminologies from the Orient to the Mediterranean and Europe 1000 BC – AD 1000* in Copenhagen (18th-22nd June 2014) and the possibility to intensify the scientific discussion on the topic of byssus and sea-silk. I thank Prof. Susanne Bickel, Ägyptologisches Seminar, Universität Basel, and Agnieszka Wos-Jucker, a specialised textile conservator from the Abegg Stiftung Riggisberg, for introducing me to the fascinating world of Egyptian linen.


3. For the term byssus see: Braun 1680; Chambers 1753; Rosa 1786; Mongez 1818; Scot 1827; Baines 1835, 533-543; Gardner Wilkinson 1842; Yates 1843; Gilroy 1845; Long 1846; Smith 1854; Bock 1866 und 1895; Forbes 1956; Wipszycka 1965; Vial 1983; Sroka 1995; Quenouille 2006, 2012, 60-67; Kersken 2008.

Irritating Byssus – Etymological Problems, Material Facts, Mass Media

5. The ‘whiteness’ of antique byssos not only refers to the fibre, but stands also as a symbol for purity and innocence, especially in religious sense. Originally therefore a fibre or fabric distinguished for its whiteness.5

James Yates refers in his book Textrimum Antiquorum (1843) to Forster’s Liber singularis de bysso antiquorum of 1776. In Yates’ book vol. II about fibres of vegetal origin, in §70 titled Byssus, is discussed whether byssus is linen or cotton, especially in relation to Egyptian mummy bandages.6 In the following I will examine the term byssus using the example of Egyptian mummy bandages based on antique written sources and material evidence.

Written evidence of byssos in antiquity

In a German lexicon of hieroglyphs, we find a whole chapter on clothing. In the section about fabrics two pages show different hieroglyphs for linen (Leinen in German). Among them are hieroglyphs for Königsleinen, Byssus (king’s linen, byssus).7 The term is also found on the Rosetta stone from the 2nd century BC, a decree issued on behalf of King Ptolemy the Fifth. Here the Greek term byssinon is used in a legislative text treating the tax reduction on βύσσος. King’s linen respectively Byssus are referred to as the finest quality of linen, fabricated – at least in Pharaonic times8 – only in temple surroundings and exclusively reserved for the clothing of priests or statues of gods and for burial use.9 We know that byssus workers even had special tools for the production process.10 Hall considers the production of “the fine royal or byssos linen as the state monopoly of the king himself … but a fixed quantity had to be delivered to the king for export.”11 The special status of byssus manufacturing is confirmed by an account for celebration and ritual occasions of the temple of Soknebtynis in Tebtunis of the 1st half of the 2nd century AD, written on papyrus: For the priestly expenses is mentioned the price of byssos for the robes of Sarapis, 316 drachmas, for the βυσσουργοί, the manufacturer of king’s linen two garments and x artabas12 wheat, and 24 drachmas.13 This is only one example of Quenouille’s study with an in-depth analysis of the context of 27 references to the Greek term bissos (with the adjective byssina, byssinon and the noun byssourgoi) on papyri from different places in Egypt, dated 3rd century BC to 3rd century AD, referring to numerous quotations of ancient authors. Almost all these papyri are temple registers, payment lists and laws.14

Material evidence of byssos in antiquity

Fortunately, many written sources about the mumification process have survived. And even more fortunately, many Egyptian tombs have survived

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5. The ‘whiteness’ of antique byssos not only refers to the fibre, but stands also as a symbol for purity and innocence, especially in religious sense.
7. Hannig & Vomberg 2012, 478-479. Vigo 2010, 291-292 shows that the term was already used in Akkadian, and often found in the correspondence between the Egyptian and Hittite courts.
10. Quenouille 2005, 232. She cites many antique sources for the term byssos and discusses the possible material: linen, cotton, a mixed textile, or byssos as a statement of quality.
12. An antique measure of capacity.
13. Quenouille 2012, 60-62: “Und für die priesterliche Kasse wenden wir die vorliegenden Beträge auf ... als Preis für Byssos für die Gewänder des Sarapis 316 Drachmen, ...für die Byssuren für 2 Gewänder und für den Unterhalt für sie x Artaben Weizen, als Lohn für sie 24 Drachmen, ...”. “
— some of them intact — and have been found in the last 200 years. Today, the analysis of the found mummy bandages or other textile fragments is standard procedure. This allows us to compare the written sources of textile designations with the material evidence.

For the procedure of mummification, enormous quantities of linen were necessary. To eliminate all moisture from the body, the textile had to be changed several times. So it may not surprise that 12 or more layers of linen bandages have been found on Egyptian mummies. Yet, linen was not only used for wrapping the body, linen cloth also belonged to the principal offerings for the deceased. The higher the status, the larger in amount and finer in quality were the linen gifts. A good example of the importance of linen textiles is the mummy of Wah found in the 1930s in a four-thousand-year-old untouched tomb at Thebes. Today it belongs to the collection of the Metropolitan Museum of Art, New York. Wah was not a royal person, but an estate manager to the early Middle Kingdom vizier Meketra (around 2100 BC). The total of cloth found in his tomb has been estimated to 845 square metres. 375 square metres of linen were used for the body only.

Not only the masses of linen used for the dead are amazing, the quality is also quite stupendous. Cooke & El-Gamal told us about the “ability of ancient cultures to produce textiles woven from exceptionally fine staple yarns … manufactured from linen… known as byssus or royal linen”. Ancient hand spinners were capable of spinning linen yarns finer than 50 micrometres. Byssus or King’s linen, the finest quality, was made of green flax, the early stage of the plant’s maturity, when the fibres are still soft. “All the technical procedure [of flax processing] was developed in Egypt, where the finest quality of linen tabby, the byssos, constituted the luxury clothing — even of the Pharaoh himself.” The tomb of Tutankhamun of the 18th dynasty (around 1300 BC) contained at least 400 items of cloth. Some were made from a fine, almost silk like linen (112 warps and 32 wefts per square cm). In classical literature we find for such gauze-like linen the Latin terms linea nebula, misty linen, orventus textilis, woven wind, or woven air — an expression often found in reference to byssus (we will later see the confusion this creates in reference to sea-silk). From another tomb of 18th dynasty Thebes, we know about a linen sheet of 515 cm x 161 cm, which weighs only 140 grams (46 warp x 30 weft per square cm).

Another, more recent example: In 2012, Susanne Bickel and her team from the University of Basel’s King’s Valley Project found an unknown tomb in the Valley of the Kings. It received the number KV 64. The coffin belongs to a young temple singer of God Amun, daughter of a priest of Karnak; her name, Nehemes-Bastet, is known from the coffin lid and a wooden stela found aside. The typology of the coffin and the stela as well as the lady’s name and title indicate a 22nd dynasty date (around 900 BC). Underneath the thick layer of debris on which the burial was placed were found remains of another burial, dated 18th dynasty, like the tomb of Tutankhamun. There are hints that the original owner of this tomb was a princess of the reign of Amenhotep III. In the debris of this first, original burial many textile fragments were found. The examination revealed ten different

23. Bock 1884, 515; 1895, 4, 8, 10; Heiden 1904, 105.
qualities of linen fabric, from coarse sackcloth to the finest quality.\(^{27}\)

All mummy bandages analysed until today are made of linen of different qualities. Already the body of a prehistoric burial found in the cemeteries at Mostagedda (Upper Egypt) was wrapped in linen,\(^{28}\) and even an animal mummy; but here “the fibre consisted of coarse material, which proves the low quality of the linen”.\(^{29}\) A single mummy textile was once analysed as cotton – which proved to be wrong: The mummy in question (Philadelphia University Museum: PUM II) had been shipped to America in raw cotton – and the cotton fibres found on the mommy were remains of the travel packaging. The mummy bandages were instead all of linen.\(^{30}\)

**The term byssus in the Bible**

The Bible, especially the Old Testament, is another well-known source where the term **byssus** is found more than 40 times – depending on the language and the version. The most translated book of the world is also the best source to demonstrate the difficulties in reference to the term **byssus**. The Hebrew Bible knows six different terms for linen: Būṣ, Šeš, Bād, Pištim, Eṭün and Kütoneth. Two of them – Būṣ and Šeš – were in the Latin vulgate\(^{31}\) translated as **byssus**.

In two other papers I analysed the translation of this Latin term into English, French, Italian and German in Bible versions of the 16th to the 21st century.\(^{32}\) Table 1 shows the conclusion: a great variety of terms, which makes it difficult to find any congruence. Most common is linen or fine linen, but also cotton and silk occur – and byssus, without translation; only once, in German, byssus is annotated finest white cotton. The greatest diversity of translations is found in German Bible editions. Bād has very seldom been translated as **byssus** in Latin; the Hebrew linen term Pištim – although never translated as **byssus** in Latin – is in some German Bible versions, paradoxically, translated as Byssus.

To sum up: In the Old Testament, different Hebrew linen terms were translated with the single term **byssus** in the Latin vulgate. Byssus was again translated differently – in different languages and at different times: beside linen and fine linen, (white) cotton, (white) silk occurs, and byssus, mostly without specification, and this in English, French and German. In Italian it is *bisso*. This may lead to the conclusion that many Bible translators had most probably no real notion about the material of byssus.\(^{33}\)

Not much different was the notion of **byssus** outside religious discourse. In the lexicon of *Krünitz*, with 242 volumes the most substantial lexicon of the German language, published between 1773 and 1858, the term **byssus** appears 40 times.\(^{34}\) We find 15 entries in textile contexts (beside the zoological term for the filaments of bivalves). Once **byssus** is another term for batiste, explained as finest linen:

**Batist.** Battist, F. Battiste, L. Byssus, ist eine sehr feine, ganz dichte, und sehr weiße Leinwand, die von weißem, sehr schönen Flachse fabricirt wird; wie denn der Batist das allerfeinste Gewebe von Leinen ist....

Then, as main entry that emphasizes the above mentioned ignorance:

**Byssus.** Fr. Bysse, nannten die Alten eine gewisse kostbare Materie, woraus

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27. This confirms Baines, speaking of Egyptian mummies: “... cloth of every degree of fineness, from the coarsest sacking to the finest and most transparent muslin,...” (Baines 1835, 533-543). Franz Bock analysed in the 1880s several German textile relics and identified different qualities of linen; the finest one he called Alexandrian linen, less fine was the Syrian one, from Antiochia (Bock 1895).

28. Jones et al. 2014, [https://doi.org/10.1371/journal.pone.0103608](https://doi.org/10.1371/journal.pone.0103608)


31. The source of the Old Testament of Christian Bibles in most modern languages is generally the Septuagint, a pre-Christian Greek translation, and the Vulgate, a Latin translation going back to the 4th century AD, with several revisions up to the Late Middle Ages.

32. Maeder 2015 (German), Maeder 216 a (English), and Maeder in press (French), with lists of translations of all Hebrew linen terms in Bible versions from the 16th to the 21st century.

33. I did not refer to the annotations of the respective Bible versions – I only took the word itself.

34. [http://kruenitz1.uni-trier.de/](http://kruenitz1.uni-trier.de/) (15.1.2015). **Byssus** was in addition a name for different kinds of algae, sponges, and lichen.
Table 1. Hebrew linen terms translated in Latin, English, Italian, French and German in Bible versions from 16th to 21th century

<table>
<thead>
<tr>
<th>Hebrew</th>
<th>Būš</th>
<th>Šēš</th>
<th>Bād</th>
<th>Pištim</th>
</tr>
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<tr>
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<td>byssus (serico)</td>
<td>Byssus</td>
<td>linea (byssus)</td>
<td>linea</td>
</tr>
<tr>
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<td>linen</td>
<td>fine linen</td>
<td>linen</td>
<td>linen</td>
</tr>
<tr>
<td>Italian</td>
<td>bisso</td>
<td>lino fino</td>
<td>lino</td>
<td>lino</td>
</tr>
<tr>
<td>French</td>
<td>byssus</td>
<td>byssus</td>
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<td>lin</td>
</tr>
<tr>
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<td>Leinen</td>
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<td>(weisse) Seide</td>
<td>Leinwand</td>
</tr>
<tr>
<td></td>
<td>Byssus</td>
<td>Byssus (= feinsten weisse Baumwolle)</td>
<td>Leinwand Byssus</td>
<td>Baumwolle</td>
</tr>
<tr>
<td></td>
<td>Leinwand Baumwolle</td>
<td>köstliche Leinwand gele (gelbe) Seide</td>
<td>weisse Baumwolle</td>
<td>Leinwand Baumwolle</td>
</tr>
</tbody>
</table>

Silk? Linen? Cotton? No wonder there was anything but agreement about the term byssus. At the end of this entry, we seem to hear the doubts about all this:

Die wahrscheinlichste Meinung ist vielleicht die, welche der Chevalier de Jaucourt in der Encyclopédie äussert, daß Byssus ein generischer Name gewesen, womit die Alten allerlei Arten kostbarer Materien zu feinen Kleidungsstücken, bezeichnet hätten.

Which means: The most probable opinion is perhaps the one of Chevalier de Jaucourt expressed in the Encyclopédie that Byssus was a generic name, given by the ancients to all kinds of precious cloth made into fine garments. More than 200 years later, Nadine Quenouille comes to the same conclusion in a study of the term byssus in Roman Egypt: “...therefore I would like to propose to keep the Greek term ‘byssus’ without translating it.”

16th century: A second meaning of the term byssus

In the above mentioned lexicon entry we find for the first time an additional meaning for the term byssus: silk from the fan shell (Pinna nobilis L.). In fact: consulting the Merriam-Webster online, we find a second – zoological – meaning of the term byssus: “a tuft of long tough filaments by which some bivalve molluscs (as mussels) adhere to a surface”.

36. The also mentioned pearl oyster (Pinctada margaritifera) is in fact mentioned several times in connection with byssus in older literature – the reason for this has not been studied yet.
Although in this second case the term *byssus* also derives from the Greek βύσσος, it changed the meaning from a vegetal to an animal fibre. So, not only have we got a second meaning of the term *byssus* for the filaments of the *Pinna*, but these filaments are the raw material for textile use, as explained in an illustrative statement of Beck’s *Draper’s Dictionary*:

“These filaments have been spun, and made into small articles of apparel. Their colour is brilliant, and ranges from a beautiful golden yellow to a rich brown; they also are very durable. The fabric is so thin that a pair of stockings may be put in an ordinary-sized snuff-box.”

A beautiful, golden-brown, brilliant textile! And very thin – symptomatic for the stories around byssus fibres and its product, sea-silk, as it contains the standard assertion about the fineness and transparency of byssus (sea-silk) fabric. The topos of the sea-silk stockings in a snuffbox – or a walnut shell, alternately – is widespread. The same is said of “Limerick gloves so delicate that they fit into a walnut shell”. Looking at the entire article to the term *byssus* in *Draper’s Dictionary*, we find the second – crucial – mistake: “This manufacture [meaning sea-silk] was well known to the ancients, and is mentioned by Pliny and Aristotle.” However: neither Pliny nor Aristotle ever used the term byssus in connection with the fan shell.

In English dictionaries we find this inconsistency already earlier. While in dictionaries of 1756 and 1768 the term *byssus* or a derivation of it does not even occur, we find in an edition of 1828 at least the term *byssine*, with the only explication: made of silk. In lexica of antiquity we find mostly the long discussion, if byssus would be linen or cotton. Other lexica – mostly specialised – make a clear distinction between byssus/linen and byssus/sea-silk. Or the term sea-silk is explained without reference to the antique byssus.

**The supposed role of Aristotle**

Aristotle was by some called the father of sea-silk manufacture: “Abbiamo anche la testimonianza di Aristotle il quale chiamò la conchiglia porta-seta, aggiungendo che il suo bisso ... poteva essere filato e tessuto.” None of this is true.

In the 4th century BC, the Greek philosopher Aristotle wrote a *Historia animalium*. He described the fan shell *Pinna*: “Αἱ δὲ πίνναι ὀρθαὶ φύονται ἐκ τοῦ βυσσοῦ ἐν τοῖς ἀμμώδεσι καὶ βοβορώδεσι” (*HA* 547b15-16, ed. Balme 2002). In the 13th century, Willem van Moerbeke (approx. 1215-1286), a Flemish Dominican priest, wrote a Latin version of the book and translated the phrase: “Pinnae rectae nascuntur ex fundo in arenosis...” (“The Pinna-mussels grow upright out of the depth in sandy places...”). This is correct, as ‘ὁ βυσσός’ is masculine, with accent on the last syllable – it means depth. Aristotle was a good observer, he remarked the fibres anchoring the *Pinna* on the ground, and wrote in the same chapter, some

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38. ... if we leave aside the very rarely found connection of ancient byssus with real silk.
40. One only has to look at the pair of stockings in the sea-silk inventory to know that this is impossible: [http://www.muschelseide.ch/en/inventar/Objekte/Str-mpf-Braunschw-.html](http://www.muschelseide.ch/en/inventar/Objekte/Str-mpf-Braunschw-.html) (13.1.2015).
41. Williams 2010, 122. Limerick gloves were made from the skins of unborn calves, and therefore very thin.
43. See the following chapter.
44. Bailey’s *Universal Etymological English Dictionary* of 1756.
47. *E.g., A Dictionary of Greek and Roman Antiquities*, 1890.
48. *E.g., Harmuth 1915.*
49. *E.g., Yates 1843, 152-159: Fibres of the Pinna.*
50. Basso-Arnoux 1916, 4; Carta Mantiglia 1997, 90.
phrases later about sedentary molluscs: “Of those that keep to one spot the pinnae are rooted to the ground”. So it is clear that he did not use the term byssus for the filaments of the Pinna.

200 years later, in the second half of the 15th century, Theodorus Gaza (approx. 1400-1475), a Byzantine humanist living in Italy, made another translation of Aristotle’s History of Animals. He translated the same phrase: “Pinnae erectae locis arenosis coenosisque ex bysso ...” 51 Theodorus Gaza misunderstood the term ‘ἐκ τοῦ βυσσοῦ’ and mistranslated ‘ex bysso’: “the Pinna-mussels grow upright from the byssus…” – ‘ἡ βύσσος’, feminine, with accent on the first syllable, meaning fine linen – as we know it now. 52

In this way the term byssus for the filaments of the Pinna was born: a translation mistake with far-reaching consequences. From that moment on there are two kinds of byssus: “Bysus terrenus est et marina” – one of the land, of linen, and one of the sea, of the filaments of the fan shell Pinna nobilis, as stated by the French naturalist Guillaume Rondelet (1507-1566). From that moment on the filaments of all bivalves were given the zoological term byssus.

I cite only one of many authors to show the consequences of this misunderstanding:

Il più antico scrittore che non solo conosce la pinna, le sue proprietà zoologiche e le sue abitudini di vita ... ma anche il preziosissimo filo, è tra i greci, Aristotele, il quale è anche l’unico (che si sappia), ad usare la denominazione di βύσσος, mentre negli altri antichi quell fibra è chiamata con altro nome. 53

The result of this is seen in the double entry in the Oxford English Dictionary for the term byssus:

1) An exceedingly fine and valuable textile fibre and fabric known to the ancients; apparently the word was used, or misused, of various substances, linen, cotton, and silk, but it denoted properly (as shown by recent microscopic examination of mummy-cloths, which according to Herodotus were made of βύσσος) a kind of flax, and hence is appropriately translated in the English Bible ‘fine linen’.

2) Zool. The tuft of fine silky filaments by which molluscs of the genus Pinna and various mussels attach themselves to the surface of rocks; it is secreted by the byssus-gland in the foot.

The conclusion is: In antiquity byssus was a fine textile of linen (or cotton, rarely silk). In the 16th century the filaments of bivalves like Pinna, blue mussel and others were given the name byssus, in analogy to the ancient byssus.

The fatal consequences for textile history are: From that moment on, textiles called byssus in antique texts were no longer associated only with linen (or cotton, rarely silk). Byssus became, in popular wisdom, for journalists and for some authors, sea-silk. With the simple logic: byssus is the name of the filaments of the Pinna nobilis of which was made sea-silk, byssus is found in the Bible and in profane antique literature, so byssus is, almost always and everywhere and at any time: sea-silk.

51. van der Feen 1949, 66-71; the faulty translation was contradicted very soon (see Beullens & Gotthelf 2007, 503), but unfortunately not in English: with the translation from D’Arcy Wentworth Thompson in 1910, the incorrect text persisted until the beginning of the 20th century: “The pinna grows straight up from its tuft of anchoring fibres in sandy and slimy places”. It is still online: http://classics.mit.edu/Aristotle/history_anim.5.v.html (25.1.2015) and has been repeated on and on. It even found its way in an actual book about marine biological materials: “Aristotle (transl. 1910) noted that the holdfast in the fan mussel (Pinna) consisted of a robust bundle of fibres with sticky tips. The term byssus (Greek “byssos” for flax linen) was accidentally coined by him for the holdfast (van der Feen 1949) and has since gained universal acceptance.” The author interpreted van der Feen in a completely reverse sense (Ehrlich 2010, 301).

52. A more extensive discussion about this is found in Maeder 2015, 2016 a, 2017, in press. For additional linguistic and translation problems see van der Feen 1949.

53. Zanetti 1964, 246. To find these other names for sea-silk in different languages and different times is one of the – future – aims of the Sea-Silk Project.
To be quite clear: “Nowhere in classic literature the Latin word ‘byssus’ or one of the two Greek words ‘βυσσός’ (masculine) or ‘βύσσος’ (feminine) is used in connection with any molluscs” – nor with the sea, or with a sea-creature. Laufer confirms this, speaking of the byssus of a mollusc: “In this sense … the word was not used in the language of the ancients.” In the last centuries, several Italian writers discussed the problem of the nature of byssus textiles in antiquity, and all reject the idea that it could have meant sea-silk. Byssus, before the 16th century, had nothing to do with the filaments of a shell, and therefore nothing to do with sea-silk. Only from the 16th century onward a textile mistakenly called byssus may – perhaps – be sea-silk.

**Sea-silk already existed in antiquity**

However: sea-silk is a fact, it existed not only in modern times, but already in antiquity. The fibre is with 10-50 microns in diameter comparable with other natural fibres, and it was spun and woven – later knitted – like any other high quality natural fibre. To what extent we do not know. Probably it was at any time only a very small production, but surely highly valued. However: in antiquity, it was never called byssus! Alciphron called it first in Greek ἀ ἐκ τῆς θαλάσσης ἔρια, wool of the sea (Lettres 1.2.3). It was also paraphrased, as we know from different written statements, e.g., of the church father Tertullian in the 2nd century AD in his text ‘On the Mantle’: ‘Nec fuit satis tunicam pangere et serere, ni etiam piscari vestitum contigisset: nam et de mari vellera, quo mucosae lanuistatis plantiores conchae comant.” Yet, Tertullian knew about linen byssus! In his text ‘On the Apparel of Women’, he says: “Vestite nos serico probitatis, byssino sanctitatis, purpura pudicitiae.” The bishop Basil the Great in the 4th century and the Byzantine historian Procopius in the 6th century were other witnesses for sea-silk. The material evidence of the existence and use of sea-silk is a textile fragment dated 4th century AD, found in 1912 in a women’s grave in the Roman town Aquincum, today Budapest. Unfortunately, the fragment and all documents about the excavation got lost in the 2nd world war.

The problem of the additional ambiguity of the term byssus started at the moment the filaments of the fan-shell were given the term byssus. The result can be seen in books from the 15th to the 20th century, where I found terms for sea-silk, in English, Italian, French, and German as reported in Table 2.

In all four languages, we find the term byssus, sometimes alone (bisso, bysse, Byssus), sometimes with an adjective (e.g., marine byssus). They are marked in bold face. And in all four languages we find fibre terms – wool or silk – associated with the origin of the sea or from a sea-creature, fish or shellfish. Interestingly, it is never associated with linen or cotton, the two materials associated with the byssus in antiquity.

That this variety of terms invites misinterpretations is obvious. Even scientific institutions cannot resolve the problem. In the 1970s, the Centre International d’Études des Textiles Anciens C.I.E.T.A. in

54. van der Feen 1949, 66. This is confirmed by my own research in classic literature.
55. Laufer 1915, 105.
56. Fabbroni 1782, Rosa 1786, Viviani 1836.
57. For sea-silk as a product of the Mediterranean fan shell *Pinna nobilis*, the manufacturing process and the textiles made of it see the catalogue of the first exhibition in 2004 in Basel: Maeder *et al.* 2004, and the homepage of the Sea-silk Project in English, German and Italian: www.muschelseide.ch.
58. … such as mulberry silk or Egyptian linen 11-15 micron, Merino wool 18-25 micron, cotton 12-35 micron, mohair/alpaca 20-40 microns.
59. Maeder 2016 b.
60. “Nor was it enough to plant and sow your tunic, unless it had likewise fallen to your lot to fish for raiment. For the sea withal yields fleeces, inasmuch as the more brilliant shells of a mossy wooliness furnish a hairy stuff.” Tertullian, De Pallio III, 6, translation by Thelwall 1870, http://www.tertullian.org/anf/anf04/anf04-03.htm (11.1.2015).
Table 2. Synonyms and translations of sea-silk in English, Italian, French and German from the 15th to the 20th century

<table>
<thead>
<tr>
<th>English</th>
<th>Italian</th>
<th>French</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea-silk</td>
<td>Bisso marino</td>
<td>Soie marine</td>
<td>Muschelseide</td>
</tr>
<tr>
<td>marine byssus</td>
<td>bisso</td>
<td>soie de mer</td>
<td>Byssus</td>
</tr>
<tr>
<td>byssus silk</td>
<td>seta di mare</td>
<td>soie de pinne</td>
<td>Byssusseide</td>
</tr>
<tr>
<td>pinna silk</td>
<td>seta marina</td>
<td>soie de byssus</td>
<td>Seeseide</td>
</tr>
<tr>
<td>marine wool</td>
<td>lana marina</td>
<td>laine de mer</td>
<td>Fischseide</td>
</tr>
<tr>
<td>sea wool</td>
<td>lanapinna</td>
<td>laine marine</td>
<td>Steckmuschelseide</td>
</tr>
<tr>
<td>fish wool</td>
<td>lana pena</td>
<td>laine de pinne</td>
<td>Meeresseide</td>
</tr>
<tr>
<td>silkworm of the sea</td>
<td>lana di nacchera</td>
<td>bysse</td>
<td>Pinnamarina-Seide</td>
</tr>
<tr>
<td></td>
<td>lana dorata</td>
<td>bysses de pinne marine</td>
<td>Seewolle</td>
</tr>
<tr>
<td></td>
<td>pelo d’astura</td>
<td>poil de nacre</td>
<td>Fischwolle</td>
</tr>
<tr>
<td></td>
<td>pelo di nacchera</td>
<td></td>
<td>Meerwolle</td>
</tr>
<tr>
<td></td>
<td>gnacara</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinna, sea-silk, sea-wool</td>
<td>seta della conchiglia</td>
<td>soie de coquillage</td>
<td></td>
</tr>
</tbody>
</table>

Lyon published a textile vocabulary in different languages. The chosen terms *soie de coquillage* or *seta della conchiglia* are probably mere literal translations of the German term *Muschelseide*, known already in the 18th century.64

**Byssus and sea-silk in the Italian language – and in Italy**

I have addressed the ambiguity of the term *byssus* in antiquity, and – with the additional meaning of sea-silk – even greater ambiguity in modern times. Sea-silk is an ancient Mediterranean phenomenon, interesting from the cultural and textile history point of view. However, it is in Italy where we are confronted with additional linguistic problems. The correct and coherent term *bisso marino* appears already in 1681, in the first illustrated guide for sea-shells with the beautiful title *Ricreatione dell’occhio e della mente nell’osservation’ delle chiocciole*.66 The author, Filippo Buonanni (1638-1725), presents the fan shell with its filaments: “... *bisso marino a distintione del terrestre, fatto di lino, ò bambagia*”. *Bisso marino*, the byssus of the sea, which he clearly opposes to the so-called *Bisso terrestre*, the ‘rural’ byssus, which consisted of linen, or cotton. He uses the same words as did Rondelet 1555: *Byssus terrenus est et marina.*

100 years later, in 1798, an Italian-French dictionary mentions *bisso* only as a precious textile in the Bible, of unknown material.67 Only 20 years later, in 1819,68 *bisso* becomes the common name for sea-silk, as again in the merchant’s polyglot manual of 1860:

64. The term *Muschelseide* is first mentioned in Rudolph 1766.
65. [deleted]
66. Buonanni 1681: Recreation for the eye and mind in the study of shells. Three years later, in 1684, the book is released in Latin.
67. Bettinelli 1798, term *bisso*.
68. Bonavilla 1819-1821.
**Bisso** followed by another term, **Lanapesce** – fish-wool.\(^{69}\) In a vocabulary of the written and spoken Italian language of 1895,\(^{70}\) a clear distinction is made between the antique byssus and sea-silk:

**Bisso.** s.m. V. G. Tela finissima, molle, del-licita, che usavano gli antichi.
**II** Bisso marino chiamano i naturalisti quello che volgarmente dicesi Pelo di nacchera....

And again ten years later, in 1905,\(^{71}\) **bisso** is correctly presented as the filaments of bivalves, although open for misinterpretation regarding antique byssus:

**Bisso.** È un prodotto di secrezione di una ghiandola che si trova nel piede di molti molluschi bivalvi, come la pinna, il miltelo ecc., e che fu detta appunto ghiandola del bisso. Questa secrezione appena emessa, si solidifica in fili assai resistenti, che servono a fissare il mollusco agli scogli. Talora il bisso di certi molluschi, come quello della Pinna nobilis, è bello ed elegante, di riflessi bronzati e simile a seta. Ora non è più in uso, ma anticamente era assai pregiate e serviva a fare tessuti preziosi. E. G.-T.

As a second meaning, in the same dictionary, follows **bisso** as a ‘technical’ term: finest, most precious textile used by the ancients, possibly linen:

**Bisso.** (tecn.) Tela o panno finissimo, preziosissimo, molle, delicato, che usavano gli antichi. Si crede che fosse un tessuto di lino sottilissimo delle Indie e dell’Egitto, di cui erano fatte le vesti più nobili e più stimate. Siccome però tali vesti erano spesso colorite di porpora, il colore fra tutti il più pregiate, quindi è che da taluni fu detto bisso lo stesso color di porpora. F. MZZL.

In the Bible, the two terms **bisso e porpora** (byssus and purple) are often found together. It is discussed whether in this sense byssus meant a linen textile dyed with purple, or the colour purple itself.\(^{72}\) In 1928, Beniamino Mastrocinque uses these two terms as title for his publication: **Bisso e Porpora – per la rinascita delle due grandi industrie. Bisso** (sea-silk), and **porpora**, the colour – according to him – with which sea-silk was dyed. He writes about the two manufactures of his hometown Taranto, capital of **Magna Grecia**,\(^{73}\) hoping for a revival of both.\(^{74}\)

Some years earlier, the same efforts had been made in Sardinia. In 1916, Giuseppe Basso-Arnoux published the study *Sulla pesca ed utilizzazione della ‘Pinna Nobilis’ e del relativo bisso*. We find the same mixture of terms concerning byssus: “Questo fiocco viene chiamate Butz dagli ebrei, Bussos dai greci, Bissus dai francesi ed inglesi; Arbi dagli Arabi; da noi italiani lana-pinna, lana dorata, gnacara; venne anche chiamato ‘seta di mare’.”\(^{75}\) It is interesting how Basso-Arnoux explains the differences in the meaning of the term **byssus**: “Non si deve confondere il bisso della Pinna nobilis, colle filamenta vegetali, pur desse sottissime, che servivano per tessere delle tele di lino più fine della battista e che solo per analogia di esilità si denominavano bisso...”\(^{76}\) – first there was

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69. The merchant’s polyglot manual 1860. 100 years later, in 1958, D’Alessio would speak in an article “Il bisso tarantino: leggende e inesattezze” of lanapesce, fish-wool, o lanapenna, Pinna wool.

70. Fanfani 1895, 129.

71. Lessona 1905, 483.

72. Or is it just an expression of extreme luxury: royal linen (=byssus) and royal purple, together the most famous materials for dressing in antiquity? For the term byssus as colour, see Brunello 1968, 58.

73. Whether sea-silk was already manufactured in antiquity in Taranto is contested. Purple manufacture in antiquity is proved by shell finds.

74. Mastrocinque shows examples made by him of linen dyed with purple; he also mentions wool dyed with purple (tav. VII) and p. 54). There is no material reference of purple dyed sea-silk. Recent experiments show that sea-silk cannot be dyed with purple; see Maeder (2017).

75. Basso-Arnoux 1916, 2.

the term byssus for the filaments of the molluscs, and in analogy to them the term was given to the fine linen of antiquity – just the opposite of how it really was! While Basso-Arnoux designates the processed byssus always as **bisso marino**, Mastrocinque never uses this term; he speaks of **bisso**, **lanapinna** or **lanapesce**.

The *Enciclopedia italiana di science, lettere ed arti* di Treccani belongs to the greatest encyclopedias. In the *Treccani* of 1930 we find a complete, extensive and comprehensive statement, including the known discussion of linen or cotton, with corresponding authors:


Nell’ambiente romano, il byssus si trova per la prima volta ricordato in Plinio. A Roma, oltre che dall’Egitto, il bisso era fornito dalla città di Scythopolis presso Damasco, dalla Siria, e da Tarso in Cilicia, come sappiamo dall’edito di Diocleziano in cui ci sono date le qualità migliori. L’Italia ne produceva poco.

L’uso di tela fine sia per indumenti, sia per fazzoletti, tovaglioli, asciugamani, si diffuse negli ultimi tempi della repubblica: la donna fu la prima ad abbandonare la veste di lana per quella di tela; e il più antico costume di lino fu il supparum. Alessandro Severo fu un grande amatore delle tele di lino e gli imperatori in genere facevano tessere il lino per proprio conto.

Also the statement about the zoological term **bys-sus** is correct, explaining that it was given to the filaments of bivalves in analogy to the byssus of the ancients.

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77. … together with the Encyclopaedia Britannica and the Spanish *Enciclopedia universal ilustrada europeo-americana*.
78. *Treccani* 1930.
79. Byssus with the meaning asbestos is mentioned also in *Rondelet* 1558, 38-39; see also Maeder (2016 b).
80. Today the Italian term **bisso** means first a fine linen or cotton used for embroideries.
Today’s Treccani Internet entry is a summary of the above-mentioned – still with no special term for sea-silk.82

In 1780, Giuseppe Capecelatro (1744-1836), Archbishop of Taranto, dedicated his study “Spiegazione delle conchiglie che si trovano nel piccolo mare di Taranto” to the Russian Empress Catherine II and sent it with several sea-silk gloves to the court of St. Petersburg. Luigi Sada has the great merit to have reprinted the text in 1983. Capecelatro uncovers some continually repeated legends of sea-silk in antique Taras (Taranto): “Le vesti di lanapenna non sono trasparenti… Le Tarantinidie così dette dall’uso, che facevasene in Taranto, dovevano essere di sottilissimo bisso [in lino, not in sea-silk], perchè così si accorda, e che erano diafane, e che convenivano all’uso, ed al poco pudore insieme delle antiche Ballerine.”83 However, in an appendix, Sada contradicts Capecelatro’s statement: “Inventori e maestri dell’arte dell’apparecchiatura e tessitura del bisso [filaments of Pinna nobilis, ergo byssus] … nella città bimare [Taranto] si confezionavano le celebri vesti tarantinidie, diafane, morbide, leggere, di colore aureo, ricercate e indossate da matrone, fameose etère, danzatrici e baccanti.”84 Once more, the famous fineness and transparency of antique linen byssus is transferred to sea-silk byssus. Capecelatro, a great promoter of sea-silk manufacturing and knowing very well the whole manufacturing process, never spoke of bisso – meaning sea-silk – but of lanapenna, Pinna wool.85

In 1994, the Italian textile journal Jacquard published an article titled “Il Bisso”. Byssus of the Pinna nobilis would be the byssus of antiquity, known in Egypt, Greece and Rome, and in the Bible. The contradiction with the term would be old, “poiché la stessa denominazione era impropriamente attribuita a tessuti di cotone o di lino, mentre solo il filato derivato dalla Pinna nobilis può definirsi ‘bisso’”86 – because the term bisso was misleadingly attributed to textiles of cotton or linen while the only true bisso comes from the pinna nobilis, as the article concludes, this corroborating the age-old misunderstanding.

How persistently some opinions survive is also seen in the estimable book La seta del mare - il bisso. Storia, cultura, prospettive – the first illustrated monograph about the sea-silk production in Taranto: “L’uso millenario della parola bisso per indicare la seta marina ricavata dal mollusco bivalve denominato pinna nobilis, ha lasciato esili tracce anche in alcuni testi della Bibbia.”87 Thousands of years the term bisso would have meant sea-silk, having left also traces in the Bible…

In scientific texts published in Sardinia, more importance is attached to clearness in the matter. While Paolo Piquereddu, former director of the Museo etnografico Sardo, speaks of lana marina,88 Gerolama Carta Mantiglia, folklorist at the University of Sassari,
makes often a distinction between the raw material *bisso* and the textile *bisso marino.*

Why did I present the ambiguity of the term *byssus* so extensively in the Italian language? Italy is of particular importance for sea-silk in two respects. Not only is it still the only country with a documented sea-silk production, at least since medieval times. Sant’Antioco, a small island southwest of Sardinia, is – together with Taranto in Apulia – the only place where the manufacturing of sea-silk was known until the 1950s. We have an interesting statement by Vittorio Alinari, a famous Florentine photographer who was travelling – and photographing – in Sardinia at the beginning of the 20th century and made the following remarks about the textile production in Sant’Antioco:

*Ma la lavorazione più curiosa è quella che si fa della Pinna Nobilis, che viene pescata in grande abbondanza nel golfo e la cui appendice terminale (bisso), formata da filamenti setacei, viene, in prima, ripulita dalle concrezioni calcaree che vi stanno aderenti, quindi filata e tessuta. Ne deriva una stoffa di un bel colore metallico, che si avvicina al rame, con la quale si confezionano delle sottovesti che, guarnite di bottoni in filigrana d’oro, pure lavorati nel paese e nel cagliaritano, producono bellissimo effetto. Per ogni sottoveste occorrono almeno novecento code la cui filatura costa, all’incirca, una lira al cento. Questo non può ritenersi un prezzo esagerato perché non può filarsene che un centinaio al giorno essendo il filo delicatissimo e facile a strapparsi.*

Sant’Antioco is also the only place where the sea-silk processing still is alive, if only on a small scale and just for demonstration purposes. Women of Sant’Antioco who had learned sea-silk processing in the weaving studio of Italo Diana in the 1930s passed on their knowledge to many locals of the younger generation. The last sea-silk weaver that once learnt from Italo Diana – Efisia Murroni – died in 2013 at the age of one hundred years. So it is not surprising that several sea-silk weavers still live in Sant’Antioco. The Sardinian journalist Claudio Moica has recently reanimated the local history of sea-silk production in the 20th century in several articles in the local *Gazzetta del Sulcis.* They are available online. And the English marine biologist Helen Scales takes also a critical look at the present situation in Sant’Antioco in chapter VI of her book *Spirals in Time - The Secret Life and Curious Afterlife of Seashells.* This book has been recently translated in Italian: *Spirali nel tempo. Le conchiglie e noi* (Beit 2017).

**Invented tradition and the role of mass media**

Beside this well-founded local history, Sardinia seems to have a rich history of mystification around sea-silk and its processing: “… è strano che si parli di segreto e di conservazione ereditaria del metodo del quale si servano gli antichi per fissarne la doratura” – this is a statement of Giuseppe Basso-Arnoux in 1916. Apparently this tendency has survived and keeps evolving since the 1990s, especially in Sant’Antioco. Against better knowledge, the term *bisso* is used by some without any distinction in the sense of sea-silk, which leads to assertions like: the Bible is full of sea-silk, all mummies are wrapped in sea-silk, and

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89. Carta Mantiglia 1997; 2006. Unfortunately some of the stories about Aristotle and transparency persist.
90. Other possible but not yet confirmed countries are Croatia, Spain, and, may be, Malta and Tunisia.
91. Alinari 1915, 114. This shows clearly that sea-silk products were made for the market – at least at that time – and sold.
more and more textile relics around the world are – of course – from sea-silk. Even perfectly researched textile techniques like l’or de Chypre is brought in connection with sea-silk. So-called ‘secret oral traditions’ around sea-silk manufacturing flourish and encounter numerous fascinated admirers, if not local, then outside of the island, and around the world. Mass and social media play an important, albeit questionable, role in the spread of this so-called ‘cultural heritage’. Countless interviews, radio broadcasts, documentary films and self-promoting books diffuse a made-up story of sea-silk, which has – except the real process of washing, combing, spinning and weaving – very little to do with the historical record.

One endlessly re-echoed assertion has a particularly dangerous effect: the assumed transparency of sea-silk. In Manoppello, a little town in the Abruzzi (Italy), exists a very fine, translucent veil in the Capuchin church, the so-called Volto Santo, venerated as the face of Christ. In 2004 it was ‘identified’ as bisso - only at sight. This bisso has been - without any questions or doubts – translated by journalists and authors as sea-silk, and thus found its way in several books, papers, videos, and films. Manoppello is today a growing pilgrimage destination and has an enormous repercussion in the Catholic world. This fact determines more and more how sea-silk ‘looks’ – even if none of the inventoried sea-silk objects have the slightest resemblance with a translucent, veil-like textile. Another veil, shown in Assisi and venerated as the veil of Madonna, has newly been ‘identified’ as sea-silk in the Vatican Magazin. This textile has been examined in 1980 and analysed as mulberry silk. In the meantime, also two textile relics in German minsters are marked sea-silk: in Kornelimünster the sudarium of Jesus “aus feinster äußerst zarter alexandrinischer Muschelseide (Byssus)” and in Aachen Mary’s robe, made of linen and “aus kostbarem orientalischem Byssus, auch Muschelseide genannt.” Both textile relics have been analysed by Franz Bock in the 1880s and were clearly identified as fine linen.

Eric Hobsbawm and Terence Ranger published in 1983 the widely discussed book “The Invention of Tradition”. The chapter of the invention of Scottish Highland traditions is especially interesting, as it contains an example from the textile world: the kilt as embodiment of a traditional Scottish costume – in fact quite modern, invented in the 18th century. What we presently observe regarding sea-silk is a similar development: the worldwide spread of half-knowledge about a so-called ‘ancient sea-silk tradition’, a mixture of ‘old wisdom’ and sacral vows, which is, in fact, in great parts an invented one. No problem that this forged ancient sea-silk tradition is mentioned in every Sardinian traveller guide. But what we must consider is the fact that the enormous publicity worldwide enters slowly – like a reverted trickle-down effect – into the heads of those who are seriously interested in textiles. At least, several publications of the last decade mentioning byssus and/or sea-silk suggest this, even if the source is not mentioned, or not even perceived.

102. Domkapitel Aachen: Pilgern in Aachen 2014. In the English edition of this leaflet only ‘byssus’ is mentioned – a good example of the translation problems.
103. Bock 1895, 8-14.
105. The old homepage www.chiaravigo.com is not online anymore. The new one is www.chiaravigo.it. Chiara Vigo – not the sea-silk manufacturing! – would be presented for Italian candidate as UNESCO Intangible Cultural Heritage (http://notizie.sassarinews.it/n?id=120796)
2007: Example one

In the Collection de l’École Française de Rome, an impressive volume of 752 pages: La culture matérielle médiévale – l’Italie méridionale byzantine et normande. In chapter IV, Métiers et activités et la draperie, are presented on the same level: animal fibres, vegetal fibres, silk, furs – and byssus. Entering the topic, we read that antique authors took byssus as a linen de couleur gris-cendre (of ash-greyish colour). Latin and Greek dictionaries would take byssus and byssos as a vegetal fibre, cotton or linen. But this is wrong, we read: “En réalité, le byssus est un tissu diaphane, créé en utilisant une fibre provenant d’un mollusque acéphale à coquille bivalve.” (In reality, byssus is a sheer fabric using the fibre of a bivalve mollusc.)

2008: Example two

In the third edition of a German practical lexicon for textile studies we find for the term Byssus the known reprises of transparent cloth for mummies and relics:

Ein feinfädiger Netzhemdenstoff aus Dreherbindung; ferner feinfädige, zarte, ungemusterte oder mit eingewebten Mustern versehene Gewebe aus Seide, Muschelseide oder Flachs. Diese Gewebe (Byssos) wurden schon zur Pharaonenzeit zum Einhüllen der Mumien und Reliquien benutzt. … Seit dem Altertum wurde dieses Sekret ‘geerntet’ und zu durchsichtigem, naturfarbigem Gewebe verarbeitet (gewirkt).

2010: Example three

Outside textile discussions, we find a scary example of an uncritical copy-paste text in a recent Springer book about marine biology materials. In chapter 18 titled “Byssus – An Ancient Marine Biological Material”, the same old mythical stories are assembled. We read about the ‘Cloth of gold’ and Jason’s ‘Golden Fleece’ and the tunic found by Herodotus “made of a loose fabric of exceedingly fine thread … finer than a hair”, and of course, the “fine, diaphanous fabrics … commonly used in making the apparel of the queen and the princesses and the wives and daughters of rich men and high officials.” Even the legend of ‘the byssus gloves folded and packed inside a walnut shell’ is included. The author ends the chapter with the following words: “Because of the very simple (and today unique) technique of the spinning of the byssus threads, I take the liberty to represent here several images which, in my opinion, will astonish our material research community.” Shown is a whole page with photographs of the sea-silk production with our ‘last and only maestro di bisso’.

2010: Example four

In a linguistic study of Neo-Assyrian textiles and their colours, we read about the byssus of molluscs for luxury clothes: “Le byssus, tissu très fin et de grande valeur, réalisé à partir de filaments produits par des mollusques, était réservé à quelques vêtements de luxe.” This cannot be taken amiss, as the reference to this statement is a paper of 1991 in which, about the Akkadian term būṣu, ‘Hebrew būṣ, Phoenician ḫṣ’, is said: “Knowledge of true byssus appears to have fallen out of the focus of modern scholars of history; most recent works on ancient textiles only mention it in passing as a fine linen, although conchologists are still aware of its existence”… Byssus would be “an ultra-fine fabric woven from the tuft of fine silky filaments … of the genus Pinna…” Unfortunately, Dalley here referred to several pieces of misinformation debunked since. Her bold conclusion is: “From Late

107. Did he take this idea by Harmuth 1915, where one concept of Buz is a “plain woven gray cotton fabric made in Central Asia”?
109. Ehrlich 2010, 299-318. Although he refers to some papers of Maeder, and Maeder & Halbeisen, all citations are copied from a homepage without any scientific background (www.designboom.com), dated 2002.
Bronze Age and Early Iron Age sources it may be possible to show, both from representations and from texts that indicate the direction of trade, that Akkadian būṣu is indeed the fabric made of mollusc filaments.”

2013: Example five

In a discussion about the term thalassai in the Book of Prefect, a Byzantine commercial manual of the 9th century, a “textile from byssos – the so-called sea silk (also: marine wool or marine silk)” is mentioned. The authors not only refer to the above-mentioned book of Ditchfield, but also to the Der Kleine Pauly. Lexikon der Antike:

Byssos (βύσσος) bezeichnet verschiedene pflanzliche und tierische Fasern, βύσσινος, βύσσινων πέπλωμα … Kaum jünger als die Bezeichnung für Leinfasern dürfte die für die bis heute Byssos genannten Haftfasern festizider Meermuscheln, besonders der im Mittelmeer verbreiteten Pinna nobilis sein, aus deren 3-8 cm langen Fasern seit dem Altertum Stricke, Strümpfe, Handschuhe u.a. hergestellt werden.

2013: Example six

The term byssus and its derivations are also mentioned and discussed in the book Etymologies of Isidor of Sevilla and in the Summarium of Heinrici. The conclusion of the authors is: „Byssum ist kein bestimmtes Material, sondern ein Qualitätsbegriff, hinter dem sich die Rohstoffe Leinen, Baumwolle und Muschelseide verbergen können.” Of course, sea-silk was known in the 7th and 11th century, but as I have demonstrated above, it would not have been called byssus.

2013: Example seven

In a recent semiotic thesis about the traditional costume in Sardinia, the whole chapter of byssus and sea-silk consists of unquestioned stories about this so-called ‘oral tradition’ heard from the above mentioned Sardinian weaver who has declared herself the last and only sea-silk weaver of the world, “Maestro di bisso” since 20 generations! No questioning, no discussion of terms, no precise references to any literature. The chapter ends with a poem of Giovanni Pascoli, a 19th century Italian poet citing the precious silk «la preziosa seta»:

“O mani d’oro, le cui tenui dita menano i tenui fili ad escir fiori dal bianco bisso, e sì, che la fiorita sembra che odori” – even the ‘white byssus’ is not scrutinised or questioned.
2014: Example eight

In a book of 2014 titled “Unwrapping Ancient Egypt” we read:

The finest linen, known as ‘royal linen’, was almost sheer and is sometimes erroneously translated as byssus, after the Greek word for a thread spun from mollusk secretions, whose miraculous, gossamer quality the finest woven flax may have resembled.\(^{119}\)

Conclusions of the Italian situation

John Peter Wild stated once: “To discover the meaning of a specific textile term, a lexicon is a good place to start, but a bad place to end.”\(^{120}\) How true! Studying the terms byssus and sea-silk in lexicons and dictionaries is of nearly no help. They only render the researchers uncertain with all their inconsistencies and contradictions.

As we have seen, even actual specialised dictionaries raise more questions than answering them.

This background explains why fantastic stories around real sea-silk production – as we hear of Sant’ Antioco – encounter such an enormous interest. Sea-silk exists! You can touch it! How could all this not be true?

These few examples – from the thesis of a Roman university to historical and textile studies of antique and medieval times up to a modern specialised lexicon and biological reference book – show the consequences of the impact of mass media in present-day research, at least in the matter of byssus and sea-silk. The ‘power of naming’ – so it seems – lies more and more in fanciful websites, odd blogs, Facebook accounts, and magic events around ‘secret and sacred old traditions’. How should textile research handle this?

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119. Riggs 2014, 117. The author refers to Dalley 1991 (as did Villard 2010), but also to the homepage of the Sea-silk Project; I take it as an appeal to re-read it carefully and look for misunderstandings.

120. Wild 2007, 5.
ac 39 et Levit. cap. 16, aliaque loca s. Scripturae quam plurima. Amsterdam.


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Conceptualizing Greek Textile Terminologies: A Databased System

Kalliope Sarri

One of the major challenges in costume and textile research is dealing with the vast number of terms related to textiles and garments, especially because similar terms are found in different languages and dialects, in various regions and over long periods of time, where they have survived in a complicated network of linguistic and cultural interrelations. There have been many attempts to collect textile terms in glossaries as parts of costume studies or as parts of museum archival projects. These glossaries however are usually limited to specific topics, geographical areas, languages, and time periods.

Creating a diachronic and global costume term base in the Greek language is of considerable value for textile terminology, since the earliest textile terms in the Greek language go back to the second millennium BC, retrieved from the clay tablet archives of the Mycenaean palaces. These early textile terms can be also traced in the vocabularies of other ancient languages, such as the word *khiton* (Greek: χιτών), which appears as *ki-to* in Linear B coming from the Semitic *ktn*.

An effort to systematize Greek textile terms in a databased system was initiated as a pilot program between the years 2000-2003 and it was first presented at the conference on *Textile Terminologies from the Orient to the Mediterranean and Europe 1000 BC – AD 1000* and at the *Euroscience Open Forum* meeting (Copenhagen 2014). This study is now included in the present volume. The project took place during the recording of a costume collection, which was a joint project of the Peloponnesian Folklore Foundation, the Museum of Greek costumes and the Foundation of the Hellenic World. The term collection was initially focused on Greek traditional costumes of the 19th century. Soon after its first steps it became clear that the collection had to be extended to other periods, languages and areas adjacent to the modern

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1. I owe many thanks to Ioanna Papantoniou, Xenia Politou, Nadia Maha-Bizoumi and Angeliki Roumeliotou for their valuable advice and encouragement during the compilation of the terms collection at the Peloponnesian Folklore Foundation and the Museum of the History of the Greek Costume of the Lyceum Club of Greek Women between the years 1999-2002. I am very grateful to Marie-Louise Nosch and Susanna Lervad for discussions on the concept and usefulness of the database and for reviewing this paper. I also owe many thanks to Cécile Michel and Salvatore Gaspa for accepting this paper in the conference volume.

2. For the Mycenaean textile vocabulary see Del Freo, Rougement & Nosch 2010.

Greek state in order to enlighten the etymology and the alterations of the terms. Moreover, through this linguistic pathway it is possible to trace a wide range of historical and cultural contacts between various ethnic communities within and outside these borders. Thus, costume terms from the oldest historical periods and from areas outside the current political and cultural boundaries of Greece have been included in this project.

The textile term collection, the structure of which is presented here, contains approximately 6000 terms directly related to clothing items but also to raw materials, treatments, implements and stages of manufacture, and also related to the physical conceptual environment of clothing production, e.g. φόρεμα (Greek: φόρεμα): dress and νυφικό (Greek: νυφικό): wedding dress, their use by specific social or professional groups, e.g. διάδημα (Greek: διάδημα): diadem, as well as special pragmatic and linguistic definitions linked to them, i.e. γυαλωμένο (Greek: γυαλωμένο: textile finishing through applying glass pressure; from γυαλί: glass). At the same time, the collection includes terms concerning ancient garments, textiles and textile implements seen as archaeological finds, exhibition objects and as objects under conservation and research.

While compiling textile terms from various historical periods, we noticed that a high number of words derive from other languages, some of which reached Greek as loans or as results of mutual loans, while the origin of many other terms remains unclear. Alternative etymologies have been included with the main entries, and thus the dictionary, apart from being a place for collecting and explaining the meaning of the textile concepts, can also be used as an etymological tool for monitoring a perpetual traffic of textile related words in space and time.

The concept

The multi-thematic and diachronic collection of textile terms presented here aims – through a systematization of the terminology – at acquiring direct knowledge of as many diverse aspects of the historical costumes as possible. In a thesaurus in the form of a dictionary or encyclopaedia it is possible by a simple query to reach the meaning as well as side information about all compiled entries.\textsuperscript{4} The major advantage of a databased system such as the one suggested here is that the search can also be operated in a reverse direction, that is, starting from a survey on a special field of interest one is able to discover many more related words, focused on specific topics and taking into consideration various chronological and geographic parameters (fig. 1). This can be achieved a) through a system of classification fields and b) through a system of keywords directed towards specific thematic units. Thus, a simple lexicographical research can be turned into a search-engine extending beyond time or space limitations. The experience with this kind of structure so far has showed that a search system based on key fields and keywords leads to many more unexpected findings about the origin, the history, and the distribution of clothing items and related terms than those initially targeted.

Terminological sources

The sources of the term collection are of different nature, depending on the periods from which they come. For the prehistoric and proto-historic periods

\textsuperscript{4} An example of this kind is the online terminology collection Textilnet. See Engelhardt Mathiassen & Ringbøl Bitsch 2016 and Ler- vad & Engelhardt Mathiassen in this volume.
there is not a verbal terminology, yet archaeological terms referring to a rich imagery or to the use of textile related objects and connotations can suggest visual or linguistic comparisons with later historical terms, revealing the origins of clothing production before they appear in any deciphered language.\footnote{5} An example is the term ‘Minoan dress’, which despite its obvious onomasiological convention, is a definition that shows the pattern of the hieratic garment of the Minoan period and can be compared to costume patterns of other cultures.\footnote{6} In some cases, the archaeological record seems able to indirectly support the terminology and can even lead to the meaning of words and symbols, \textit{i.e.} the prehistoric loom weights explain in reality the shape of ideograms TELA of Linear B script (fig. 2b) but they also clarify the etymology of the ancient Greek word for loom \textit{histos} as this means a standing or vertical loom.\footnote{7} At the transition from prehistory to history during the Late Bronze Age, the first, fragmentary texts in the Linear B script contain the oldest Greek words denoting clothing. Here, pictograms, if compared with their contemporary illustrations and other archaeological evidence, can help link images with words, \textit{i.e.} the different symbols for women and men show that they wore different clothes and that women’s clothes were long wide dresses while men wore short garments. A characteristic example of linking texts and objects is the symbol of armour, which can be verified by means of Mycenaean items known from the archaeological record (fig. 2c).

\textbf{Historic textile terms}

In the Greek and Latin texts of history and philosophy, poetry and in the texts referring to nature, \textit{i.e.} the works of Pliny, there is a large amount of costume and textile terms, most of which have been already recorded in the classical language dictionaries. So, it is possible to search and find exactly, meanwhile on the web as well, in which ancient text certain terms occur and how their meanings are differentiated by diverse authors.\footnote{8} At this point, it is worth mentioning that ancient writers and modern translators – especially those who were not particularly interested in giving very precise descriptions of nature or technicalities – do not always give accurate information in the fields of textile production and costumes and sometimes they even give confusing or misleading information. Classical examples are the Greek words

\footnotesize

\begin{itemize}
  \item \textbf{Fig. 2}
  \begin{itemize}
    \item \textbf{a} man
    \item \textbf{b} woman
    \item \textbf{c} cloth
    \item \textbf{d} armour
  \end{itemize}
\end{itemize}

\end{itemize}

\footnotesize

5. For aspects of nonverbal terminology see Lervad, Flemestad & Weilgaard Christiansen 2016.
7. See the different versions of the logograms in Nosch 2016, fig. 17.2, table B.
8. See, \textit{e.g.}, the Perseus Digital Library: http://www.perseus.tufts.edu/hopper/.
byssos and mitos, discussed in the present volume, as well as the word diplax in the translations of Homer. In such cases the search and comparison between alternative meanings and descriptions can lead to corrections or altered interpretations of the primary information. Numerous depictions of people in ancient art, i.e. in sculpture, vase painting and architecture, sometimes show with many details how ancient clothing was made and how it was worn, so that we can easily compare pictures with words.

For the term collection from Late Antiquity, Byzantium, and the Medieval period we have used similar historical and literary sources, which are supported by a rapidly growing number of –in the areas of the east Orthodox church Greece’s mostly religious – iconographic data. Mutual loans during these historical periods can be traced more accurately with knowledge of other languages and through the increasing amount of information saved in the literature and other written sources.

Encyclopaedias and lexica, especially of an older date and concept, bridge the linguistic distance to our modern era while when approaching our time, the number of special costume studies increases and these are very often accompanied by term glossaries, which can be included in the database. Museums and textile research centres have also accumulated large numbers of textile terms in archives, publications, exhibition and educational material, which can be further systematized and used as direct information sources. In the modern era of media and multimedia environments, journalistic texts, documentary films, interviews, ethnographic photography and blogs presented on the Web have been also proven a valuable pathway for discovering unknown or laboriously accessible textile terms.

The structure of the database

The textile term database consists of two kinds of fields: fields to be filled out with textual information and fields planned as multiple choice lists based on preselected categories (fig. 3). All entries can be classified by the users in order to form queries based on certain groups of criteria. In this way, users can collect and study comparatively terms from specific areas, historical periods and languages, as well as terms related to special research fields and terms referred by certain authors or in special kinds of publications.

Close to the term ID, the etymology of this word is given as the first, second or third language of attestation. Here various authors and sources can give diverse information or their personal view on the derivation of the terms, which can be compared and evaluated by the database users and researchers. For a better tracking of the terms’ mobility, it is also very useful to supply a phonetic transcription as well as a sonic performance of the terms. In this way, it is easier to compare terms, which may offer a weak phonological but a stronger sound relation, maybe altered by local dialects and language loans.

One of the crucial features of this database is a field containing classification codes, which makes it easier to approach, detect and categorize the semantic and functional environment of the terms. The codes appear as acronyms consisting of three letters and function as key words leading to information asked with a query. Through this, users can reach information on the conceptual or functional environment of the term, i.e. to find if entries denote textile fibres, dyes, weaving implements, workshops, clothes, decorations, accessories or parts of accessories. For example: a chemical substance for cleaning or fixing...
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<th>Description &amp; Function</th>
<th>Field type</th>
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<td>Multiple Choice</td>
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<td>e.g Head, hand, foot, neck, bodice, lower part</td>
<td>Multiple Choice</td>
</tr>
<tr>
<td>Age &amp; sex</td>
<td>e.g. Man, woman, child, baby, old person</td>
<td>Multiple Choice</td>
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<tr>
<td>Actor</td>
<td>e.g. worker, warrior, bride, priest, royalty, not defined</td>
<td>Multiple Choice</td>
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<td>Circumstance</td>
<td>e.g. Everyday dress, work, wedding, funeral, dance, sport, war</td>
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textiles would belong to the category ‘conservation’, a coloring plant to the ‘dyes’, a pattern to decoration, a clothing item to ‘part of costume’. The more specific codes are, the easier it is for the database user to discover new terms and evidence in particular fields of interest.

Apart from this main classification code, a series of other fields are aimed at yielding classified information. The field ‘activity’ e.g. leads to a certain stage of textile and costume manufacture or use (i.e. weaving, sewing, dyeing, pleating, wearing); the field ‘body part’ tells us which part of the body the clothing item covers (head, legs, feet, hands, shoulder, etc.). The field ‘age/sex’ shows that the item was worn or used by a man or a woman, a young child or an older person or it was a unisex or universal garment worn by everyone. The field ‘actor’ informs us more precisely – whenever possible – about the identity or the social role of the user (worker, warrior, bride, priest, royalty or undefined). The field ‘circumstance’ shows in which case a clothing item or tool was used (work, wedding, celebration, performance, battle, funeral).

A group of geography specifying fields informs about the places, where costumes, textiles and textile related items, dressed people or actions have been localized. Here the geographical names of regions, countries, towns or villages can be entered, so that the database users will be able to make their research on specific geographical areas. If the users’ search focuses in areas of special interest, it is possible to make targeted queries with a combination of many pre-classified fields, i.e. on the kind and names of head covers abundant in a certain area or during a special chronological period, used by a certain social class or under certain circumstances.

Queries can also be made based on bibliographical sources, since entries are accompanied with a full citation leading to the authors or other information sources. A special field informs us about the kind of the source used, i.e. lexicon, museum archive, ancient literature, individual research work, so as to enable comparisons, cross references and evaluations.

An ideal terminology collection should contain pictures, which illustrate and explain visually the compiled terms. This is unfortunately not possible for many periods in Greek textile history since the majority of written sources are not illustrated. However, the dictionary should include pictures and visual examples whenever available. This is much easier for archaeological and museological terms and for terms coming from iconographic sources.

**Application fields**

The term-collection aims at offering knowledge about historical clothing to anyone interested in this topic. There are some areas of historical and technological research though, where it is particularly valuable to use a textile dictionary. The most important among these are the history of costumes, the archaeological research, ethnology, the conservation of historical fabrics and museology.

**Historical research**

The collection of textile terms can shed light on many aspects of historical research concerning the regional history of clothing production but also on population movements, trading and cultural relations between regions. Through a comparison of terms in different languages, we can trace word movements from one region to another which signify trade and contacts between those countries (e.g. fez). Generally speaking words and terms occur in certain places where they remain until they are replaced by new ones coming from new local traditions or via distant influences. In contrast, other textile terms remained unchanged for thousands of years in the Greek language such as the word for loom (histos, Greek: ιστός), wool (erion, Greek: έριον), flax (lino, Greek: λινό) and distaff (Greek: ηλακάτη).

**History of arts and crafts**

In the ancient and modern figurative arts we can find images of costumes represented with clarity, sometimes even with many details. These comprise valuable evidence for historical fashion, clothing technology and for the raw materials used but they are also valuable for giving us information about the wearer in his or her historical background. In Greek-speaking regions the main source of information about ancient
costumes can be found on vase painting, sculpture and later in religious iconography and in the fine arts. In all these cases we have images of clothing elements, but not their names, since both ancient and modern iconography have usually only an ideological or decorative character and do not aim at describing the material culture in much detail. Terms fill here the role of imaginary captions missing from the pictorial representations. The search for textile terms based on iconography is a very effective approach for textile research because it makes it possible to compare and verify data (materials, structure, design) by combining names, verbal descriptions and pictures. For example, if we search the name of a male headdress seen on a picture from a historical period and if we know the area of the persons’ activity, we can search in the database for male headdresses from this particular period and region and eventually find this word from a textual source.

Archaeology

The use of accurate textile and costume terminology is of great value for the archaeological record. In the case of ancient civilizations for which we have only limited information, it helps to standardize the terminology of raw materials, manufacturing methods, tools and techniques but also the terminology of fashionable choices and dress codes of the periods under investigation. As the costume design and the fabric technology have not yet been included in academic archaeological training, a common and technical language is needed for descriptions of tools and manufacturing techniques of historical textiles.

Ethnology

Textile terminology in the field of ethnological studies can illuminate aspects of manufacture and the use of fabrics and garments in various lesser known cultural communities. The nomenclature of clothing often links these activities with other related tasks such as dyeing, tools, the selection of raw materials and the manufacture of utilitarian objects. Ethnological terms derive from relatively recent periods from which there is ample illustrative and historical evidence, thus through a systematic collection, it is possible to detect and rescue large numbers of textile terms which are becoming extinct or forgotten.

Conservation

From the perspective of the rescuing strategies of historical and archaeological textiles, both traditional and modern conservation tools and methods can be tried and marked with a special classification code (e.g. COM: conservation material). Moreover, knowledge of ancient or traditional methods supplies ideas for the conservation of old natural materials, which causes less damage to the fibers. By selecting relevant terms, textile conservators may find a wide range of information on the appropriate materials required at every work stage. In the group of terms concerning conservation materials and methods we have so far included so far are also terms for traditional methods for cleaning, treating and repairing of clothing and fabrics.

Museology

With the aid of a textile term dictionary, museum objects can be recorded by using their authentic names (e.g. we can use the word ependýitis and not coat for the traditional overcoat of the Ottoman period or peplos and not dress for the specific female dress of the classical period), preferably the original names used during their time and place of use, with a standardised terminology. In this way, costume collections can be supported with the use of accurate information, while they will be, at the same time, able to save old terms. In addition, by using standardized terms, museum recordings can also be operated also by non-fully specialized staff or trainees. During exhibitions, museum curators can use correct and unified terms for the legends and accompanying texts, and in this way they will be able to disseminate accurate information to the public.

15. I would like to mention here the exceptional work of Marina Vrelli Zachou (University of Ioannina) in gathering information on traditional Greek costumes and textile terms in collaboration with the students in the framework of the seminars. Vrelli-Zachou, http://users.uoi.gr/mvrelli/ergasies/xeiografa-endyamtologikis-laografias.pdf
Conclusions

The aim of this ongoing project is to collect Greek costume, textile and related terms from all periods and regions including terms from other languages, which have been integrated into Greek. Beyond the technological and the linguistic part, a textile term dictionary, by tracing the human and social conditions behind the terms, aims to illuminate social aspects of clothing manufacture and dress codes, providing understanding of the society and economy of former periods and cultures in the Eastern Mediterranean. The collection of entries can be a tedious task when terms are scattered in various texts and different kinds of sources, while it becomes much easier and effective when they are grouped together in lists and indexes. This makes the existence of glossaries in every costume publication a valuable vehicle for collecting and evaluating textile related terms.

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textilnet.dk – A Toolkit for Terminology Research and Presentation

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Since February 2015, the digital dictionary or term database, textilnet.dk, has been accessible on the Internet.¹ The purpose of this paper is to present the background and methods of this pilot project. Since 2010, the project has collaborated with The Danish National Research Foundation’s Centre for Textile Research (CTR), University of Copenhagen, and has gained moral support from Sabine Kirchmeier-Andersen, director of Dansk Sprognævn, the Danish National Language Advisory Committee.² From 2011 to 2015, we have been working with generous funding from the Danish Ministry of Culture. The objective of textilnet.dk is to preserve and communicate the cultural heritage of words and expressions for clothing and textiles in the Danish language. The unique starting points of the project include the collections of handwritten and typewritten files of terms compiled by the Danish textile researchers Erna Lorenzen and Ellen Andersen, quotations from all types of literature from textile conservator Else Østergård, and photographic slides of 1980s textile samples by textile scholar and ethnologist Ingeborg Cock-Clausen, which provide great illustrative assistance.

The files of Erna Lorenzen and Ellen Andersen

Dr Erna Lorenzen (1909-2006)³ was the keeper and curator of the collection of historical dress and textiles in Den Gamle By (The Old Town), Danish Open Air Museum of Urban History and Culture from 1959 to 1979. After she passed away in 2006, her files, which were probably collected while she was researching for her doctoral thesis, Folks Tøj i og omkring Aarhus ca. 1675 - ca. 1850,⁵ were found and brought to Den Gamle By. These files have proved to be a true treasure chest for anyone interested in the terminology of different fabrics and textile fibres. Around 900 index cards with words have been thoroughly researched and digitized for textilnet.dk.⁶

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¹. This resource of Danish textile and clothing terminology is available from the address: www.textilnet.dk
⁴. www.dengamleby.dk
⁶. The resources used researching the index cards in Erna Lorenzen’s files will be placed at the end of this chapter as Appendix 1.
From 1936 to 1966, Ellen Andersen (1898-1989) was the keeper and curator at the National Museum of Denmark, and, like Erna Lorenzen, had special responsibility for historical dress and textiles. Ellen Andersen’s files are kept in the National Museum of Denmark, and her collection is larger (approximately 5,000 index cards) and more diverse than Erna Lorenzen’s. Apart from terms for dress and textiles, Ellen Andersen’s files contain many index cards with references to literature and other sources, which describe items kept in the National Museum. The index cards, which are not strictly about the definition of concepts, are keyed into Word documents as part of the textilnet.dk project but are not currently released in the online version of the database. There is, however, great potential which will hopefully be made available later. The majority of terms for fibres and fabrics in Ellen Andersen’s collections are identical with Lorenzen’s but Andersen’s also focuses on terms for dress and parts of clothing. These number about 150 index cards, which are typed into Word files and made available as quotations in textilnet.dk.

The history of the ideas behind textilnet.dk

In 2004, the project was started by the Danish Costume Group, Dragtpuljen, which is a network of researchers into textiles and dress. The core members of the network come from the staff of Danish museums.

Fig. 1. From 2011 to 2014, Birka Ringbøl Bitsch was employed on the textilnet.dk-project, starting most of her research with this wooden box containing Erna Lorenzen’s collection of terms. Photo: Tove Engelhardt Mathiassen.

Fig. 2. Dr. Erna Lorenzen. Photo: Karin Munk.

working with collections of dress and textiles, broadly speaking, as keepers, curators, conservators and also keen individuals who, without any formal academic training, have taken special responsibility for collections in smaller museums. The work in Dragtpuljen is organized into small groups, each with special interests, and projects that unite the members. The group defining the project, which later became textilnet.dk, quickly – and boldly – agreed in 2004 that the future user groups of textilnet.dk would be the curators and registrars of museums and researchers who, for various reasons, need more knowledge of textile and clothing concepts/terms, as well as linguists and the general public. Languages change in daily life. Politics and culture change through time. By preserving words in a database, we keep in touch with our own history, craft and art. For instance, we can read the fairytales of H. C. Andersen and all other written sources with terminology about clothing and fabrics with an improved understanding. Danish serves a small language area but this project is nevertheless founded on the conviction that it is of the greatest importance to preserve terms - particularly those that are no longer in use. The group’s work started many discussions about classification.

We agreed on four main categories of concepts:

1. Textiles and the different techniques to produce them.
2. Dress and all of their different parts.
3. Decorations and the techniques to produce decoration.
4. Colours, dyes and techniques to produce colour and dye.

Expressions and quotations from Danish literature with connotations of dress and textiles are noted in the database when they prove enlightening. The collection of quotations from 18th-century newspapers and 19th-century literature by Østergård is a unique resource in this context. These quotations are very helpful in understanding the use of certain textiles and clothing in their specific social environment.

The fifth section is related to terms and expressions of fashions and styles. None of the collections of terms, which are included in textilnet.dk at this stage, contain examples of fashion/style which, for instance, would be termed punk and hip hop. It is hoped that these terms will be included later. At the moment, expressions and idioms with references to terms of dress and textiles are included when present in the sources used. Lorenzen’s 900 index cards with terms primarily for fabrics and fibres were methodically researched in the handwritten files of the Danish lexicographer Mathias Moth from the 17th century. These were also made available online during the work of textilnet.dk. These terms for fabrics and textile fibres are also researched in a selection of scientific literature, dictionaries and other handbooks – up to 10 sources per concept are listed (Appendix 1).

Fig. 3. Ellen Andersen. Photo: The National Museum of Denmark.

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10. From the late 1990s to 2013 the network received financial support from the Danish Ministry of Culture and opened up to members from universities and other research and educational institutions. List of members: http://www.dragt.dk/medlemmer/ (Accessed December 3, 2014).

11. Else Østergård was appointed conservator at the National Museum of Denmark in 1958.

**Termbase: Media Wiki**

The group of scholars also undertook a review of database systems before choosing the Media Wiki system. We chose it for several reasons. First, the Wiki data structure format is familiar to everyone using the Internet. Secondly, the Media Wiki system is updated regularly. As mentioned above, the group has good support from the director of the Dansk Sprognavn, Sabine Kirchmeier-Andersen, who stresses the importance of regularly updating the systems. It would be inefficient in both research time and funding, if the group used a system, which, after a few years became obsolete. Thirdly, data can be exported into other systems from Media Wiki and be combined in new and informative ways. We also have contact with Professor Bolette Sandford Pedersen\(^{13}\) at the University of Copenhagen, who in 2004-2008, worked with DanNet, a digital platform for presenting words, terminology and relations between words. In the future, textilnet.dk will be a source of concepts/terms for other databases and terminology projects, such as DanNet.

**The conceptual structure of textilnet.dk**

Textile terminology work is based on an analysis and structuring of concepts and the relations between them.\(^{14}\) The concept of textile/clothing is the basic element of our work in textilnet.dk and the way we order and transfer knowledge. When we think of textile concepts, such as a fibre, we choose a number of properties in order to characterize the concept. The fibre is a material and also used to form a textile structure, such as a basic weave. The properties of the objects are abstractions and characteristics, which form the concepts. In textilnet.dk we have concepts connected to single specific objects - individual concepts such as ‘siamhamp’ and ‘bielefelderlærred’ and more general concepts as fibre and weave. The characteristics of the concepts such as the form and the geographic origins are thus reflected by different verbal representations, and the knowledge about the generic aspects of the concept of plant fibre (hemp and banana) is transparent for any user of textilnet.dk in order to transmit the knowledge of the subject field, which one single standardized term might not give. To give another example: the numerous variants in the term base for the concept of the technique of the basic ‘tabby weave’ are provided this way: Term: ‘lærred’ (Tabby) Variants: læret, læret, læreret, lerredt, læith, lærth, lerudth, lærft, En.: Linen. (Juul 1807, ‘Lærred’) Germ.: Leinvand. (Juul 1807, ‘Lærred’) Fr.: Toile. (Juul 1807, ‘Lærred’), Definition: Textile …. Basic weave of tabby.\(^{15}\)

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Other term variants in the term base such as ‘lærred’ are ‘agenois-lærred’, ‘bengalsklærred’, ‘bielefeldlerlærred’, ‘bocklærred’ reflect the origins of the fabric, which is produced in Agenois, Bielefeld etc. In this way, we can keep track of different concepts of a weave and a final product of the basic tabby weave, different origins, orthographic variants, and the integration of French and German terms in our material. Researchers in both ancient and modern textile studies need to understand both generic and specific concepts and their relevant terminology in order to share understanding in a common language across times and cultures. Our goal is to share concepts, language and associated cultural ideas, and not to standardize the terms. Another very important concept from our chosen time period is silk, which is represented by the following variants: ‘Silke’, ‘silky’, ‘silchæ’, ‘silki’ and eight variants in textilnet.dk if you search the term: ‘floretsilke’, ‘floretsilke’, ‘fleuretsilke’, ‘floksilke’, ‘flossilke’, ‘chéppesilke’, ‘schappesilke’.17

Examples from textilnet.dk

Three concepts/terms are presented here to exemplify how textilnet.dk could be a toolkit for other terminology projects. Every concept in textilnet.dk will be worked up in the seven categories mentioned above, whenever possible from the current sources. The first category is variants, which are very important from linguistic and historical perspectives. The next is language, when it is relevant for understanding the concept, and when this information is available in our current sources (Appendix 1). The third and most important category is the definition, which expresses the condensed analysis of the concept. Language and terms change their meanings over time so whenever possible, the relevant date/time from the available sources is the next category. The sources in which the time aspect existed are also listed. The fifth category is explanation. This category is usually somewhat longer than the definition, the latter being the condensed result of our work. The next and very important point is the quotation, which is an excellent way to place terms

for fabrics and clothing in their original social setting. Just one example of the quotations will be given here as most of the language is in very old-fashioned Danish, which is difficult to translate into English.\textsuperscript{18} The last of the seven categories is the sources, and, as an extra service for the user groups of textilnet.dk up till 2017, we have also noted in which of our sources the concept/term is not mentioned.

The first example is the term angoriske kamelotter,\textsuperscript{19} which is chosen to show the interrelations of the concept variants in textilnet.dk. The variants are angorinsk kamelot (singular) and angoriske kamelotter (plural). The variants illustrate the way textilnet.dk links the pages from every concept/term in the main section, where the terms are listed alphabetically. Alternatively, a user can make an open search of a term and will see every mention of it in the entire database. The category for language is empty in this example because it is only used when the relevant information is available in the current sources. This presents great opportunities for collaboration. A goal of the presentation of this toolkit is to inspire the use of the system for other digital dictionaries (for example, a textilnet.nl, a textilnet.uk, a textilnet.it) with all the possibilities of comparative research, which would be the outcome of interrelated databases of terms. The definition of angoriske kamelotter is: “Textiles woven of Angora goatshair (see mohair), are described as fine and light, can be moiré (see moiré). Produced in Turkey and especially used for women’s clothes.” This definition gives information about geography (Turkey), textile fibres (Angora goatshair) and fabrication techniques such as the weave (but not the exact method) and finishing, i.e. moiré, quality of the fabric (fine and light) and common use of the fabric (women’s clothing). The time category tells us that in addition to its inclusion in Lorenzen’s files, this term was mentioned in two Danish encyclopedias for merchandise, namely Juul dated 1807 and Rawert dated 1831. The source category tells us that the term was neither mentioned in sources dated before 1807, nor in the sources dated after 1831, and not in any other contemporary sources.

Apart from the references to mohair and moiré, the category of explanation for angoriske kamelotter guides the user further by linking to the term kamelot.\textsuperscript{20} This concept/term has nine variants: kamelot, camelot, kamlot, kammelot, kamelet, kamelotz, samelot, shamlot and unsurprisingly, angoriske kamelotter. The language category presents the English term camlet with reference to Rawert 1831 and the French term camelot and its Old French variants: camel, chamel and ka- mel. The definition says: “Textile, originally woven of camel yarn [this term is blue with underscore which in the Media Wiki system indicates that the user can link directly to camel yarn], spun from hair of the Angora goat (cf. mohair [blue with underscore]), eventually mixed with silk. Normally woven in a weave with two shafts (see weaving techniques [this term is red with an underscore showing the user that the term will be incorporated in textilnet.dk at a later stage]). Later also woven in different mixtures of camel yarn, cotton yarn, silk yarn and linen yarn. Mixed yarns are also found. From the beginning of the 19th century it gradually became more common to use sheep’s wool instead of camel yarn [blue with underscore]. At first produced in Angora (Ankara, Turkey), and later in many places in Western Europe. Cf. angoriske kamelotter [blue with underscore].”

The definition for kamelot is much more comprehensive and precise than the definition for angoriske kamelotter, particularly concerning the fibres used for these fabrics. The user has the opportunity to read the explanation category to understand this complexity.

\textsuperscript{18} This quotation stems from the files collected by Else Østergård: “1795. Kappe. Onsdagen den 5 August, om Morgenen Kl. 9, indsneg sig et Fruentimmer i Gaarden No 56 i Store Kongensgade, var høj og smekker, kled i lys Kattunstroje og Skiørt, et trykket Tørklæde om Halsen og en hvid Kappe paa Hovedet, med en liden rød Hue under; ved hendes Borrgang savnes ---- Adresseavisen, Tirsda- gen den 11 August 1795.” This passage was printed in the Danish newspaper Adresseavisen, August 11, 1795 and it describes the looks and the clothing of a female thief: “1795. Cap. Wednesday August 5 at 9 o’clock in the morning a woman stole into the Yard of No 56 in Store Kongensgade [a street which still exists in Copenhagen], [she] was tall and slim, clad in a light Jacket and Skirt of Calico, a printed Scarf around her Neck and a white Cap on her Head, with a small red Cap underneath; at her Departure [the following] is missing.”


The explanation refers to Juul 1807, Rawert 1831 and Ordbog over det Danske Sprog 1927. Juul explains that most of these fabrics were purple and of a much higher quality than fabrics produced in what he calls Europe i.e. Western Europe at the time. Only a small proportion was originally exported from Turkey. Then, he discusses the first places where these fabrics were copied – in specific towns in France, Belgium and the Netherlands – and how the camel yarn, cotton yarn and silk yarns were mixed for the kamelots. He also explains what kind of techniques were used to decorate the fabric after weaving and that producers in 1807 had to compete against English and German producers. In 1831, Rawert explains the use of sheep’s wool, specifically good worsted, for the kamelots. The best of these were mixed with silk from Piedmont in Italy. Not until 1927 is the use of linen yarn mentioned. In this way, the textilnet.dk user is offered a clear understanding of how these fabrics and the term kamelot changed over time.

The second short example is the term amabouck. The definition is: “Textile, linen [blue with underscore, which indicates that the user can get access to the complexity of the meanings of this concept as both weaving technique and fibres mentioned above]. Described as coarse and half bleached (see bleaching [red with underscore indicating that the term will be incorporated in textilnet.dk at a later stage]). Produced in England. Used for clothing and for sacks and wrapping.” The explanation gives the user insight into how the same coarse fabric could be used as clothing and wrapping. Juul (1807) explains that amabouck was used for clothing slaves and sailors and for the other wrapping purposes. This example shows that textiles are highly illustrative of social history: the same coarse fabric was suitable for protective wrapping and clothing specific people. Textilnet.dk provides many such insights into social history.

Illustrations of the concepts in textilnet.dk

Whenever possible relevant illustrations are included too. The non-verbal representation of concepts is an important contribution to the database. Many elements of the concepts, such as the complexity of a weave, are easier to understand in illustrations than in words. Cock-Clausen’s collection of slides from the 1980s are now in the library of the Design Museum Danmark. She photographed textile samples in Danish museums and archives and many of these photographs serve as excellent illustrations for textilnet.dk. The best slides show a textile sample with information about terms, dates and places of production. They give users a unique opportunity to understand the quality and social context of the term in question. Other types of illustrations (for example, diagrams and drawings) help the explanation of complex weaves such as satins. Different relationships between concepts can be represented by the illustrations in addition to the hyperlinks between the definition and other explanatory fields. The relations are either part of relations – if the concept is part of a whole as, for instance a heddle is a part of a loom, or generic relations as, for instance ‘a type of’ relation: twill is a ‘type of’ a basic weave as is satin and tabby. A chaîne opératoire is very important when textile techniques are illustrated, and we need to record and relate the concepts for preparing the loom such as warping, beaming, and heddling. These temporal relations or associative relations are also seen in the production of the yarns by combing, carding and twisting procedures, for instance. The designations and the terms are only verbal translations-transmissions of the meanings shortened forms of the definition, and a possible definition of a fibre might also be a chemical formula as shown in ISO standards, which could be included at a later stage of the project.

Perspectives

With the release of textilnet.dk, we hope to have established a useful tool for many different user groups, and textilnet.dk could be a stepping-stone to a variety of international and multilingual projects which in tandem with textilnet.dk could communicate about the terminology of textiles from different time periods and be the foundation of comparative studies.
The use of a Wiki model makes it possible to link to other projects in the field of terminology to transfer knowledge and definitions, for instance, by the means of open and linked data in the Semantic Web. Many other classified multilingual cultural heritage databases all over the world are linked together and are accessible in open data forms for very big research and museum institutions, such as the Getty Museum in Los Angeles, are front-runners who have already presented multilingual thesauri – the Getty vocabularies. As mentioned in this article, XML formats and wikis have been the guidelines for our terminology work of textilnet.dk in order to exchange data from other resources. The next phase of textilnet.

http://www.getty.edu/research/tools/vocabularies (Accessed 1-12-2014). What is cinnabar? What is a rhyton? The Getty vocabularies contain structured terminology for art, architecture, decorative arts and other material culture, archival materials, visual surrogates, and bibliographic materials. Compliant with international standards, they provide authoritative information for catalogers and researchers, and can be used to enhance access to databases and Web sites. The Getty Vocabularies grow through contributions. The vocabulary data is available for licensing and accessible free of charge below for more limited online use.
dk will need to link data to concepts and have common dynamics tools jointly maintained by the communities of users and not static authorities. We hope to be able to link to multilingual thesauri of this kind in order to transmit knowledge about textile concepts for education and training in the future. Feedback on the current textilnet.dk is welcome at textilnet.dk@dengamleby.dk. This is only the first step – our goal is to provide a worldwide web of interlinked resources for textile terminologies.

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Bibliography


Appendix 1

Resources used in researching the terms for textilnet.dk


Andersen, Ellen: Sædelkortek. Opbevares på Nationalmuseet, [Andersen kartotek].


Kyrkja, Else: *Seddelkartotek*. Opbevares på Nationalmuseets [Østergård kartotek].


