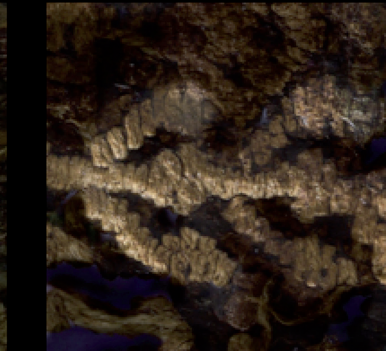
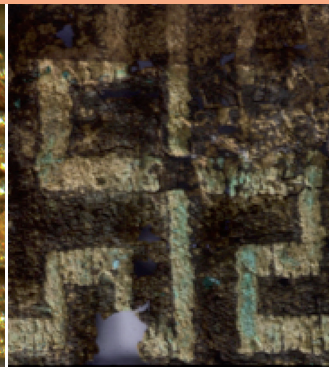
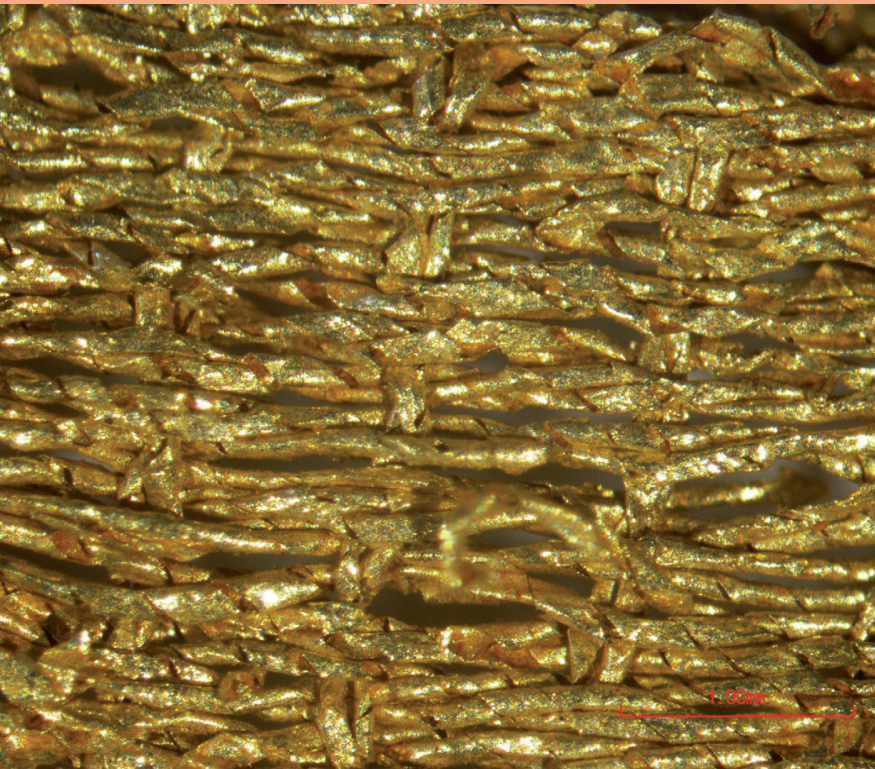




TEXTILES AND DYES

IN THE MEDITERRANEAN ECONOMY AND SOCIETY

*Maria Stella Busana, Margarita Gleba, Francesco Meo
and Anna Rosa Tricomi (eds.)*



Textiles and Dyes
in the Mediterranean
Economy and Society



Participants of the VI *Purpureae Vestes International Symposium on Textiles and Dyes in the Ancient Mediterranean World*
Padova - Este - Altino, Italy 17 – 20 October 2016

PURPUREAE VESTES VI
Textiles and Dyes in Antiquity

Textiles and Dyes
in the Mediterranean
Economy and Society

**Proceedings of the VIth International Symposium
on Textiles and Dyes in the Ancient Mediterranean World
(Padova - Este - Altino, Italy 17 – 20 October 2016)**

*Maria Stella Busana, Margarita Gleba, Francesco Meo
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TABLE OF CONTENTS

	<i>Pag.</i>
Preface	11
Abbreviations	13

TURKEY, CYPRUS AND GREECE

I. CANEVA, S. FICCO: Filatura e tessitura a Mersin-Yumuktepe (Turchia) nel VI-V millennio a.C.	21
H. LANDENIUS ENEGREN: Ancient Cyprus: Bronze Age textile remnants and tools – a crossroads of spinning and weaving cultures?	29
A. ULANOWSKA, M. SIENNICKA: The economics of textiles in Bronze Age Greece	39
I. BENDA-WEBER: Early Greek garments: indications for weaving techniques and textile ornaments on representations and evidence of contemporary textile remains	49
F. SARANTI, G.I. NIKOLOVIENI: Textile tools from ancient Makyneia (Greece): the case of Buildings A and B	61
C. MARGARITI: A 5th century BC textile find with evidence of embroidery from Attica, Greece	67
S. SPANTIDAKI: Investigating maritime textiles in Classical Greece: sails and rigging of the Athenian fleet	75

ITALY AND ADRIATIC AREA

C. MINNITI, G. RECCHIA: New evidence on purple dye production from the Bronze Age settlement of Coppa Nevigata (Apulia, Italy)	87
F. GONZATO: Bronze Age textile tools from Oppeano 4D, Italy	99
J. DE GROSSI MAZZORIN, C. MINNITI: Caprine varieties in Italy during the Iron Age: the evidence from zooarchaeological data	107

F. MEO: Textile production in <i>Magna Graecia</i> : preliminary considerations	117
F. MERMATI: <i>Versabat pollice fusum</i> . Manufatti relativi alla produzione tessile nelle sepolture femminili orientalizzanti della Piana del Sarno	131
A. QUERCIA: Weaving during the Archaic period in South Italy: two key studies	145
E. CATALI, M. CORRENTE, A. DI GIOVANNI, M.R. GIULIANI, M.C. LAURENTI, M. PASTORELLI: Spinning and weaving by <i>Herdonia</i> women	157
M. KLEIBRINK: Textile utensils from Francavilla Marittima (<i>Lagaria</i>), Italy	167
E. BIANCHIN CITTON: Strumenti per la filatura e la tessitura dall’abitato protostorico di Montagnana-Borgo S. Zeno (Italia)	177
M. VIDALE , P. MICHELINI, Some thoughts on the visibility of textile manufacturing in Padua (Italy) during the 1 st millennium BC	187
M. GAMBA, G. GAMBACURTA: The loom: from excavation to textile in pre-Roman Veneto, Italy, 6th to 2nd century BC	193
A. RUTA SERAFINI, M. GLEBA: Evidence of ossuary dressing in the funerary rituals of pre-Roman Veneto (Italy)	203
M. TIRELLI, S. DI MARTINO, E. RETTORE, M. ROTTOLI: Astucci con tracce di tessuto dal santuario del dio Altino (Italia)	217
A. TONC, I. RADMAN-LIVAJA: Protohistoric dye production on the Eastern Adriatic?	225
S. MARCHESINI, M. MIGLIAVACCA: The inscribed loom weights from Monte Loffa, Monti Lessini (Verona, Italy): can we “crack” the code?	231
S. SCANSETTI: Resti tessili da contesti sepolcrali tardo celtici in provincia di Pavia (Italia)	241
L. AMBROSINI, S. GATTI: Strumenti in osso per la filatura e tessitura da vecchi e nuovi scavi di Palestrina (Italia)	251
L. RUSSO: Manufatti in osso per la produzione e la confezione di stoffe ad Ostia (Italia)	261
M. GALLI, F. COLETTI, C. LEMORINI, S. MITSCHKE: The <i>Textile culture at Pompeii</i> Project	267
C. CORTI: La produzione tessile a <i>Mutina</i> : il caso della villa della Scartazza	287
F. MAEDER, F. MÉDARD: Too good to be true - No sea-silk in Pompeii	295
A.R. TRICOMI: <i>Instrumenta textilia</i> nella <i>Venetia</i> romana: Il progetto <i>Pondera</i> (2009-2015)	305
D. FRANCISCI: Multivariate statistics applied to spinning and weaving instruments from Roman <i>Venetia</i> (Italy): some preliminary results	317
S. CIPRIANO: Spinning and weaving at the sanctuary of Reitia in Este (Italy) during Roman times	325
M.S. BUSANA, M. GLEBA: Textile production and consumption in Roman <i>Venetia</i> (Italy): preliminary results of the study of mineralised fibres and textiles	333
P. BASSO, M. GLEBA: A Roman lamp with remains of a wick from the necropolis of Gazzo Veronese (Verona), Italy	351
M. RIGONI, M. ROTTOLI: La conservazione di frammenti di tessuti attraverso il processo di mineralizzazione: due casi del Veneto (Italia)	355
G. CAVALIERI MANASSE, C. GIOSTRA, M. ROTTOLI: La sepoltura longobarda di Verona, vicolo Bernardo da Canal (Italia): un caso insolito di conservazione dei resti tessili	363
A. LUCIANO: Tessuti per i santi. L’epoca tardoantica	371

ROMAN PROVINCES

C. ROSSI: The <i>Lanifica</i> Project: the feminine ideal and textile crafts in Roman burial practices. Results from southern Gaul.....	381
F. MÉDARD, D. DJAOUI, avec la collaboration de STEPHAN KNOPF: Chiffons gallo-romains. Un exemple inédit de recyclage	395
C. ALFARO, M. URTEAGA, P. ALKAÍN: Some wool textile fragments from the Roman port of Oiasso (Irun, Spain)	409
M.I. RUIZ DE HARO: Il significato delle fusarole del deposito votivo di Zacatín e la loro relazione con il culto del fiume Darro (Granada, Spagna)	419
M. BUSTAMANTE-ÁLVAREZ, A.M. BEJARANO OSORIO, M.J. MARTÍNEZ GARCÍA: A possible artisanal complex dedicated to the treatment of <i>coccum</i> in <i>Augusta Emerita</i> (Mérida, Badajoz, Spain)	425
M. ÖHRMAN: Roman looms in <i>Potamius</i> of Lisbon's <i>Epistula de Substantia</i>	437
A. FACEN, M. FIORILLO: Gli artigiani tessili nell'Egitto greco e romano: il lessico della documentazione	443
L. BENDER JØRGENSEN: The textiles from <i>Mons Claudianus</i> in a north African context	451
I. BOGENSPERGER, A. KOROLI: Qualities of textiles and their terminology in documentary papyri from Egypt	461
M.J. MARTÍNEZ-GARCÍA: Alchemists or dyers? The art of dyeing in the Greco-Roman Egypt	471
C. BRØNS, M. L. SARGENT: Pigments and dyes: the use of colourants for the depiction of garments on Egyptian mummy portraits in the Ny Carlsberg Glyptotek	481
J. ORTIZ-GARCÍA, A.-K. GILL: Newly identified fragments of a Roman painted shroud from the <i>Centre de Documentació i Museu Tèxtil</i> of Terrassa, Spain	491
L. RODRÍGUEZ PEINADO: The colour purple in Late Antiquity textiles: application in Spanish fabric collections	497

TRANSVERSAL TOPICS

L. LARSON LOVÉN: Searching for the dyers in Roman textile production	509
K. CAULFIELD: The hand-held distaff: also known as the underestimated stick	517
C. CORTI, M. SANFELICI: Bone needles and textile production during Roman times: a new proposal	525
L. PEDRONI: Tra le pieghe della tradizione. Agatocle inventore della <i>trabea</i> (Lyd. Mens. 1.21 W.)	531
PLATES.....	537

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Conference Website

<http://purpureaevestes.weebly.com/>

ABBREVIATIONS

<i>AA</i>	<i>Archäologischer Anzeiger</i>
<i>AAAd</i>	<i>Antichità Alto Adriatiche</i>
<i>AAIpi</i>	<i>Archeologia delle Alpi</i>
<i>ACalc</i>	<i>Archeologia e calcolatori</i>
<i>ActaInstRomSue</i>	<i>Acta Instituti Romani Regni Sueciae</i>
<i>AdI</i>	<i>Annali dell' Istituto di corrispondenza archeologica</i>
<i>Aegyptus</i>	<i>Aegyptus. Rivista italiana di egittologia e di papirologia</i>
<i>Aevum</i>	<i>Aevum: Rassegna di scienze storiche, linguistiche e filologiche</i>
<i>AHAMadrid</i>	<i>Anales de Historia del Arte, Universidad Complutense, Madrid</i>
<i>AIONArch</i>	<i>Annali dell' Istituto universitario orientale di Napoli. Dipartimento di studi del mondo classico e del Mediterraneo antico. Sezione di archeologia e storia antica</i>
<i>AJA</i>	<i>American Journal of Archaeology</i>
<i>AJP</i>	<i>American Journal of Philology</i>
<i>AmAnth</i>	<i>American Anthropologist</i>
<i>AmJAncHist</i>	<i>American Journal of Ancient History</i>
<i>AnalP</i>	<i>Analecta papyrologica</i>
<i>AnatSt</i>	<i>Anatolian Studies</i>
<i>Ancient Textiles</i>	<i>C. Gillis and M.-L. Nosch (eds.), Ancient Textiles, Production, Craft and Society, Proceedings of the First International Conference on Ancient Textiles, held at Lund, Sweden and Copenhagen, Denmark, on March 19-23, 2003, Oxford 2007.</i>
<i>AnnRevAnth</i>	<i>Annual Review of Anthropology</i>
<i>AntJ</i>	<i>The Antiquaries Journal</i>
<i>AntK</i>	<i>Antike Kunst</i>
<i>AntTard</i>	<i>Antiquité tardive. Revue internationale d'histoire et d'archéologie</i>
<i>AntW</i>	<i>Antike Welt: Zeitschrift für Archäologie und Kulturgeschichte</i>
<i>APAAnthAss</i>	<i>Archaeological Papers of the American Anthropological Association</i>
<i>APS</i>	<i>American Philosophical Society</i>
<i>AqNos</i>	<i>Aquileia Nostra</i>
<i>Archaeology</i>	<i>Archaeology CIETA</i>
<i>ArchCla</i>	<i>Archeologia Classica</i>
<i>ArchJ</i>	<i>Archaeological Journal</i>
<i>ArchKorrBl</i>	<i>Archaeologisches Korrespondenzblatt</i>
<i>ArchPF</i>	<i>Archiv für Papyrusforschung und verwandte Gebiete</i>
<i>ArchVen</i>	<i>Archeologia Veneta</i>
<i>Aristonothos</i>	<i>Aristonothos. Scritti per il Mediterraneo antico</i>

<i>ARP</i>	<i>Accordia Research Papers</i>
<i>ATN</i>	<i>Archaeological Textiles Newsletter</i>
<i>ATR</i>	<i>Archaeological Textiles Review</i>
<i>AttiIIPP</i>	<i>Atti della Riunione Scientifica dell'Istituto Italiano di Preistoria e Protostoria, Firenze 1973-</i>
<i>AttiMemMagnaGr</i>	<i>Atti e memorie della Società Magna Grecia</i>
<i>AttiMGrecia</i>	<i>Atti del Convegno di Studi sulla Magna Grecia (Taranto 1961-), Napoli-Taranto 1962-</i>
<i>AttiPPE</i>	<i>Atti dell'Incontro di Studi "Preistoria e Protostoria in Etruria"</i>
<i>AttiVen</i>	<i>Atti. Istituto veneto di scienze, lettere ed arti</i>
<i>BA</i>	<i>Bollettino di archeologia</i>
<i>BABesch</i>	<i>Bulletin antieke beschaving. Annual Papers on Classical Archaeology</i>
<i>BAntFr</i>	<i>Bulletin de la Société nationale des antiquaires de France</i>
<i>BAProv</i>	<i>Bulletin archéologique du Provence</i>
<i>BASP</i>	<i>Bulletin of the American Society of Papyrologists</i>
<i>BClevMus</i>	<i>The Bulletin of the Cleveland Museum of Art</i>
<i>Bdl</i>	<i>Bollettino dell'Istituto di corrispondenza archeologica</i>
<i>BerRGK</i>	<i>Bericht der Römisch-Germanischen Kommission</i>
<i>BICS</i>	<i>Bulletin of the Institute of Classical Studies</i>
<i>BMMA</i>	<i>Bulletin of the Metropolitan Museum of Art, New York</i>
<i>BMOP</i>	<i>The British Museum Occasional Papers</i>
<i>BMTRB</i>	<i>The British Museum Technical Research Bulletin</i>
<i>BollMusCivPadova</i>	<i>Bollettino del Museo Civico di Padova</i>
<i>BPI</i>	<i>Bollettino di Paleontologia Italiana</i>
<i>BSA</i>	<i>British School at Athens Annual</i>
<i>BSPF</i>	<i>Bulletin de la Société Préhistorique Française</i>
<i>BullCom</i>	<i>Bollettino della Commissione archeologica Comunale di Roma</i>
<i>Bulletin CIETA</i>	<i>Bulletin du Centre International d'Étude des textiles anciens</i>
<i>BVerona</i>	<i>Bollettino del Museo Civico di Storia Naturale di Verona</i>
<i>CahLig</i>	<i>Cahiers ligures de préhistoire et de protohistoire</i>
<i>CCJB</i>	<i>Collection du Centre Jean Bérard</i>
<i>ChrÉg</i>	<i>Chronique d'Égypte</i>
<i>CIL</i>	<i>Corpus Inscriptionum Latinarum, Berlin, 1863-</i>
<i>CIJ</i>	<i>The Classical Journal</i>
<i>CMS</i>	<i>Corpus der minoischen und mykenischen Siegel</i>
<i>CP</i>	<i>Classical Philology</i>
<i>CPR</i>	<i>Corpus Papyrorum Raineri. Vienna.</i>
<i>CpS</i>	<i>Corpus der ptolemäischen Sklaventexte</i>
<i>CRAI</i>	<i>Comptes rendus de l'Académie des Inscriptions et Belles Lettres (Paris)</i>
<i>DialA</i>	<i>Dialoghi d'Archeologia</i>
<i>EJA</i>	<i>European Journal of Archaeology</i>
<i>ES</i>	<i>E. Gerhard, A. Klügmann and G. Körte, Etruskische Spiegel I - V, Berlin 1840-1897.</i>
<i>EstAlavesa</i>	<i>Estudios de Arqueología Alavesa</i>
<i>FOLD&R</i>	<i>Fasti On Line Documents & Research</i>
<i>FuBerBadWürt</i>	<i>Fundberichte aus Baden-Württemberg</i>
<i>GRBS</i>	<i>Greek, Roman and Byzantine Studies</i>
<i>HisMemFrance</i>	<i>Histoire et Mémoires de l'Institut Royal de France. Classe d'Histoire et de Littérature Ancienne</i>
<i>Historia</i>	<i>Historia. Zeitschrift für Alte Geschichte</i>

<i>InscrIt</i>	<i>Inscriptiones Italiae</i>
<i>ITNME</i>	L. Rodríguez Peinado and A. Cabrera Lafuente (eds.), <i>La investigación textil y los nuevos métodos de estudio</i> , Madrid, 2014, http://www.flg.es/images/publicaciones/investigacion-textil-nuevos-metodos.pdf .
<i>JAA</i>	<i>Journal of African Archaeology</i>
<i>JAIC</i>	<i>Journal of the American Institute for Conservation</i>
<i>JANER</i>	<i>Journal of Ancient Near Eastern Religions</i>
<i>JAS</i>	<i>Journal of Archaeological Science</i>
<i>JBL</i>	<i>Journal of Biblical Literature</i>
<i>JCACCP</i>	<i>Journal of the Canadian Association for Conservation of Cultural Property</i>
<i>JCE</i>	<i>Journal of Chemical Education</i>
<i>JDAI</i>	<i>Jahrbuch des Deutschen Archäologischen Instituts</i>
<i>JdI</i>	<i>Jahrbuch des Deutschen Archäologischen Instituts</i>
<i>JEA</i>	<i>The Journal of Egyptian Archaeology</i>
<i>JGS</i>	<i>Journal of Glass Studies</i>
<i>JHS</i>	<i>Journal of Hellenic Studies</i>
<i>JJurP</i>	<i>Journal of Juristic Papyrology</i>
<i>JMedA</i>	<i>Journal of Mediterranean Archaeology</i>
<i>JÖAI</i>	<i>Jahreshefte des Österreichischen Archäologischen Instituts</i>
<i>JRA</i>	<i>Journal of Roman Archaeology</i>
<i>JRGZM</i>	<i>Jahrbuch Romisch–Germanisches Zentralmuseum Mainz</i>
<i>JRS</i>	<i>Journal of Roman Studies</i>
<i>KA</i>	<i>Kühn Archiv</i>
<i>Kaskal</i>	<i>Kaskal: rivista di storia, ambienti e culture del Vicino Oriente Antico</i>
<i>KOSMOS</i>	M. L. Nosch and R. Laffineur (eds.), <i>Kosmos. Jewellery, adornment and Textiles in the Aegean Bronze Age. Proceedings of the 13th International Aegean Conference / 13e Rencontre égéenne internationale, University of Copenhagen, Danish National Research Foundation's Centre for Textile Research, 21-26 April 2010</i> , Leuven 2012.
<i>Ktema</i>	<i>Ktema. Civilisations l'orient, de la Grèce et de Rome antiques</i>
<i>Lana</i>	P. Basso and M. S. Busana (eds.), <i>La lana nella Cisalpina romana: economia e società. Studi in onore di Stefania Pesavento Mattioli</i> , Padua 2012.
<i>LibSt</i>	<i>Libyan Studies</i>
<i>MAA</i>	<i>Mediterranean Archaeology and Archaeometry</i>
<i>MAH</i>	<i>Mélanges d'archéologie et d'histoire</i>
<i>MAL</i>	<i>Monumenti Antichi dell'Accademia dei Lincei</i>
<i>MatPop</i>	<i>Materiali per Populonia</i>
<i>MBAH</i>	<i>Marburger Beiträge zur antiken Handels-, Wirtschafts- und Sozialgeschichte</i>
<i>MDAI</i>	<i>Mitteilungen des Deutschen Archäologischen Instituts</i>
<i>MdI</i>	<i>Monumenti dell'Istituto di Corrispondenza Archeologica</i>
<i>Mediterranea</i>	<i>Mediterranea. Quaderni annuali dell'Istituto di Studi sulle Civiltà Italiane e del Mediterraneo Antico del Consiglio Nazionale delle Ricerche</i>
<i>MÉFRA</i>	<i>Mélanges d'archéologie et d'histoire de l'École française de Rome. Antiquité</i>
<i>MemAAACVerona</i>	<i>Memorie dell'Accademia d'Agricoltura, Arti e Commercio di Verona</i>
<i>MémAcInscr</i>	<i>Mémoires présentés par divers savants à l'Académie des inscriptions et belles lettres (Paris)</i>
<i>MemLinc</i>	<i>Memorie. Atti della Accademia nazionale dei Lincei, Classe di scienze morali, storiche e filologiche</i>
<i>MusHelv</i>	<i>Museum Helveticum</i>
<i>MVerona</i>	<i>Memorie del Museo Civico di Storia naturale di Verona</i>
<i>MZ</i>	<i>Mainzer Zeitschrift</i>

<i>NAVe</i>	<i>Notizie di Archeologia del Veneto</i>
<i>NESAT IV</i>	L. Bender Jørgensen and E. Munksgaard (eds.), <i>Archaeological Textiles in Northern Europe</i> , <i>NESAT IV</i> , Copenhagen 1992.
<i>NESAT VIII</i>	J. Maik, (ed.), <i>Pricelles Invention of Humanity - Textiles</i> , Łódź 2004.
<i>NESAT IX</i>	A. Rast-Eicher and R. Windler (eds.), <i>Archäologische Textilfunde. Archaeological Textiles</i> , <i>NESAT IX</i> , Ennenda 2007.
<i>NESAT X</i>	E. Andersson Strand, M. Gleba, U. Mannering, C. Munkholt and M. Ringgaard (eds.), <i>North European Symposium for Archaeological Textiles X</i> , Oxford 2010.
<i>NESAT XI</i>	J. Banck-Burgess and C. Nübold (eds.), <i>NESAT XI: the North European Symposium for Archaeological Textiles XI</i> , Rahden 2013.
<i>NESAT XII</i>	K. Grömer and F. Pritchard (eds.), <i>Aspects of the Design, Production and Use of Textiles and Clothing from the Bronze Age to the Early Modern Era. NESAT XII</i> , Budapest 2015.
<i>NESAT XIII</i>	M. Bravermanová, H. Březinová and J. Malcolm-Davies (eds.), <i>Archaeological Textiles Links Between Past and Present. NESAT XIII</i> , Liberec/Praha 2017.
<i>NotALomb</i>	<i>Notiziario della Soprintendenza Archeologica della Lombardia</i>
<i>NSc</i>	<i>Notizie degli Scavi di Antichità</i>
<i>NTJ</i>	<i>The Nordic Textile Journal</i>
<i>NZZ</i>	<i>Neue Zürcher Zeitung</i>
<i>OJA</i>	<i>Oxford Journal of Archaeology</i>
<i>OpArch</i>	<i>Opuscula archaeologica</i>
<i>OpAthRom</i>	<i>Opuscula: Annual of the Swedish Institutes at Athens and Rome</i>
<i>OpRom</i>	<i>Opuscula Romana. Skrifter utgivna av Svenska institutet i Rom</i>
<i>Origini</i>	<i>Origini. Preistoria e protostoria delle civiltà antiche</i>
<i>PAPhS</i>	<i>Proceedings of the American Philosophical Society</i>
<i>PBF</i>	<i>Prähistorische Bronzefunde</i>
<i>PBSR</i>	<i>Papers of the British School at Rome</i>
<i>PGM</i>	<i>Papyri Graecae Magicae</i>
<i>PLup</i>	<i>Papyrologica Lupiensia</i>
<i>PREl</i>	O. Longo (ed.), <i>La porpora. Realtà e immaginario di un colore simbolico, Atti del Convegno di Studio</i> , Venezia, 1998.
<i>PreistAlp</i>	<i>Preistoria Alpina</i>
<i>PRNedInstR</i>	<i>Papers of the Royal Netherlands Institute in Rome</i>
<i>PVI</i>	C. Alfaro, J.P. Wild and B. Costa (eds.), <i>Textiles y tintes del Mediterráneo en época romana. Purpureae Vestes I</i> (Ibiza, 8-10 noviembre 2002), Valencia 2004.
<i>PV II</i>	C. Alfaro and L. Karali (eds.), <i>Vestidos, textiles y tintes: Estudios sobre la producción de bienes de consumo en la Antigüedad. Purpureae Vestes II</i> (Atenas, 24-26 noviembre 2005), Valencia 2008.
<i>PV III</i>	C. Alfaro, J.P. Brun, P. Borgard and R. Pierobon Benoit (eds.), <i>Textiles y tintes en la ciudad antigua. Purpureae Vestes III</i> (Nápoles, 13-15 noviembre 2008), Valencia/Naples 2011.
<i>PV IV</i>	C. Alfaro, M. Tellenbach and J. Ortiz (eds.), <i>Production and Trade of Textiles and Dyes in the Roman Empire and Neighbouring Regions. Purpureae Vestes IV</i> (Valencia, 5-6 noviembre 2010), Valencia 2014.
<i>PV V</i>	J. Ortiz, C. Alfaro, L. Turell and M.J. Martínez (eds.), <i>Textiles, Basketry and Dyes in the Ancient Mediterranean World. Purpureae Vestes V</i> (Montserrat, 19-22 march 2014), Valencia 2016.
<i>PZ</i>	<i>Praehistorische Zeitschrift</i>
<i>QatnaSt</i>	<i>Qatna Studien</i>
<i>QI</i>	<i>Quaternary International</i>
<i>QLaPArS</i>	<i>Quaderni del Laboratorio di Preistoria e Archeologia Sperimentale</i>
<i>QSP</i>	<i>Quaderni di Studi Pompeiani</i>
<i>QuadAER</i>	<i>Quaderni di Archeologia dell'Emilia Romagna</i>

<i>QuadAVen</i>	<i>Quaderni di Archeologia del Veneto</i>
<i>QuadFriulA</i>	<i>Quaderni Friulani di Archeologia</i>
<i>QZ</i>	<i>Quantitative Zoology</i>
<i>RACFr</i>	<i>Revue archéologique du Centre de la France</i>
<i>RANarb</i>	<i>Revue archéologique de Narbonnaise</i>
<i>RassAPiomb</i>	<i>Rassegna di archeologia. Associazione archeologica piombinese</i>
<i>RendLinc</i>	<i>Atti della Accademia Nazionale del Lincei. Rendiconti</i>
<i>RB</i>	<i>Riggisberger Berichte</i>
<i>RdA</i>	<i>Rivista di Archeologia</i>
<i>RDAC</i>	<i>Report of the Department of Antiquities, Cyprus</i>
<i>RendNap</i>	<i>Rendiconti della Accademia di archeologia, lettere e belle arti, Napoli</i>
<i>RendTrent</i>	<i>Rendiconti della Società di Cultura Preistorica Trentina</i>
<i>RivStPomp</i>	<i>Rivista di Studi Pompeiani</i>
<i>RM</i>	<i>Mitteilungen des Deutschen Archäologischen Instituts, Römische Abteilung</i>
<i>RPortA</i>	<i>Revista portuguesa de arqueologia</i>
<i>RScPreist</i>	<i>Rivista di Scienze Preistoriche</i>
<i>RStLig</i>	<i>Rivista di studi liguri</i>
<i>ScAnt</i>	<i>Scienze dell'antichità. Storia, archeologia, antropologia</i>
<i>SEBarc</i>	<i>Sylloge Epigraphica Barcinonensis</i>
<i>SMS</i>	<i>Syro-Mesopotamian Studies</i>
<i>StAnt</i>	<i>Studi di antichità. Università di Lecce</i>
<i>StEtr</i>	<i>Studi Etruschi</i>
<i>StPap</i>	<i>Studia papyrologica</i>
<i>StSopPomp</i>	<i>Studi della Soprintendenza Archeologica di Pompei</i>
<i>StTroica</i>	<i>Studia Troica</i>
<i>SupplIt</i>	<i>Supplementa Italica</i>
<i>Textiles in Europe</i>	M. Gleba and U. Mannering (eds.), <i>Textiles and Textile Production in Europe from Prehistory to AD 400</i> , Oxford and Oakville 2012.
<i>Tools, Textiles and Contexts</i>	E. Andersson Strand and M.-L. Nosch (eds.), <i>Tools, Textiles and Contexts: Investigating Textile Production in the Aegean and Eastern Mediterranean Bronze Age</i> , Oxford/Philadelphia 2015.
<i>TROPIS</i>	<i>TROPIS. International Symposia on Ship Construction in Antiquity</i>
<i>TSArch</i>	<i>Trans-Saharan Archaeology</i>
<i>WPZ</i>	<i>Wiener Prähistorische Zeitschrift</i>
<i>ZPE</i>	<i>Zeitschrift für Papyrologie und Epigraphik</i>

THE TEXTILES FROM *MONS CLAUDIANUS* IN A NORTH AFRICAN CONTEXT

*Lise Bender Jørgensen**

Abstract: Recent excavations at a series of sites in the Eastern Desert of Egypt such as the Roman quarry of *Mons Claudianus* have recovered large quantities of well dated textiles. Textiles from these sites are compared with each other, and with emerging evidence of textiles and textile tools from oases in the Sahara and from Sub-Saharan Africa. Finds from these parts are as yet exceedingly rare, but similarities and differences in designs and techniques can be gleaned to throw light on preferences in fibres, yarn twist, weaves, decoration and textile technologies across North Africa during the 1st millennium AD.

Keywords: Roman textiles, Textile technologies, Eastern Desert, Fazzān, Bandiagara caves

Riassunto: I recenti scavi di una serie di siti nel Deserto Orientale dell'Egitto, come la cava romana del *Mons Claudianus*, hanno restituito grandi quantità di tessuti ben datati. Questi reperti tessili sono messi a confronto sia tra loro che con altri tessuti e strumenti per lavorazione tessile provenienti dalle oasi del Sahara e dell'Africa sub-sahariana. Sebbene i rinvenimenti in queste zone siano ancora estremamente rari, è possibile notare le somiglianze e le differenze nei motivi decorativi e nelle tecniche, per far luce sulle tipologie di fibre preferite, sulle torsioni dei filati e sulle tecnologie delle tessiture e delle decorazioni tessili in Nord Africa durante il primo millennio d.C.

THE Eastern Desert of Egypt has recently seen a series of excavations that have recovered large quantities of Roman textiles (Fig. 1).¹ Most of these textiles are just rags, but they are well preserved, and generally well dated. This makes them a very important addition to our knowledge on dress and other textiles in Roman Egypt and sheds new light on textile production in the Roman world.

One of the new sites is *Mons Claudianus*, an Imperial Roman quarry that was active from the time of Nero to that of Alexander Severus, but with the main flurry of activity between AD 104 and 154.² Textiles found in rubbish heaps around the workmen's settlement have filled 12 large metal boxes with tightly packed textiles - an estimated 1.25 cubic metres.³ The *Mons Claudianus* textiles include more or less well-preserved items of

clothing, remains of soft furnishings and various utility textiles; some of them are block damasks, taquetés, some with pile or decorated by embroidery or resist-dyed, and constitute a rich body of material that has made it possible to establish types and terminologies as well as to discuss the supply of textiles and clothing to *Mons Claudianus* and the technologies that were used to make them.⁴

Other sites in the Eastern Desert include another quarry, *Mons Porphyrites*; the ports of Myos Hormos and Berenike; the Late Roman cavalry fort of 'Abu Sha'ar, and the *praesidia* Didymoi, Krokodilô and Maximianon, small forts that served to control the caravan routes between the Red Sea and the Nile.⁵ At each of these, substantial numbers of textiles have been recovered.

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¹ BENDER JØRGENSEN 2017, Appendix A.

² BINGEN *et al.* 1992; BINGEN *et al.* 1997; PEACOCK and MAXFIELD 1997; CUVIGNY 2000; MAXFIELD and PEACOCK 2001a; MAXFIELD and PEACOCK 2006; BÜLOW-JACOBSEN 2009.

³ BENDER JØRGENSEN and MANNERING 2001.

⁴ BENDER JØRGENSEN 2007, 2008, 2011; MANNERING 2000a, 2000b and 2006; CISZUK 2000 and 2004; CISZUK and HAMMARLUND 2008; see BENDER JØRGENSEN 2018 for an updated bibliography of *Mons Claudianus*.

⁵ CUVIGNY 2003, 2011; CARDON 2003; CARDON *et al.* 2011.

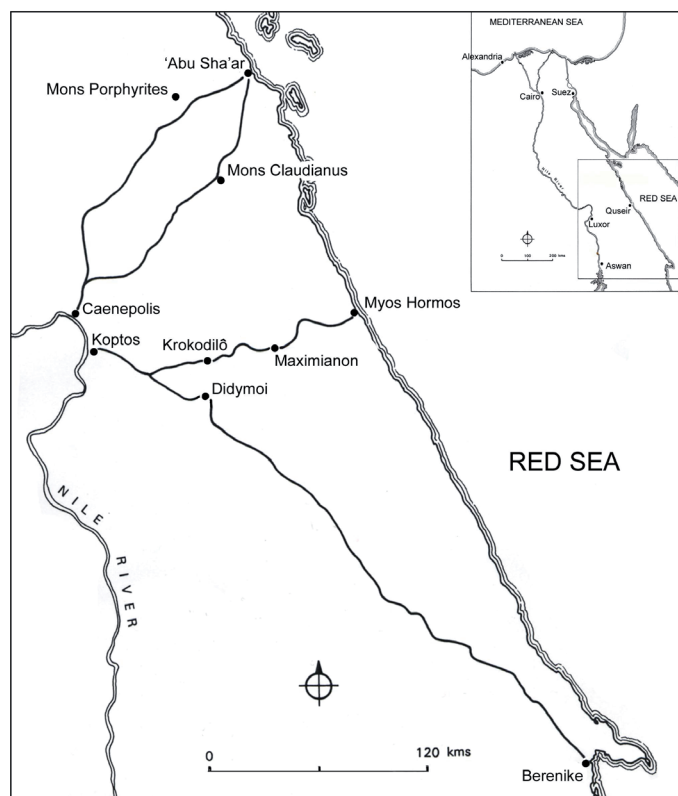


Fig. 1. Map of sites in the Eastern Desert of Egypt (image: Bender Jørgensen).

Site	Site Directors	Textile numbers	Investigators
'Abu Sha'ar ⁶	S. E. Sidebotham	1,126 pieces	L. Bender Jørgensen, M. van Waveren
Berenike ⁷	S. E. Sidebotham and W. Z. Wendrich	>3,400 pieces	F.C. and J.P. Wild
Didymoi	H. Cuvigny	838 pieces recorded	D. Cardon and H. Granger-Taylor
Krokodilô	H. Cuvigny	250 pieces	D. Cardon
Maximianon	H. Cuvigny	431	D. Cardon
Mons Claudianus	J. Bingen, H. Cuvigny, V.A. Maxfield, D. Peacock	12 <i>cantines</i> 1,833 pieces recorded	L. Bender Jørgensen, U. Mannering, L. Hammarlund
Mons Porphyrites ⁸	V.A. Maxfield and D. Peacock	891 pieces	F. Handley
Myos Hormos (1978-82) ⁹	D.S. Whitcomb and J.H. Johnson	>3,000 pieces (Roman + Medieval)	G.M. Vogelsang-Eastwood
Myos Hormos (1999-2003) ¹⁰	D. Peacock and L. Blue	2,455 Roman, 7,000 Medieval pieces	F. Handley

Tab 1. Textile sites recently excavated in the Eastern Desert.

⁶ BENDER JØRGENSEN 2006, 2007.

⁷ SIDEBOTHAM AND WENDRICH 2007; SIDEBOTHAM 2011 with further references; WILD and WILD 2000; 2007; 2014.

⁸ MAXFIELD and PEACOCK 2001b; PEACOCK and MAXFIELD 2007; HANDLEY 2000; 2007.

⁹ WHITCOMB and JOHNSON 1979; 1982a; 1982b; VOGELSANG-EASTWOOD 2006.

¹⁰ PEACOCK and BLUE 2006; 2011; HANDLEY 2011.

The textiles found at *Mons Claudianus* and the *praesidia* mainly date to the 1st and 2nd centuries AD; this also applies to a part of those from Berenike and Myos Hormos. Both ports were founded in the Ptolemaic period, but as yet no textiles from this early phase have been recovered. Berenike remained in use into the 5th century AD.¹¹ The textiles recovered date either to the 1st century AD or to the late 4th-early 5th century AD.¹² Myos Hormos appears to have been abandoned in the mid-3rd century but was revived in the late 11th century and prospered until the 15th century.¹³ The textiles thus date either to the Roman (1st-3rd century AD) or to the Medieval phase. Quarrying at *Mons Porphyrites* started in the 1st century AD and continued into the 5th century AD. Textiles were found in all excavated trenches and appear to date to all phases of the settlement.¹⁴

Work is still in progress on many of these sites, but volumes already out on Berenike, Didymoi, Krokodilô, Maximianon, *Mons Porphyrites* and Myos Hormos include chapters on textiles. Conference proceedings and journal papers supply further presentations and details of textiles from all sites. Although data are presented and summarised in different ways it is possible to compare them, looking for similarities and differences in textiles as well as in contexts. This opens for further comparisons with other parts of the Roman – or non-Roman – world.

Textiles from the Eastern Desert

Wool and flax were the most common fibres (Fig. 2) – except for Berenike where cotton made up about 50%

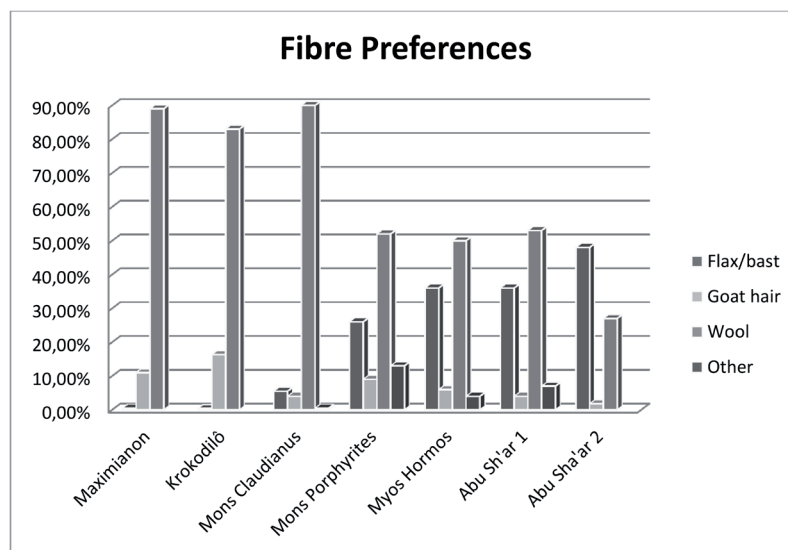


Fig. 2. Fibre proportions at Maximianon, Krokodilô, *Mons Claudianus*, *Mons Porphyrites*, Myos Hormos and the two phases of 'Abu Sha'ar.

of the late textiles, and a substantial part of the early ones.¹⁵ Yarns are usually s-twisted in both systems in woollens as well as linens and other vegetal fibres, although other combinations also occur, especially in wool textiles (Fig. 3).¹⁶ Cottons from Berenike appear to follow other rules, as about half of them proved to be made of z/z-twisted yarns; these are arguably of Indian origin.¹⁷ As regards weaves, tabby is favoured everywhere, supplemented by twills, and with a sprinkling of other weaves such as taqueté (Fig. 4). Wool twills are usually balanced or weft-faced, and display greater variation in the selection of yarn twist than tabbies.¹⁸ Other characteristic features are reinforced selvages and corded transverse borders.¹⁹ Decorations such as *clavi* and *gammas* typical for the Roman world are common.²⁰

As most contemporary textile finds derive from sites like At-Tar in Iraq,²¹ Masada in Israel,²² and Dura Europos²³, Halabiyeh²⁴ and Palmyra²⁵ in Syria, scholars have been looking East for comparisons, or to the

¹¹ SIDEBOTHAM 2011, 162, 171-174.

¹² WILD and WILD 2000, 251; 2004, 11.

¹³ PEACOCK and BLUE 2006, chapters 1 and 9.

¹⁴ PEACOCK and MAXFIELD 2007; HANDLEY 2000; 2007.

¹⁵ WILD and WILD 2000, 264; 2004, 12; WILD *et al.* 2008, 145; WILD and WILD 2014, 211; forthcoming.

¹⁶ BENDER JØRGENSEN 2017; 2018; CARDON 2003, 624.

¹⁷ WILD *et al.* 2008; WILD and WILD 2014, 211; forthcoming.

¹⁸ BENDER JØRGENSEN 2004, table 9; 2018.

¹⁹ BENDER JØRGENSEN 2007, 33-34; 2018; CARDON *et al.* 2011, 357 fig. 304; HANDLEY 2007, 363-364.

²⁰ BENDER JØRGENSEN 2004, tab. 6.

²¹ FUJII 1976; 1980; FUJII *et al.* 1985.

²² SHEFFER and GRANGER-TAYLOR 1994.

²³ PFISTER and BELLINGER 1945.

²⁴ PFISTER 1951.

²⁵ PFISTER 1934; 1937; 1940; SCHMIDT-COLINET *et al.* 2000.

South, to the rich finds from Nubia.²⁶ Now, remains of textiles and textile tools are beginning to emerge from the oases of the Sahara and other sites in northwest Africa. It is time to look West.

Textiles from North Africa

The Fazzān in southwestern Libya is a place of interest. The name refers to a cluster of oases in the Sahara.²⁷ In antiquity, the Fazzān was populated by the *Garamantes* who controlled most of Central Sahara. Their heyday was between 300 BC and AD 500. The *Garamantes* established urban centers such as Old Jarma (ancient *Garama*) as hubs for Trans-Saharan trade; they also practiced advanced irrigated agriculture in the oases that for example permitted the cultivation of cotton.²⁸

Recent archaeological projects in Libya have resulted in the finding of small groups of textiles dated to the Garamantian Period (Fig. 5). They include the 'Royal tumulus' at Tanez-zuft and settlements at Ghirza and Zinkekrā.²⁹ According to descriptions, they are mostly wool tabbies made from z-twisted yarns in both systems, with reinforced or wrapped selvedges. Some have coloured decoration that looks like *clavi*, gammas or *tablions*. One piece has been identified as twill, another is a tufted goat-hair tabby. Further pieces are in the process of being published.³⁰ To me, they all look quite similar to those from the Eastern Desert, apart from their preference for z-twisted yarns. J.P. Wild, who has examined some of them, also noted this and their similarity to a group of some 80 textiles from Ghirza, dated to the 10th century AD, and he views them as products of the same textile craft tradition.³¹ These later Ghirza textiles show close re-

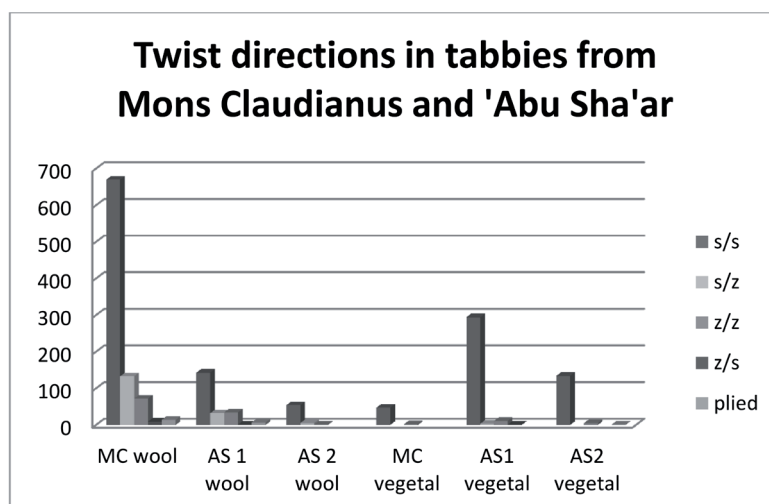


Fig. 3. Yarn twist in tabbies from *Mons Claudianus* and 'Abu Sha'ar. Vegetal fibres include flax, cotton and unidentified plant fibres.

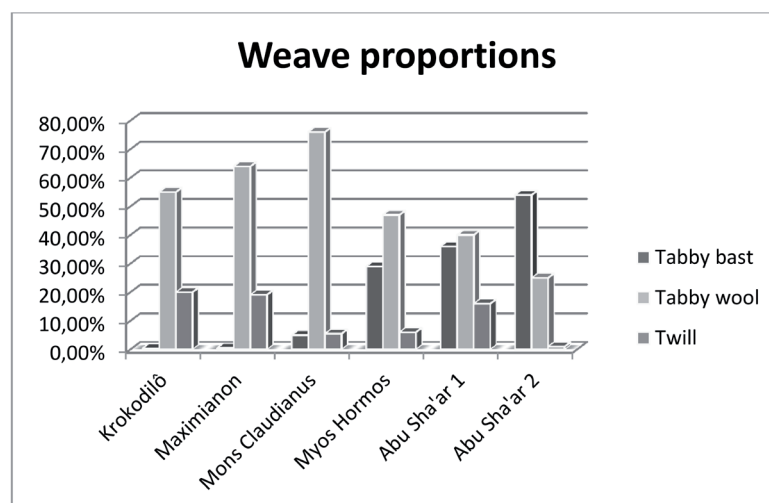


Fig. 4. Weave proportions at Maximianon, Krokodilô, *Mons Claudianus*, Myos Hormos and the two phases of 'Abu Sha'ar.

semblances not only to textiles from Egypt and Nubia from the first half of the 1st millennium AD, but also to later ones from the Bandiagara Cliff Caves in Mali. The latter are also known as the Tellem Textiles, and comprise around 500 pieces dated to the 11th to 16th century AD.³² Most of them are cotton, but 67 are wool. The wool textiles are mostly weft-faced tabbies

²⁶ BERGMAN 1975; THURMAN and WILLIAMS 1979.

²⁷ MATTINGLY 2003; 2007; 2010; 2013.

²⁸ MATTINGLY 2013, 3-6; PELLING 2013, 482.

²⁹ HENSHALL 1984; MASPERO *et al.* 2002; WILD 2010, 486-488.

³⁰ MATTINGLY and COLE 2017.

³¹ WILD 1984, 302-304; WILD 2010, 487-488.

³² BOLLAND 1991.

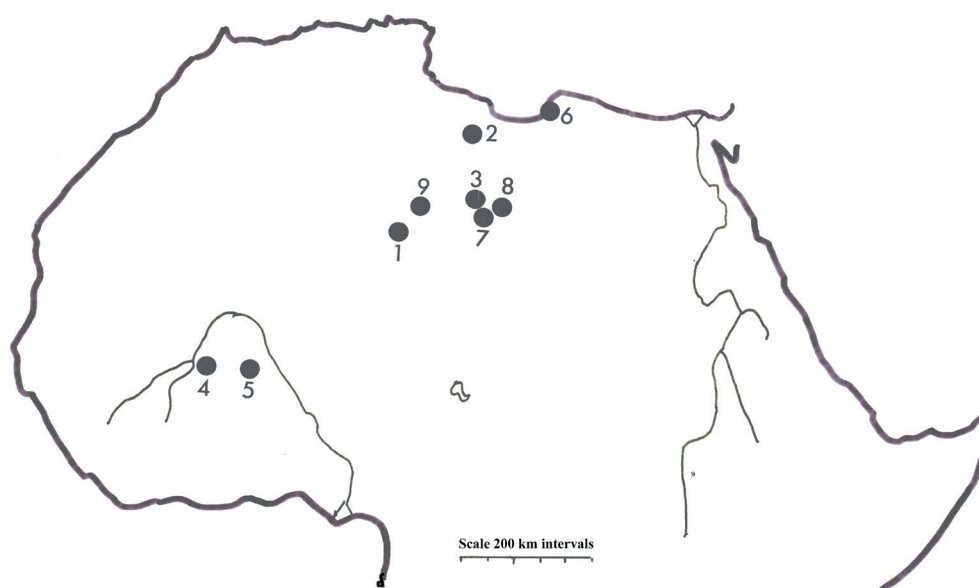


Fig. 5. Map of sites with textiles and textile tools in North Africa. 1: Tanezzuft, 2: Ghirza, 3: Zinkekrā, 4: Bandiagara Cliffs, 5: Kissi, 6: Euesperides, 7: Saniat Jibril, 8: Jarma, 9: Aghram Nadharif (image: L. Bender Jørgensen).

made from S-plyed warp, z-twisted weft. Decoration comprises woven patterns such as bands running from selvedge to selvedge in a weave other than balanced tabby, or made through supplementary wefts over short distances, forming lozenge motifs.

A group of textiles from Sub-Saharan Kissi in Burkina Faso also deserve mention.³³ They are all made of wool, presumably from dromedaries. Yarns are either z-twisted, or S-plyed. The weaves are all repp. The group spans most of the 1st millennium AD but is nonetheless strikingly homogenous, and closely comparable to those from the Bandiagara caves.³⁴ Further textiles from Niger, Nigeria and Senegal dated between the 5th and 13th centuries AD have been identified as made of wool, cotton, raffia and vegetal fibres, but yarn and weave types are not described.³⁵

Overall, the textiles from Saharan and Sub-Saharan North Africa show a surprising homogeneity throughout the centuries as regards weaves, decoration and form, and are an example of the *longue durée* of the aesthetics of textiles. The texture and visual appearance of all these textiles is extraordinarily similar, especially those of wool. They display a preference

for balanced and weft-faced tabbies; visual groups such as ‘tabby character’, ‘moveable tabby’, ‘slightly ribbed’ or ‘ribbed’ tabby that Lena Hammarlund defined based on the textiles from *Mons Claudianus* can be recognised among those from Nubia and Ghirza, and to some extent Bandiagara and Kissi.³⁶ The Ghirza textiles display some decorative designs that can be recognised among the earlier textiles from the Nile Valley, but most of all they resemble those from Bandiagara, especially the cottons. The main difference is in the twist of the yarn. The preference for z-twisted or S-plyed yarns observed in the Bandiagara and Ghirza textiles as well as those from other Libyan sites form a marked contrast to the s-twisted yarns favoured in Egypt and in Nubia.³⁷ All is not explained by the *longue durée*.

Technology

What about technology? Loom weights and spindle whorls have been found in Hellenistic layers at Euesperides.³⁸ In Garamatian levels they appear at Saniat Jibril and in most phases of Jarma.³⁹ In addition, five loom weights and a fragment of a sixth were found at Aghram Nadharif, also dated to the Garamatian

³³ MAGNAVITA 2006.

³⁴ MAGNAVITA 2006.

³⁵ MAGNAVITA 2006, 245 with further references.

³⁶ HAMMARLUND 2005.

³⁷ BERGMAN 1975; THURMAN and WILLIAMS 1979.

³⁸ TÉBAR MEGÍAS and WILSON 2008.

³⁹ COLE 2013; MATTINGLY 2010, 197.

period.⁴⁰ A few spindle whorls and loom weights derive from the Islamic period 2 at Ghirza.⁴¹ They tell us that textiles were produced in the Fazzān, and that the warp-weighted loom was known and used there, presumably throughout the 1st millennium AD and into the 2nd, according to their distribution in layers at Jarma.⁴² But finds are conspicuously few. The rarity suggests that other loom types were in use, too.

In Egypt, spindle whorls are well known from the Pharaonic, Hellenistic, Roman and Byzantine periods.⁴³ Loom weights were considered unknown until recently, two specimens from Jewish community at Elephantine being the only exception.⁴⁴ As loom weights are well-known from Jewish sites such as Masada, the Elephantine specimens could well be intrusions.⁴⁵ It has been suggested that a number of reworked and pierced pottery sherds from *Mons Claudianus* could be loom weights.⁴⁶ The pieces in question, termed ‘labels’ by pottery specialist Roberta Tomber, do however bear little resemblance to loom weights found elsewhere in the Near East or North Africa.⁴⁷ Recent finds from the Dahleh Oasis of loom weights now add to the evidence, telling us that the warp-weighted loom was used in Roman Egypt, possibly first for cotton, and that it remained in use in some parts of northern Africa after it was abandoned in the Roman Near East.⁴⁸

According to Rita Bolland, many of the Bandiagara *cottons* may have been produced on simple treadle looms, similar to those used in western Africa today.⁴⁹ They display web lengths of over 17 m, widths of 19-27.5 cm, and remains of warp ends compare closely with products of the treadle loom of the Samo in Burkina Faso.⁵⁰ Other of the Bandiagara textiles are likely to have been made on two-beam looms like

those used by Berbers in North Africa even today.⁵¹ As the Bandiagara textiles are from the 11th century and later, it is hazardous to suggest that the *Garamantes* used treadle looms; but the two-beam loom is certainly a possibility. Vertical two-beam looms are depicted in Egyptian wall paintings dating to the New Kingdom and in Roman iconography,⁵² and are still used in parts of North Africa and the Near East.⁵³ The ground loom is another option.⁵⁴ It has been used in Egypt ever since pre-dynastic times and is also still used. Both these looms are likely to have been known and used in North Africa during the 1st millennium AD. The problem is that they leave little tangible evidence, and as the work of Ciszuk and Hammarlund has shown, there are few criteria that allow us to identify them from the textiles themselves.⁵⁵

So where does this lead us? With a lot of options and questions, and a need to look more closely into evidence of textile production in this part of the ancient Mediterranean world if political unrest in the area will permit us. *Mons Claudianus* was administered by soldiers.⁵⁶ Two of them were from Gaul,⁵⁷ and I have previously suggested that the barbarian-looking balanced twills had been brought to *Mons Claudianus* by them.⁵⁸ Some of the other soldiers had names such as *Baribalus*, *Frugius* and *Volumnius*. These names were common in Numidia and *Africa Proconsularis*, but rare in Egypt.⁵⁹ They, too, may have brought items of clothing from home. The populations at the ports, forts and quarries of the Eastern Desert came from all of the Roman World and beyond; in order to understand the textiles they left behind, we need to know more.

⁴⁰ MORI 2006, 319.

⁴¹ BROGAN and SMITH 1984, 285.

⁴² COLE 2013.

⁴³ CROWFOOT 1931; QUIRKE 1998, 92-93, 96-99; THOMAS 2001, 14-16.

⁴⁴ GRANGER-TAYLOR 1992. A few have also turned up at the Greek emporion of Naukratis in the Nile Delta. My thanks to M. Gleba for this information.

⁴⁵ SHEFFER and GRANGER-TAYLOR 1994, 230.

⁴⁶ CISZUK and HAMMARLUND 2008, 123, quoting BÜLOW-JACOBSEN 2014, 7.

⁴⁷ TOMBER 2006, 294.

⁴⁸ WILD *et al.* 2008, 144 with further references.

⁴⁹ BOLLAND 1991, 71-77.

⁵⁰ BOLLAND 1991, 72; PICTON and MACK 1993, 93-129.

⁵¹ BOLLAND 1991, 76; PICTON and MACK 1993, 58-67.

⁵² CISZUK and HAMMARLUND 2008, 125 with further references.

⁵³ PICTON and MACK 1993, 58-67; RABATÉ and SORBER 2007, 38-59; RESWICK 1985, 65-83.

⁵⁴ CISZUK and HAMMARLUND 2008, 120-121 with further references.

⁵⁵ CISZUK and HAMMARLUND 2008.

⁵⁶ VAN RENGEL 1997.

⁵⁷ KAYSER 1997, 233.

⁵⁸ BENDER JØRGENSEN 2004, 97.

⁵⁹ KAYSER 1997, 232-233.

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This volume gathers the contributions of the 6th Purpureae Vestes International Symposium, which took place in Padova-Este-Altino, Veneto, Italy in October 2016. The topic, Textiles and Dyes in the Mediterranean economy and society, focused on the role of textile production and dyeing as economic activities of the various ancient cultures of the Mediterranean area, highlighting conservatisms and innovations in the various Mediterranean textile traditions and customs. An important impetus for this has been provided by the recent advances in textile studies and the numerous scientific projects that are using textile evidence to understand wider economic developments of ancient Mediterranean societies. The 53 articles collected in this volume follow a chronological (from the Bronze Age to the High Middle Ages) and geographical (from East to West and from Italy to the provinces) order. The last section deals with broader aspects that transgress chronological or geographical boundaries.



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