

# UC Berkeley

## UC Berkeley Electronic Theses and Dissertations

### Title

Pieces of Change: Uncovering the Material Networks that Transformed Ancient Eurasian Interactions

### Permalink

<https://escholarship.org/uc/item/1mn7682d>

### Author

Knutson, Sara Ann

### Publication Date

2022

Peer reviewed|Thesis/dissertation

Pieces of Change:  
Uncovering the Material Networks that Transformed Ancient Eurasian Interactions

by  
Sara Ann Knutson

A dissertation submitted in partial satisfaction of the  
requirements for the degree of  
Doctor of Philosophy  
in  
Anthropology  
in the  
Graduate Division  
of the  
University of California, Berkeley

Committee in charge:  
Professor Rosemary A. Joyce, Chair  
Professor Laurie A. Wilkie  
Professor Stephen Small

Spring 2022

Pieces of Change:

Uncovering the Material Networks that Transformed Ancient Eurasian Interactions

© 2022 Sara Ann Knutson

## Abstract

### Pieces of Change: Uncovering the Material Networks that Transformed Ancient Eurasian Interactions

By

Sara Ann Knutson

Doctor of Philosophy in Anthropology

University of California, Berkeley

Professor Rosemary A. Joyce, Chair

Even in today's world, money is not just about finance. Money has arranged social relations and powerfully connected people across continents for well over a millennium. This work explores museum-based materials currently housed in collections in the Middle East and Europe, including the movements of itinerant Islamic coins and worked pieces of ivory, each influenced by global exchanges centered in the Islamic World. When examined with digital archaeological tools, these assemblages of itinerant materials reveal previously undetected and under-explained global networks. Not least, Islamic coins reflect past Arab and Islamic encounters with Eurasian communities thousands of miles away from the Arabian mainland. These coins from the 'Abbāsīd Caliphate have been uncovered across Eurasia, including in modern-day Northern and Eastern Europe. The archaeology of these coins reveals a global economic system based on Arab silver that transformed ancient Eurasia to the global space that it remains today. Previously, these materials were largely studied as site- or region-based phenomena without a comprehensive study that investigates how they operated trans-regionally as networked assemblages, beyond their influence on economic systems and interactions. Nor have they been investigated as points of cultural connection to contemporary local communities. Consequentially, these important objects of archaeological and cultural heritage value remain largely inaccessible to source communities. To address these issues, this dissertation applies digital technologies in Archaeology, including network analysis, Assemblage theories, as well as consultation with local stakeholders to reveal this understudied multicultural past and its enduring legacy. This dissertation seeks to explain how itinerant objects inform global social relations and how materials often operate in unexpected, unintended ways. The cultural heritage represented in museum-based material assemblages cuts across national borders, languages, and far distances. These materials thus remind us that today, as in the past, social distance does not always correlate with physical distance.

## ***Dedication***

*For*

*Jean, Maria, and Rosemary,*

*the women whose friendship and mentorship made this work possible,*

*and to Hans, Mike, Rus, and Jan,*

*the men who have always been there for us.*

## Acknowledgements

A project of this kind requires extraordinary collective efforts and collaborations with a number of people and their generous sharing of time, knowledge, and resources. In the case of my work on global networks, it is hardly surprising that a large network of people around the world was involved in the shaping and development of this doctoral dissertation. I am forever grateful to each individual who in some way or another assisted and encouraged me throughout my graduate studies and research. I will do my best to express my gratitude to them here and I extend my apologies to anyone I have unintentionally missed. It has been a true joy to work with and learn from each of you and I am eternally grateful for the friendships that I have made.

I am indebted to the incredible assistance and kindness of Dr. Igor Chabrowski and Dr. Dobrochna Kałwa at the University of Warsaw, and Dr. Anna Mazurkiewicz at the University of Gdańsk without whom my research in Europe would not have become a reality during the COVID-19 pandemic. Thanks to Dr. Dariusz Kołodziejczyk (University of Warsaw) and Dr. Witold Świątosławski (University of Gdańsk) for their supervision of my work during my residence in Poland and to Dr. Eleftheria Paliou (Universität zu Köln) and Dr. Sebastian Conrad (Freie-Universität Berlin) for their supervision of my work during my residence in Germany.

A number of curators, museum practitioners, librarians, archivists, and researchers were gracious to open their doors and permit me to work with their collections and provide assistance along the way. Many thanks to Dr. Csaba Tóth, Dr. István Vida, and Enikő Kovács at the Hungarian National Museum. Thank you to Dr. Andrzej Romanowski for his kind work on data collection at the Polish National Museum in Warsaw. Thanks to Dr. Dan Carlsson for generously granting permission to reproduce his dirham distribution map (Figure 8) and for introducing me to the archaeology of Gotland, Sweden and to Dr. Per Widerström at the Gotlands Museum and Magasin Visborg in Visby, Sweden for showing me the Islamic coin collections and providing the exciting opportunity to work with a newly discovered (2020) deposit on Gotland. Thank you to Dr. Florent Audy for his kind assistance and generously sharing his time at the *Kunliga Myntkabinet* in Stockholm. A warm thanks to Dr. Hasan Abid Al-Zyoud, manager of the Ahli Numismatic Museum in Amman, Jordan for graciously welcoming me to the impressive collections, providing workspace in the museum library, and for generously sharing time and expertise on Islamic (not least ‘Abbāsid) coinage. I am grateful for the opportunity to have learned so much from you. Thank you to the Council for British Research in the Levant (CBRL) for providing access to their library in Amman. Thanks to Nicole Osowski at the Library of the Münzkabinett at the Bode Museum, Berlin and the research staff at the Archäologisches Zentrum, Berlin for access to research materials.

I would like to thank Dr. Sanjyot Mehendale for her feedback and direction on an early draft of Chapter two, which first emerged from her course “Silk Road Art & Archaeology” and was further inspired by a series of lectures hosted by the Tang Center for Silk Road Studies and the Institute of Slavic, East European, and Eurasian Studies at the University of California, Berkeley. My many thanks to Yannai Plettener, Dr. Faidra Monachou (Stanford University), Valery Tokarev, and Maja Lundqvist (Uppsala University) for their help in accessing relevant research materials during the development of Chapters two and three. Thank you to Valentina Maksimova and Christina McLeod for their assistance with some Russian translations and to

Begum Erdem for her assistance with Turkish. I am grateful to Thierry Ollivier for his kind permission to reuse his image of the Bactrian “Aphrodite” Appliqué, housed in the National Museum of Afghanistan in Figure 1. Chapter three emerged from a conference paper at “The Viking Age as a Foreign Place” 2021 Conference at the Centre for Viking Age Studies at the University of Oslo and from audience feedback at the “Scandinavian and the East” workshop at the British Museum in December 2021. I would like to thank Dr. Kristel Zilmer and Dr. Sue Brunning, respectively, for organising the “Speaking Objects” session in Oslo and the British Museum workshop, and to the participating audiences in each of these forums for their feedback on various iterations of Chapter three.

I would also like to acknowledge and deeply thank all the stakeholders in the Middle East and around the world who contributed to my cultural heritage survey and shared their time and perspectives. Many thanks also to Dr. Mohamed Hamed (University of California-Berkeley) for sharing my cultural heritage survey and providing access to important library resources and materials. Celia Emmelhainz (University of California-Berkeley) also graciously helped me to access important research materials throughout my doctoral dissertation research. A heartfelt thanks to my research assistant Yuxin Zhao in the Undergraduate Research Apprentice Program (URAP) at UC Berkeley for the time she devoted to data entry and helping me develop my database. To all my students at UC Berkeley over the years: your dedication, enthusiasm, and curiosity has been nothing short of inspirational and I have grown, not only as a teacher, but also as a thinker and an individual, thanks to our classroom discussions, your questions, and your search to understand the world in all its complexity. It has truly been an honor to work with each of you.

My research was partially funded by the Swedish Women’s Educational Association (SWEA)- San Francisco chapter and their 2020 stipendium. I cannot thank you enough for your enduring support of my work in Sweden. My research in Amman, Jordan would not have been possible without the support of the Kenneth W. Russell Memorial Fellowship (2021-2022) from the American Center of Research (ACOR). I am very grateful for ACOR’s support of my work in Jordan and for the opportunity to return there and build enduring friendships. My doctoral research similarly benefitted immensely from the generous support of the 2021 Social Science Research Council (SSRC) Mellon International Dissertation Research Fellowship and their funding of my work in Germany, Jordan, Sweden, Denmark, and Jordan. I would also like to thank the Department of Anthropology, the Archaeological Research Facility, and the Center for Race and Gender at UC Berkeley for their respective support of my project.

The encouragement, collaboration, and friendship of many colleagues made the years of research and writing a significantly happier process, including Felicia De Peña (UC Berkeley), Anna Louise Nielsen (UC Berkeley), Sandra Oseguera (UC Berkeley), Jarre Hamilton (UC Berkeley), Natasha Fernandez-Preston (UC Berkeley), Sara Eriksson (UC Berkeley), AJ White (UC Berkeley), José Luis Marrero Rosado (UC Berkeley), Trent Trombley (UC Berkeley), Pascale Boucicaut (UC Berkeley), Paloma Sanchez, Kirsten Vacca (University of Hawai’i West O’Ahu), Flavio Silva de la Mora (University of Alabama), Alberto Sánchez-Sánchez (UC Berkeley), Urté Laukaitytė (UC Berkeley), Karolina Czonstke (University of Gdańsk), Dr. Lena Tambs (University of Helsinki), Dr. Caitlin Ellis (Dublin Institute for Advanced Studies), Maria Gull (University of Michigan) and Dr. Leszek Gardeła (National Museum of Denmark). Thanks to Dr. Søren Sindbæk and Dr. Tom Brughmans at Aarhus University for their feedback on various stages

of my network analysis projects. To Melissa Freeland, Alex Abdun-Nabi, Ana Guay, Iva Jugovic, Kate Thill, Jamie Monville, Tal Katsir, Dima Kogan, Begum Erdem, Tanay Topac, Kostis Kaffes, Faidra Monachou, Mariel de Haan, Florian Tramèr, Maja Lundqvist, Mattias Vesterlund, Bethan Palmer, and Lies Cobbaut, whose enduring friendship and late-night chats over the years continue to remind me how all knowledge is invariably connected. Thank you all for taking the time to share your own expertise with me, I have learned so much from each of you and hope to continue doing so. To Abdulmonem Al-owis and Leen Nofal for each helping me to rekindle my love for the Arabic language and their assistance with some Arabic translation, I am very grateful for your friendship. To the late Bibi and Peter Sawyer, I can only thank you for encouraging me all those years ago to continue pursuing Archaeology—Bibi, you were right.

To my advisers who constituted a more encouraging and influential doctoral committee than I could have ever asked for: Dr. Rosemary Joyce, Dr. Laurie Wilkie, and Dr. Stephen Small, I cannot thank you enough for your mentorship. I am a far better scholar for the years I have spent learning from each of you, working through the obstacles, and celebrating the successes with you. And especially to my doctoral chair, Rosemary Joyce: words cannot describe how grateful I will forever be for your mentorship since day one of my PhD and for your unceasing belief in the scholar that I could become.

Thank you to Andreas and Andrea Schürmann and Katrin and Clemens Schmidt for your kindness, acceptance, for always offering me a space to write, and for creating a second home for me in Germany.

My enduring gratitude to my parents, Hans and Jean Knutson, for your support of education from the earliest days and your constant belief in me all the while.

And finally, thank you to Jan, for simply everything.



# Table of Contents

<b>List of Figures and Tables .....</b>	<b>vii</b>
<b>Chapter One: Introduction .....</b>	<b>1</b>
Relevance of the Research to Anthropology and other Fields .....	2
Dissertation Outline and Justification of Research Methods .....	6
Conclusion .....	8
<b>Chapter Two: Framing the Global Networks of Ancient Eurasia with the Silk Road .....</b>	<b>9</b>
Introduction: Bringing the Silk Road into Global Archaeology .....	9
“Silk Road” Archaeology: An Overview .....	10
The Silk Road Model.....	12
<i>Multiscalar Phenomena</i> .....	14
<i>Deterritorialization</i> .....	17
<i>Uniting Multidisciplinary Research</i> .....	19
Discussion: Bringing Eastern Europe into the Silk Road Network.....	20
<i>Direct Exchanges &amp; Communications</i> .....	21
<i>Indirect Exchanges &amp; Communications</i> .....	25
<i>Multiscalar Phenomena</i> .....	27
<i>Deterritorialized Connectivities in Eastern Europe</i> .....	29
Conclusion .....	29
<b>Chapter Three: Beyond “Trade Networks:” The Tangible &amp; Intangible Movements of Islamic Coins .....</b>	<b>31</b>
Introduction: Bringing Itinerant Islamic Coins into the Silk Road Framework .....	31
Material Roads? .....	31
Islamic Coinage and Beyond an Anthropocentric View of Trade and Exchange .....	33
A New Materialist Approach to Islamic Coinage & its Intangible Movements .....	36
<i>The “Silk Road Hoard” from Gotland</i> .....	37
<i>‘Speaking Objects’ and the Pseudo-Arabic Phenomenon</i> .....	41
Conclusion .....	47
<b>Chapter Four: Itinerant Assemblages and Global Networks.....</b>	<b>49</b>
Introduction .....	49
Assemblage Theory in Network Thinking .....	51
An Itinerant Assemblage: The Case of Medieval Walrus Ivory .....	53
<i>The Relationship Between Assemblage Parts and Wholes</i> .....	60
<i>Intra-Assemblage Interactions</i> .....	65
Discussion & Conclusion .....	69
<b>Chapter Five: Islamic(ate) Global Archaeology and Heritage Futures .....</b>	<b>72</b>
Introduction: Pursuing Islamic(ate) Cultural Heritage Through Coins .....	72
Survey Demographics .....	74
The Survey Results and Discussion .....	77

Conclusion .....	85
<b>Chapter Six: Conclusion .....</b>	<b>87</b>
<b>References .....</b>	<b>89</b>

## List of Figures and Tables

- Figure 1**, Appliqué, the “Aphrodite of Bactria,” 100 BCE-100 CE. Tomb 6, Tillya Tepe, Afghanistan. Gold, turquoise. Housed at the National Museum of Afghanistan
- Figure 2**, Statuette of Heracles from the Temple with Niches, 150 BCE, Ai Khanum, Afghanistan. Bronze. Housed at the National Museum of Afghanistan
- Figure 3**, Active cultural sub-networks (broadly speaking) of the Silk Road context during the early Common Era (ca. 1st century BCE – 3rd century CE).
- Figure 4**, Approximate position of semi-nomadic and sedentary communities in medieval Eastern Europe and Central Asia, c. 7th century CE.
- Figure 5**, Dirham from the ‘Abbāsīd Caliphate. Mint: al-Mahdi, AH 162 (778/9 CE). Madinat al-Salam (Baghdad).
- Figure 6**, Author’s adaptation of the reconstruction of tapestry from the Oseberg burial, Tønsberg, Vestfold, Norway
- Figure 7**, Bronze Seated Buddha, Helgö, Ekerö, Sweden, c. 6th-7th century CE (SHM 29750:476)
- Figure 8**, Distribution Map of Islamic Silver Deposits in Western and Northern Eurasia
- Figure 9**, Map of Select ‘Abbāsīd Mint Centers
- Figure 10**, Islamic Coin Deposit from Gotland, Housed at the Gotland Museum, Visby, Sweden
- Figure 11**, Late 9th or early 10th century imitation of ‘Abbāsīd dirham with four piercings (Object ID: YORYM-FB7039)
- Figure 12**, Mid-10th century imitation of Samanid dirham (Nasr ibn Ahmad)
- Figure 13**, ‘Abbāsīd Dirham (Reverse) with bakh-bakh inscription (encircled), Runne hoard, Sanda socken, Gotland
- Figure 14**, Scandinavian iron and bronze weight with Arabic-like inscription (SHM 372289)
- Figure 15**, ‘Abbāsīd Dirham (Reverse) with bakh inscription (encircled), Lärbro Hoard, Gotland
- Figure 16**, The Allen crozier, likely crafted in the British Isles, ca. 1150- 1175 CE
- Figure 17**, Queen from the Lewis Chessmen set, likely made in Trondheim, Norway, ca. 1150-1175 CE

**Figure 18**, Walrus Ivory Game Piece with Hercules Slaying the Three-Headed Geryonca; Crafted in Cologne, Germany, ca. 1150 CE

**Figure 19**, Throne fragment, made in Scandinavia, ca. 1150 CE (mounts date to 14th c.)

**Figure 20**, Network of walrus ivory objects and their movements, ca. 800- 1550 CE

**Figure 21**, Network of walrus ivory objects and their movements, ca. 800- 1000 CE

**Figure 22**, Network of walrus ivory objects and their movements, ca. 1000- 1300 CE

**Figure 23**, Network of walrus ivory objects and their movements, ca. 1300- 1550 CE

**Figure 24**, Reported Demographics of Respondents in Cultural Heritage Survey

**Figure 25**, Reported Religious Demographics of Respondents in Cultural Heritage Survey

**Figure 26**, Reported Country of Childhood Residence of Respondents in Cultural Heritage Survey

**Figure 27**, Reported Education Demographics of Respondents in Cultural Heritage Survey

**Figure 28**, Reported Museum Attendance Frequency (Before the COVID-19 pandemic)

**Figure 29**, Reported Ranking of the Middle East’s Most Important Contribution to the Silk Road Past

**Figure 30**, Reported Ranking in Importance for the Recognition of Middle Eastern communities’ Contribution to the Silk Road Past

**Figure 31**, Reported Ranking in Interest for a Broad “Silk Road region” (Outside of the Arab World)

**Figure 32**, Reported Ranking in Personal Importance for Types of History in Relationship to Ancient Materials Like Coins

**Figure 33**, Reported Understanding of ‘Abbāsīd Coins Housed in European Museums as Part of Respondents’ Cultural Heritage

**Figure 34**, Reported Understanding of ‘Abbāsīd Coins Housed in European Museums as Part of Respondents’ Cultural Heritage (Divided by Respondent Demographics)

**Table 1**, Frequency of medieval walrus ivory materials in Europe, ca. 800-1550 CE

## Chapter One: Introduction

This dissertation was inspired by the observation that in the past, as well as today, money has never been simply a matter of finance. Instead, money, especially in the form of coinage, has arranged social relations and powerfully connected people across continents for well over a millennium (Graeber 2012). This work explores museum-based materials currently housed in collections in the Middle East and Europe, including silver Islamic coinage and elephant and marine mammal ivories. When examined with digital archaeological tools and from network-, Assemblage theories, and cultural heritage perspectives, these materials reveal previously undetected or under-explained social networks. Not least, Islamic coins and worked ivory materials reflect past Islamic encounters with Eurasian communities thousands of miles away from the Arabian mainland. Silver Islamic coins (*dirhams*) from the ‘Abbāsid Caliphate have been uncovered across Eurasia, including in Northern Europe, in the Volga River Valley region in Russia, and throughout modern-day Eastern Europe. Previously, these materials were largely studied as site- or region-based phenomena without a comprehensive study that investigates how they operated trans-regionally, beyond their influence on economic systems and interactions. Nor have they been investigated as points of cultural connection to contemporary local communities. Instead, these materials have been treated predominantly as tokens of “European” national histories without consideration to how they reflect the history and cultural heritage of the Arab World as well as of wider Eurasian communities that were involved in these ancient networks. Consequentially, these important objects of archaeological and cultural heritage value remain largely inaccessible to source communities. To address these issues, my research applies digital methods in Archaeology, including network analysis, as well as consultation with local stakeholders to reveal this understudied multicultural past and its enduring meanings in the present. This work seeks to explain how itinerant objects inform global social relations and how these materials often operate in unexpected, unintended ways. The cultural heritage represented in Islamic coins cuts across national borders, languages, and far distances. These materials thus remind us that today, as in the past, social distance does not always correlate with physical distance.

My dissertation first poses the question: what is the productivity of working with multicultural objects who today, as in the past, do not belong to any single community or geographic space? The material objects under study in this project belong to a shared cultural heritage that spans multiple communities of practice that are geographically situated hundreds of miles apart. I argue that aggregating data on *multi-site* materials and a network analysis of the resulting assemblages will produce previously undetected, under-explained social networks that will allow us to better explain how materials, including money, structure global social relations across long distances. Network theories and models also enable us to compare how money and concepts of value informed global economies in the past to how money does so in our globalizing world today.

This work also raises the question: how can researchers understand the impact of cross-cultural social relations more broadly than simply the physical, “hand to hand” exchange of materials between two individuals? I argue that itinerant objects play a fundamental role in

building global social networks. My project therefore reconfigures how social scientists can conceive of assemblages, especially those of human and materials, that cannot be confined to any one locale, but rather span across impressively long distances. In addressing these questions, I examine premodern material networks in order to better explain how human-material interactions structure global social relations and to argue that money often operates in unexpected ways, sometimes beyond the realm of human intention. This work also reorients ancient materials as important objects of cultural heritage value to local communities around the globe.

## **Relevance of the Research to Anthropology and other Fields**

My dissertation project engages with three main areas of inquiry in Anthropology. First, this project is informed by anthropological applications of Social Network Analysis (SNA) methods, which seek to examine human behavior and its material signatures within a networked, global world. The most successful studies have transformed our understanding of a region's history of social interactions between communities, based on cultural, economic, religious, and political relations (Mills *et al.* 2015; Hart *et al.* 2017). Network methods have offered a productive approach to some of the "Big Questions" in Anthropology, such as inequality and power (Pailes 2014), ethnicity and social identities (Blake 2014; Collar 2013b), group dynamics (Crabtree 2015), and migration (De Groot 2019; Hofman *et al.* 2014). SNA addresses fundamental anthropological questions in ways other approaches cannot. SNA is well-adapted to managing large datasets, studying relationality, and articulating processes through multiscale analysis (Knappett 2011), requiring macro-scale studies to recognize that even the largest, trans-regional networks have local effects. SNA is also useful for studying heterogeneous evidence and fragmented assemblages because this approach defines the *relations* between entities and therefore does not presume hierarchical structures between entities themselves. My role in these debates is to address a current limitation of SNA studies: the tendency to focus on the relations between entities at the expense of overlooking the entities themselves (Van Oyen 2016; Brughmans *et al.* 2016). My research demonstrates that assemblage theory addresses this analytical incompatibility between entities and relations, because it offers a foundation of anthropological scholarship that investigates the agency of things themselves and their relations to other entities. Therefore, this work will contribute improved anthropological theories that can better explain SNA models, thus helping us to better understand how social networks aggregate, change, and disassemble over time (Knutson 2021).

Second, my research engages the Anthropology of money, economic life, and theories of value. Anthropologists agree that money has symbolic meaning, beyond its function as a token of monetary exchange that is situationally defined and constantly renegotiated (Parry and Bloch 1989; Nelms and Maurer 2014). Money communicates cultural regimes of value, as simultaneously a measure of value, a medium of value, and the material embodiment of prestige, wealth, status, or whatever the particular valued quality may be (Graeber 2001). Following the research of Graeber (2001, 2012), Maurer (2005, 2006, 2019), and other economic anthropologists (Hsu *et al.* 2016, Di Muzio and Robbins 2017), I understand coins as a proxy for social relations and an important material of intercultural exchange that implies the building of relationships around understandings of value (Le Goff 2010). My project addresses a demand for more interconnected, global-thinking in anthropological analyses of money by applying network

methods to coin-based data and examining the global and local processes that produced these materials.

Thirdly, my research engages the Anthropology of global human interactions. Researchers are becoming more globally minded and increasingly directing their focus to human connections, exchanges, interactions, and movements (Brettell and Hollifield 2015; Barber and Lem 2018). Recent work has shifted the discussion of migration from the distribution of cultural groups to global contacts and social connectivities (Hodos 2017). For current anthropologists, "globalization" is more importantly defined by "complex connectivity" around the globe rather than simply "worldwide" connections (Knappett 2017). The concept of *diaspora* similarly offers "a powerful anthropological foundation on which contemporary archaeologists [can] investigate the cultural experiences of people who do not otherwise conform to neat racial, ethnic, national, or other social categorizations" (Knutson 2020b: 2). I have argued that an important theoretical benefit of diaspora in contexts of global studies is its conscious attention to identify as informed by, but not entirely bound to, geographic space (Knutson 2020b: 2; Lilley 2004: 287). Unfortunately, however, most anthropologists have not applied network models or theories to address these topics (but see Knappett 2011); my research intends to fill this gap by demonstrating that networks of archaeological materials can inform our understandings of globalization, cultural identities, and other global processes that connected long-distance communities in the past as well as the present.

My work is additionally informed by a number of disciplinary perspectives beyond strictly Anthropology. First, my dissertation intersects with highly debated issues in Economics, including the role of money in shaping human society, the factors that reinforce global inequalities, and the social structures and ideologies behind socioeconomic systems like slavery (Picketty 2013; Hickel 2017; McNally 2020; Krugman 2020; Goldstein 2020). Important recent scholarship on the archaeology of ancient and medieval slavery has demonstrated how Islamic coinage mobilized an interconnected, trans-Eurasian slave trade (Jankowiak 2020; Fontaine 2017; Raffield 2019). I understand the presence of Islamic coins in Eurasia as proxies for this interconnected system of slavery. This work is informed by Critical Race Theory and sociological and historical debates on race and the role of racialized practices in justifying economic systems, including those built upon slavery (Miles 1987; Small 1994; Delgado and Stefancic 2001; Omi and Winant 2015; Heng 2018; Kim 2019; Hochman 2019; Inikori 2020).

The ancient, trans-Eurasian slave trade redefined social relationships, restructured the social structure of local communities, and encouraged ideologies and practices that were the predecessors to *racialized* practices. Scholars have argued that the medieval period was a particular historical moment in which medieval individuals began developing the notion of a "Europe." The criteria by which a sense of "Europeanness" was measured, sometimes against an "Other," varied widely (cf. Hannaford 1996; LeGoff 1996; Jones and Graves-Brown 1996). In the European medieval period, religion became a paramount source of authority that also functioned socio-culturally and biopolitically to racialized people of certain faiths according "to a political theology that could biologize, define, and essentialize an entire community as fundamentally different in an interknotted cluster of ways" (Heng 2018: 3). While religion was used to racialize Jews, "Saracens," and "heretics," medieval racialized practices also targeted Blackness, Mongols, Africans, Indians, Chinese, tribal islanders, "gypsies," and indigenous peoples in the Americas

(Heng 2018). Nevertheless, the perceived boundaries of “Europe” and “European-ness” have never been and are today not so neatly defined. One need only examine the historical movements of the Islamic Caliphates, including the Umayyad dynasty, which brought Islam to the Iberian Peninsula, established an eighth-century Moorish dynasty in Spain, and occupied territories as far north as Tours (Hannaford 1996: 102). A few centuries later, the eleventh century Andalusian historian Ibn Hazm wrote that the Caliphs of Islamic Spain were blond-haired, blue-eyed men because of their Caucasian slave mothers (Heng 2018: 7-8). It is therefore of utmost importance for archaeologists to understand how racialized practices have been used to construct the identity of a “Europe,” while understanding the apparent ironies and contradictions in these practices and recognizing that in reality, there have been many “Europes.”

As much as the notion of a “Europe” was sometimes constructed during the medieval period with the assistance of racialized practices, Jones and Graves-Brown (1996: 12) argue that this impulse continues today “as a reaction against ‘third world’ immigrants within Europe.” More recently, scholars have examined contemporary efforts towards the creation of a normative, common continental identity in Europe, one that is challenged by the migration of racialized bodies (El-Tayeb 2008, 2011; Bacchetta *et al.* 2015). This scholarship argues that the movement of people, ideas, practices, and objects are key to examining the experiences of communities of color in the “Global North” (Bacchetta *et al.* 2015: 774). As much for the medieval period as for the present day, race is a strategic, epistemological, and political commitment, one that positions a racialized group within a hierarchy of power relations (Heng 2018). Those power differentials are further exacerbated by legacies of European colonialism, including in the Middle East, and the influence that colonialism has had in shaping historical narratives on the Islamic World (Said 1978; Omar 2021).

My work therefore understands the Islamic World as a socially constructed space with a long history of being internally and externally tied to racialized practices, the most influential of which has been the racialization and essentializing of an Islamic identity as an overstated and imbalanced distinction from a “European” identity. The typological imbalance of categorizing Arabs under the primacy of Islam over other racialized categories has had significant implications for understanding the Islamic World’s history, heritage, and its social, cultural, economic, and geopolitical place in the world. While Muslims are marginalized in the United States and Europe and placed on the fringes of whiteness, in Africa, meanwhile, Muslims are conceptually divided between Northern “whiteness” and sub-Saharan “blackness.” In this framework, Muslim Arabs in the North African zone are often placed in conversation with the Mediterranean zone with little attention to their cultural and historical contact with sub-Saharan Africa. Building on feminist archaeologies, which often reasserts the importance of revealing how gender roles, occupations, race, and cultural heritage (among other intersectional identities) are fundamentally intertwined without asserting the need “to essentialize any facet of identity over another” (Wilkie 2001:124), I contend that future research on the historical experience of the Islamic World requires greater anthropological attention to the intersectional complexities of the Arab identity beyond simplifying “Muslims” to a de facto race, confining “Arabs” across national origins to a singular geopolitical origin (“Middle Easterners”) or over-simplifying Arab identity based on their assumed membership to a uniform linguistic community, where Arabic speakers are assumed to stand in for “Arabs” as a racialized group (Heng 2018: 20).



My work demonstrates the necessity of greater attention to the historicized cultural boundaries that have been used to situate Europe as at the center of ancient and medieval Eurasian developments. What is obscured and what is promoted when European identity is assigned Christian roots and is presumed to be the center of premodern and contemporary Eurasia? Archaeology has much to offer to these current debates and my work contributes to these conversations by demonstrating the importance and productivity of decentering Europe in the study of ancient Eurasia, problematizing entrenched Eurocentric approaches to the past, and instead exploring the undermined, underexplored Islamic contributions to Eurasian history and its continued importance in the contemporary world.

Transdisciplinary work on materiality also informs my research on the intersection of human and nonhuman networks (Latour 2007; Barad 2007; Coole 2013). Recent work in New Materialism has argued that agency is distributive across animate and inanimate entities; this argument permits researchers to better explain how nonhuman materials can operate beyond human control (Joyce 2020). Similarly, my project demonstrates how anthropologists can broaden the study of cross-cultural contact and migrations to materials rather than simply human exchanges and interactions. Drawing from New Materialist arguments about object agency, I argue that itinerant objects play fundamental roles in wider, transregional-scale networks of interaction, sometimes even in ways that supersede or defy human intentions and expectations (Bennett 2010). I argue that itinerant objects, such as coins, are special materials embedded with agentic power that makes them proxies for long-distance mobility and social relations. The transdisciplinary New Materialist scholarship allows me to conceive of coins as nonhuman actors and to discuss how money operates in ways that are unexpected and beyond the realm of human intention. Finally, my research draws from interdisciplinary tools and debates in the computational social sciences and digital humanities, namely complexity theory and network approaches (Bentley and Maschner 2003). My work builds on these computational and digital approaches to traditional humanistic and social science problems in order to observe the dynamic role of money in human social networks over time.

In this dissertation, I propose to contribute a more anthropological view of the ancient past which has often been treated without regard to the kinds of analyses that Anthropology offers. The study of Islamic culture and its impressive hemispheric network across Eurasia contains a still understudied perspective that has the potential to drastically reorient our understandings of how money shapes human relations, the factors that build global networks or lead to their collapse, and how cultural heritage materials inform present and future identities in a multicultural world. This work finds immediate relevance to current social issues, including the complex relationship between the global economy and inequality, issues of race and racism, and modern forms of slavery and human trafficking. My dissertation therefore intends to improve our understandings of how humans around the world influence, and are influenced by, seemingly static materials in highly complex and multifaceted ways, especially in terms of economic systems, social structures and ideologies, and identity construction.

I recognize the continued relevance of ancient Islamic coins to many communities today across Eurasia, including the Islamic World. Yet, these coins are predominantly housed in European museums and private collections, owing to biased processes of deposition and collection. Until recently, scholars rarely conceived of objects as ‘multicultural’ or addressed the implications

of displaying an object in one locale over another; still today, this problem remains an underexplored but urgent issue. My project addresses this gap by incorporating the perspectives and values of community stakeholders who claim the heritage of these coins may access them, not simply those who can travel short distances to a local collection. The study of these multicultural objects within complex social networks further illuminates our understandings of the continued relevance of materials in the construction of cultural heritage.

## **Dissertation Outline and Justification of Research Methods**

In this dissertation, I examine social, in addition to the economic, exchanges between the Islamic World and communities across ancient Eurasia based on the presence of itinerant objects, namely silver Islamic coinage (‘Abbāsīd *dirhams*) and assemblages of carved ivory pieces from the North Atlantic zone that were informed by the exchange of elephant ivory from sub-Saharan Africa through the Islamic World. In Chapter Two, “Framing the Global Networks of Ancient Eurasia with the Silk Road,” I explore the socially-constructed space of Ancient Eurasia. I argue that understanding the “Silk Road” as an analytical model with anthropological interventions and processes, such as *deterritorialization*, has important impacts for how researchers can interrogate global developments in the archaeological record. It is through this analytical and geospatial context that I explore the premodern itinerant assemblages of ivory and silver.

In Chapter Three, “Beyond ‘Trade Networks:’ The Tangible and Intangible Movements of Islamic Coins,” I argue that understanding the active, agentive role of materials enables us researchers to move past the limitations of anthropocentric understandings of “trade” networks and instead to understand how itinerant material networks, such as the tangible exchange of Islamic coins, can inform human behavior, sometimes beyond the realm of human intention. This work decenters “Europe” in global exchanges in Ancient Eurasia and instead repositions the Islamic World as an important center for the exchange of materials, such as silver coins, as well as the exchange of *intangibles*, such as the Arabic language. The trans-regional movement of Islamic coinage resulted in different Eurasian communities, including those outside the Islamic World, assigning various, sometimes overlapping, meanings and values to Islamic coins. These themes of value also arise in my cultural heritage survey, which I will discuss in Chapter Five.

In order to make these arguments, I examine Islamic, predominantly ‘Abbāsīd, coinage. The majority of these materials have been uncovered archaeologically in deposits located in Eastern-, Central-, and Northern Europe. To investigate social, material exchanges based on evidence of surviving Islamic coinage, I collected key multi-site data on Islamic coins and their archaeological contexts. This information derives predominantly from on-site research at museum collections and archives and was supplemented with raw data in published archaeological field reports, numismatic catalogues, and secondary scholarship. At select museum collections in Sweden, Denmark, Norway, Germany, Poland, and Jordan, I collected data related to the standardization of silver Islamic coinage, including measures of the coins’ dimensions, weight, and die-stamped inscriptions, information that enable researchers to discuss how coin issues were made. In some cases, select coins in my database have already been examined in previous XRF analyses, which reveal the alloy composition and the geographic origin of the silver content. With this information, I can determine the locales of coin production, the sites of the coinage issue

(based on the Arabic inscriptions), and the subsequent redistribution of these materials across Eurasia.

Additionally, coins contain two basic ages: first, when they were stamped and therefore entered circulation and second, when they left circulation—often when coins were deposited into the archaeological record. With information on the disparity between the age of the coin and the age of the context in which it was recovered, I can examine the itinerant histories of these materials that predate their final deposition and the ways in which they may have been recycled for different purposes, some of which may not be monetary. Collecting information on the coins' degree of wear helps researchers to determine whether these materials were in regular circulation between the Islamic World and wider Eurasia or if the coins themselves were involved in relatively few transactions between these spaces. I also gathered data and specific case studies on how Islamic coinage was in some cases reused and repurposed outside of the Islamic World as well as the existence of 'imitation coins' in order to explore how and why Islamic coinage was used in wider Eurasia and in which specific contexts.

The resulting multi-site database based on these kinds of information, combined with an international cultural heritage survey of local stakeholders, enables me to discuss the itinerant histories of these coins before and *after* their deposition into the Eurasian archaeological record. I could then begin to hypothesize the kinds of transactions and interactions that these materials were involved in. Through this analysis I identified changing notions of value of Islamic silver, between the locales in which the Islamic silver was struck and intended as currency and the locales in which the value of Islamic silver was not restricted to only a *monetary* value. I intended to collect enough data on Islamic coins at select museums in order to develop a formal social network model that can help researchers to better hypothesize the routes of circulation and itinerant histories of itinerant Islamic materials. However, owing to complications and disruptions as a result of COVID-19 pandemic, I was able to conduct a limited amount of data collection on Islamic coinage for network analysis. Therefore, I instead developed a pilot study of applied social network analysis to itinerant objects that seeks to understand how network theories and tools can help archaeologists to better *explain* global and relational phenomena. Chapter Four, "Itinerant Assemblages and Global Networks" discusses the development and results of this pilot project based on the data collection and network analysis of itinerant walrus ivory materials, the exchanges and movements of which were informed by geopolitical and economic developments in the Islamic World. In future research, this work will inform the application of similar network tools and theories to Islamic coinage in order to better explain how these itinerant materials operated transregionally.

In addition to social network analysis, this dissertation project also relied on the development of an international qualitative research survey of individual respondents culturally or professionally connected to the cultural heritage of the Middle East. I developed this survey with the object of gathering information on how contemporary individuals connected to the Middle East understand their cultural heritage in relationship to the ancient Silk Road network, which has more often been previously examined in the context of Chinese and Central Asian studies and cultural heritage work. I hypothesized that the cultural heritage represented in the 'Abbasid coins, like other Arab materials, cuts across national borders, languages, and far distances. This survey therefore gathered individual-reported information about the level of importance and values that

are placed on past and present global networks in the construction of Middle Eastern cultural heritage and the results of which are discussed in Chapter Five, “Islamic(ate) Global Archaeology and Heritage Futures.”

## **Conclusion**

Ultimately, in this dissertation, I analyze the complex circulation and networks involved in itinerant global materials as a way to observe and explain the complex structures of trade, exchange, and social relations between the Islamic World and Northern Eurasia, two socially constructed spaces that have otherwise been traditionally considered disparate regions. I recognize that the respective archaeological record of Islamic silver coinage and of trans-Eurasian ivories contains biases in which materials have been uncovered and where. For this reason, scholars have long warned of the uncaredful use of distribution maps for coin hoards (Casey 1986). While still constructed based on the limitations of the evidence, network approaches in Archaeology can develop a closer understanding of the complex exchanges of itinerant objects, indicating the centers and peripheries of ancient exchanges and social relations without over-emphasizing the significance of rarer archaeological phenomena. While remaining mindful of the limitations of network analysis, there is strong reason to suggest that itinerant materials are more than simply curiosities in museum collections; they indicate economic transactions, social interactions, intangible movements, material agencies, social alliances, and tensions in ways that would otherwise remain unintelligible and intangible to anthropologists and other specialists in the Humanities and Social Sciences.

## Chapter Two: Framing the Global Networks of Ancient Eurasia with the Silk Road

### Introduction: Bringing the Silk Road into Global Archaeology<sup>1</sup>

Informed by contemporary global migrations, interconnections, exchanges, and globalization, the study of the “global” and global processes in the past has become a powerful theoretical framework in 21<sup>st</sup> century Archaeology. As mentioned in the introduction, the “global” and “globalization” are importantly defined by “complex connectivity” rather than simply “worldwide” connections (Knappett 2017). Smith and Burke (2021) define “global archaeology” as the archaeology of “globalization, documenting and unearthing the material markers of its origins, trajectories, manifestations, and repercussions.” They also point to some fundamental challenges for global archaeologists. Firstly, global archaeologists face the tension of analyzing material culture as it relates to global processes rather than as local phenomena but doing so without sacrificing the role of local contexts, issues, and communities in archaeological explanations of the global. Smith and Burke (2021) also pose the question of pursuing social and ethical issues in global archaeology as well as the challenge of identifying how contemporary globalization “influences the development of archaeology itself.” Claire Smith has addressed this final point with the development of the online (and print) resource, *Encyclopedia of Global Archaeology* (2014) which intends to provide a comprehensive and systematic coverage of archaeological topics that includes wide-ranging time periods and world regions, multi-media content, and the opportunity for scholars to produce content in their native languages, beyond English.

In light of these challenges, important issues, and tensions in global archaeology, a subdiscipline that is still quite arguably in its infancy, I argue that anthropological attention to networks, itinerant materials, trans-disciplinarity, and processes of *deterritorialization* in the past offer productive approaches to topics in global archaeology without sacrificing the attention to the local and the particular. In this chapter, I will demonstrate the productivity of these approaches in global archaeology by focusing on the application of the “Silk Road” in global archaeology. This work also provides an important case study for exploring ancient Eurasia within the framework of global archaeology and for understanding the role of itinerant materials, including Islamic coinage, in these historical, hemispheric networks.

In modern scholarship, the ‘Silk Road’ is used as a broad framework for networked exchanges across ancient Eurasia, periodized roughly between the Han dynasty’s lucrative silk trade and the decline of the Mongol Empire (ca. 200 BCE to 1400 CE). In this chapter, I identify the “Silk Road” as an important *analytical model* for archaeological research on transregional and global-scale phenomena. I argue that Silk Road scholarship has often engaged four key theoretical approaches. While they are not exclusive to Silk Road archaeology, the trans-disciplinary field of Silk Road studies has developed some exemplary, successful applications of these approaches to

---

<sup>1</sup> This chapter is derived in part from an article published in *World Archaeology* 2020 © Taylor & Francis, available online: <https://doi.org/10.1080/00438243.2021.1940268>

the study of global phenomena. This model is therefore poised to inform other research on global archaeological topics. As an example of research outside of traditional Silk Road studies that can benefit from these theoretical approaches, I examine medieval archaeology from Northern Europe and the Baltic region to the Caucasus from the perspective of the Silk Road model.

### **“Silk Road” Archaeology: An Overview**

The “Silk Road” evokes glamorized images of an ancient highway that mobilized people, animals, materials, money, commercial goods, mercantile communities, religions, art, ideas, and most of all, the flourishing movements and interactions of cultures across impressive lengths of time and geographic distances. The concept refers broadly to the network of exchanges across Eurasia, periodized roughly between the beginning of the Han dynasty’s lucrative silk trade and the decline of the Mongol Empire (ca. 200 BCE to 1400 CE).<sup>2</sup> Today, the so-called *New Silk Road* appropriates the original term to signal a future of like-minded connections across the Eurasian landmass to China. The term “Silk Road” (*die Seidenstrasse*) was originally an invention of nineteenth-century German explorer Ferdinand von Richthofen (1833- 1905) to describe what he saw as a coherent phenomenon of cross-cultural interactions and exchanges across the Central Asian steppes, from the Caspian Sea to Chang’an (Richthofen 1877; Waugh 2007). This coinage of the term ‘Silk Road’ led to two main schools of thought in contemporary scholarship: (1) the rejection of the Silk Road as a romanticized and misleading construct (Rezakhani 2010) and (2) the broad use of the pluralized *Silk Roads* as a framework for ancient globalization, including both overland and maritime connectivities (Borell 2010; Boivin *et al.* 2012; Honeychurch 2014; Cameron 2017; Bellina *et al.* 2018). The second approach argues for the productivity of using the Silk Road context to promote bidirectional, transcontinental scholarship, spanning across the Eurasian landmass (Krist and Zhang 2018; Mair and Hickman 2014). Silk Road studies therefore rely on multidisciplinary collaborations in order to effectively study the plethora of cultural interactions that spanned across ancient Eurasia. Studies of the Silk Road are therefore spread across modern national borders in China, Southeast Asia, Central Asia, the Middle East, and Europe and across linguistic differences. These factors have often constrained Silk Road studies to regional or micro- perspectives of the macro-scale phenomenon. Silk Road scholars have consequently discussed the challenges of multi-disciplinary, transnational studies but also their concerted efforts towards greater interdisciplinary discussions (Brosseder and Miller 2011: 19).

Within the broader multidiscipline, archaeological research on the Silk Road also became a necessarily interdisciplinary endeavor. Such work draws not only from traditional archaeological methods but also incorporates perspectives from fields including history, art history, numismatics, human geography, ecology, geochemistry, and genomics. Contemporary archaeological research has examined the ancient Silk Road world from some important, but not mutually exclusive, themes. Firstly, archaeologists and prehistorians have examined the study of the pre-Silk Road world and its emergence from the pastoral lifeways of Central Asian nomads. Such work has illuminated our knowledge of the emergence of the Silk Road by providing evidence that ancient nomadic economies and later, the Han dynasty’s demand for pastoral goods, contributed to the

---

<sup>2</sup> But some scholars stress continuity and place the beginnings of the Silk Road much earlier with fluctuations in trade between major agrarian civilizations, such at the end of the first millennium BCE (cf. Christian 2000).

formation of early Silk Road networks (Di Cosmo 1994; Frachetti 2008; Frachetti *et al.* 2010; Honeychurch 2010: 415; Honeychurch 2014; Harrower and Dumitru 2017). Much of this work discusses topics related to mobility and its reconstruction archaeologically (Frachetti *et al.* 2017; de Barros Damgaard *et al.* 2018), including long-term migration flows, bidirectional trade movements, and seasonal rounds of human pastoral movement with animal herds. The examination of itinerant, portable goods and materials comprises another significant theme in archaeological research on the Silk Road. Common approaches include the study of materials that originated in a certain cultural context and later moved to other geographic spaces (Jones 2009; Honeychurch 2010; Honeychurch 2015; Whitfield 2018), the use of materials science methods to investigate ancient manufacturing techniques (Brill 2009; Nakai and Shindo 2013), and the interrogation of paleoenvironmental evidence to study the movement of organic materials (Castillo *et al.* 2016; cf. Spengler 2015; Jones *et al.* 2011). Meanwhile, research on Silk Road exchanges based on the examination of non-portable materials, sites, and architecture has generally attracted less attention among archaeologists than art historians (Agnew *et al.* 2016), with the notable exception of the Bamiyan Buddhas (Higuchi and Barnes 1995; Meskell 2002b; Meharry 2020). However, recent work has focused on the notion of Silk Road landscapes, broadly construed (Negus Cleary 2017; Whitfield 2019; Franklin 2020). Finally, archaeologists have examined intangible cultural practices, including artistic techniques, visual motifs, and religious beliefs and practices. Mehendale (1996) importantly identified early Silk Road scholarship's tendency to focus on the organization of trade and the hand-to-hand exchange of commodities at the expense of overlooking the nature and extent of *indirect* cultural exchanges. Recent archaeological research on intangible cultural practices contributes to these discussions, such as by investigating mortuary practices as indications of the transmission of ideas across Central Asia (Honeychurch 2015) and by examining Silk Road innovations and cultural practices and their transmission across space (Doumani Dupuy *et al.* 2018).

In discussing some general themes in archaeological research on the Silk Road, this brief overview is intended to offer non-specialist readers a glimpse into the wide variety of interdisciplinary research that Silk Road studies demand. For the purposes of this chapter, I refer to this body of scholarship as “Silk Road archaeology,” a loose conglomeration of research on a shared historical and geographic context. However, “Silk Road archaeology” is not a pre-defined or self-explaining field. For instance, not all researchers, including some mentioned above, choose to situate their work within a “Silk Road” context. Instead, some may choose to frame their research within a broad periodization (such as the “Bronze Age”) or to restrict their context to the scale of an archaeological site without gesturing to the broader Silk Road at all. On the other hand, other researchers have embraced the productivity of the Silk Road as a metaphor for ancient globalization of overland and maritime trade during the early Common Era (Mehendale 1996; Peters 2019). I suggest that the Silk Road is not only useful as a metaphor but also as an *analytical model*, one that has developed among contemporary Silk Road scholarship based on interdisciplinary methodological and conceptual approaches. I suggest that this model engages some important theoretical moves that can make important contributions to wider discussions on global archaeological research. The “Silk Road” indeed never existed as popularly imagined in the nineteenth century. Nevertheless, I argue that the Silk Road, as an analytical construct, offers researchers a productive, cohesive framework for archaeological studies of global-scale phenomena.

## The Silk Road Model

In this section, I will examine four theoretical approaches that are common in Silk Road scholarship and that together, may be conceived of as an analytical model for complex global phenomena. Silk Road researchers have often critically engaged these theoretical approaches in ways that can contribute to current interdisciplinary discussions in global archaeology. I do not intend, however, to suggest that these theoretical developments do not appear elsewhere in anthropological and historical scholarship. Rather, I will discuss how specifically Silk Road studies have successfully developed and woven such theoretical strands to produce what I argue is a productive analytical model for addressing the complexities of the ancient Eurasian past from a global perspective.

### *Direct and Indirect Communications and Exchanges*

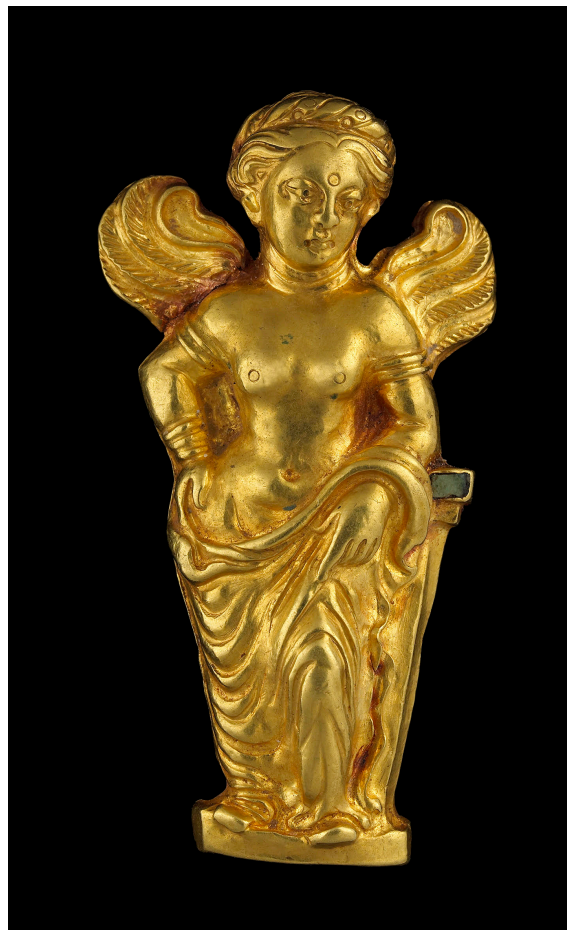
To begin, contemporary Silk Road scholarship has devoted extensive theoretical attention to direct and indirect communications and exchanges, where even the smallest-scale phenomena belong and contribute to wider social processes. Under this framework, nodal points of exchange are thought to emerge as a direct consequence of their key positions along intersecting communication routes (Waugh 2007: 3). This approach complicates our understanding of cross-cultural contacts and compels scholars to see beyond simply direct exchanges in order to locate where interactions may have been indirect but no less important to the negotiation of cultural practices. After all, the incorporation of a “foreign” image, idea, or practice may not always suggest a direct cultural transfer. As Canepa (2010) argues, while wider dynamics of diplomacy, trade, empire, and religion compelled the movement of ideas and objects, “local conditions determined the ways in which they were incorporated (or not) into native visual cultures” (13).

Silk Road scholars have discussed these complex processes of cross-cultural transfer with, for example, the so-called “Hellenization” of cultural elements in Asia. At the site of Tillya Tepe, Afghanistan, archaeologists have examined an Aphrodite-like figure (see **Figure 1**) as an example of the appropriation of cross-cultural images into a local ancient Bactrian context. The “Aphrodite” appliqué contains atypical modifications to the traditional Hellenistic image—namely that she is presented with an inlaid mark on her forehead and wears wings, visual characteristics of the goddess Aphrodite that were unusual in the Mediterranean. In another example, scholars have identified a bronze statuette (c. 150 BCE) from Ai Khanum as a Greek Heracles (see **Figure 2**). However, it is significantly less clear whether the local Bactrian people would have identified the figure as such, perhaps instead understanding him as a local deity. The “Aphrodite” and “Heracles” objects offer examples of material traces that imply the presence of some vectors for Greek cultural transmission in ancient Eurasia, which influenced and were subsequently adopted by local elites outside the Mediterranean. Contemporary Silk Road scholars therefore exercise caution towards the interpretation of materials and visual culture in one geographic region as the passive recipient of another, external cultural influence, such as Greco-Roman influences in Central Asian art. For this reason, Hoo (2018) makes a powerful distinction between *ethnic* Greek and *cultural* Hellenism and argues that it is more constructive for scholars to view cultural elements in their local, regional, and trans-regional contexts, rather than to focus on their geographical provenance (178). This focus



on direct and indirect exchanges therefore frames historical processes in terms of communications and active negotiations of cultural identities. This theoretical approach therefore recognizes that materials cannot be only understood at face value in their immediate context, since the contexts themselves are in a constant state of flux as objects and ideas change locations and cultures which in turn generate new and unexpected meanings (Canepa 2010: 19).

Therefore, when positioned as a model, the Silk Road requires recognition of the indirect, in addition to direct, processes that inform cross-cultural interactions. Framing historical developments as the emergence and materialization of extended communications and exchanges allows scholars to better explain how activity in one geographic area has profound effects on another, even if they are only indirectly connected within a broader network. This framework not only applies to articulating long-distance spatial connections but also temporal connections: the Silk Road model traces continuity across points in time that are traditionally periodized as distinct and separate “events.” For instance, Doumani Dupuy *et al.* (2018) conceptualize continuity across multiple periodized eras that they label as “Silk Road periods,” including the Bronze Age, Iron Age, and medieval period of Eurasia. The recognition of temporal continuities in the Silk Road model can be traced back to Ferdinand von Richthofen, who understood pre-Silk Road interactions as episodic hand-to-hand exchanges that eventually developed into the organized, long-distance travel and mass movement of goods that characterized the Silk Road (Richthofen 1977: 458; Waugh 2007: 4).



**Figure 1: Appliqué, the “Aphrodite of Bactria,” 100 BCE-100 CE. Tomb 6, Tillya Tepe, Afghanistan. Gold, turquoise. Housed at the National Museum of Afghanistan © Thierry Ollivier, used with kind permission.**



**Figure 2: Statuette of Heracles from the Temple with Niches, 150 BCE, Ai Khanum, Afghanistan. Bronze. Housed at the National Museum of Afghanistan © Marco Prins (CC0 1.0 Universal Public Domain)**

### ***Multiscalar Phenomena***

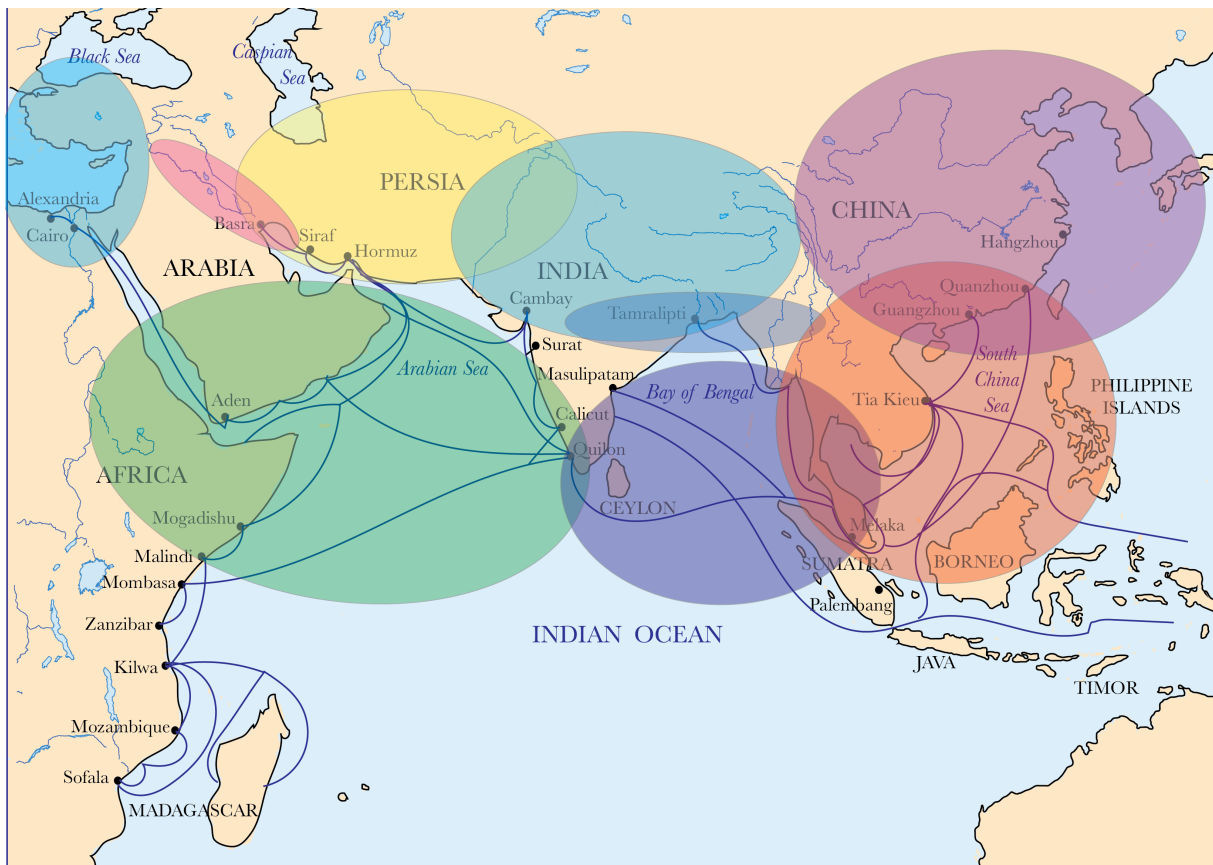
Secondly, the Silk Road framework requires researchers to fundamentally recognize multiscalar phenomena, where historical processes are articulated differently at each scale. Within the past two decades, scholars have made concerted efforts to acknowledge the broad unity of the Silk Road networks while also acknowledging the distinct differences between societies connected by these networks. As David Christian suggested, “the fact that the Silk Roads were controlled by many different communities...which engaged in a lengthy and complex relay of exchanges, explains why Afro-Eurasia was not more integrated than it was” (2000: 24). Within this diverse, heterogenous cultural context, Christian identified trans-ecological exchanges as the broad, underlying unifier of Afro-Eurasian communities, including agrarian societies, stateless woodland forager communities, and steppe pastoralists (Jones *et al.* 2011). Following Christian’s arguments,

recent Silk Road scholars have opted to conceptualize the Silk Road as a dynamic patchwork of overlapping cultural sub-networks, with both maritime and land trajectories; these regional sub-networks are understood to function independently as well as to overlap at the macro-level (see **Figure 3**). This approach allows researchers to delineate regional and local-scale networks (and, when possible, to identify the role of individuals in them), and to elaborate on the contributions of these sub-networks to the broader macro-scale dynamics of the Silk Road network (Canepa 2010; Lerner and Shi 2020).

One of the lines of evidence often used to frame the Silk Road as a complex system of overlapping sub-networks is the transmission of geographical and cultural knowledge in ancient Eurasia. The documentary sources from the early centuries CE reveal that very few individuals traveled the entire length of the Silk Road network before the Mongols. The texts also underscore the extent of knowledge that a region (sub-network) possessed about the wider Silk Road world (cf. West 2019: 97). For instance, Ancient Romans received, at best, third- or fourth-hand information about China, allowing their ignorance about Chinese geography and culture to persist for centuries. In his writings, Pliny describes silk as a “wool” sourced from Chinese trees; such misinformation about silk production continued in the Mediterranean until the sixth century CE when Byzantium began to cultivate its own silkworms (Christian 2000: 24). The Greco-Roman manuscript *Periplus Maris Erythraei* offers insight on the extent of available technical knowledge in the Mediterranean on marine navigation and the geography of Indian port cities. The text describes the Greek navigator Hippalus’ exploration of the maritime route from the Red Sea to India via the Indian Ocean as well as his “discovery” of the monsoon in the first century BCE (Hatcher 2013). The text demonstrates the extent of Roman geographical knowledge outside of the Mediterranean and the patchwork of mercantile activity between Romans traveling east to India and Southeast Asian merchants travelling west to the Mediterranean, that expanded but still remained limited to the Indian Ocean. By the first century CE, Rome still had no direct maritime trade with China; Kushan merchants in Central Asia handled intercontinental overland trade which indirectly connected the Roman and Chinese sub-networks. From the Chinese perspective, the documentary evidence reveals a similar ignorance about the Mediterranean world, which was sustained and even encouraged by the intermediary position of the Parthian Empire, located in modern-day Iran. In c. 97 CE, the Chinese official Gan Ying undertook a diplomatic mission from Xinjiang to Rome but upon reaching Parthia, officials dissuaded him from journeying further in order to maintain their trade monopoly with Rome (Christian 2000: 24). Han China therefore invested in economic relationships and alliances with pastoral nomads in Central Asia. As a result, the Chinese chronicles reveal geographical knowledge about the overland route across Eurasia but significantly less familiarity with the maritime routes, which were considered dangerous and unreliable (Heldaas Seland 2011).

These kinds of connections, as well as disconnections and indirect contacts, between ancient Eurasian sub-networks are also reflected archaeologically. Currently, research on material- and visual culture largely forms the basis for studies of indirect, down-the-line connections in the Silk Road context. Stable isotope analysis, for instance, has been successfully used to examine direct human and nonhuman mobility patterns (Hermes *et al.* 2018) but scholars note that this method currently cannot sufficiently indicate indirect movements beyond speculating the possibility of such. The study of direct and indirect movements at multiscale levels of connectivity therefore often relies on more traditional archaeological methods as well as interdisciplinary

approaches that incorporate the work of art historians. For instance, archaeologists have investigated burials at the site of Tillya Tepe in Northern Afghanistan as examples of local practices as well as of regional and trans-regional connections. At the local and regional levels of analysis, the burials at Tillya Tepe shed light on the social identities and mortuary practices of ancient pastoral nomads. However, the burials also contain objects indicative of larger-scale processes of movement and connectivity. These materials include a dagger sheath, Chinese mirrors, and annular gold armlets that either originated from cultural regions further east or whose designs were inspired by these eastern regions (Rubinson 2008: 59-60). Analogous objects have also been uncovered in contemporaneous Sarmatian burials on the eastern European steppe, located west of Tillya Tepe (Moshkova 1995; Yao 2012). The objects found in the Sarmatian burials and the graves at Tillya Tepe may reflect the cultural identities of individuals who had directly migrated to the Central Asian steppes from their homeland or perhaps the appropriation of eastern cultural elements into a local context. The range of burial objects at Tillya Tepe most likely reflects a combination of these two possibilities. For example, archaeological analyses suggest that most of the gold objects uncovered at Tillya Tepe, including the “Aphrodite” appliqué mentioned earlier, were crafted locally at the workshop of a Bactrian goldsmith. The zoomorphic iconography on these materials, meanwhile, simultaneously gestures to larger-scale processes of cultural transmission and represents a common regional visual culture found throughout art of the Central Asian steppes (Francfort 2012). Finally, the presence of imported materials at Tillya Tepe, including Roman and Parthian coins, Chinese mirrors, and an ivory comb from India, signals impressive, tangible connections of Tillya Tepe (Bactria) to the wider Silk Road network in addition to the equally significant movement of intangible practices.



**Figure 3: Active cultural sub-networks (broadly speaking) of the Silk Road context during the early Common Era (ca. 1<sup>st</sup> century BCE – 3<sup>rd</sup> century CE). © Sara Ann Knutson and Sanjyot Mehendale**

Material and visual cultures therefore moved in tangible and intangible forms across the Silk Road sub-networks in complicated ways, finding expression at the transregional scale as well as at local levels. The identification of these processes thus requires the researcher to think across multiscale levels in order to hypothesize how the connections between long-distance communities transformed local identities and practices as much as the connection of localities, like Tillya Tepe, to the wider Silk Road network also mobilized materials, practices, and cultural expressions with and across the regional sub-networks. Appreciating cross-cultural interactions and movements as complex multiscale processes is particularly important for explaining how local and regional processes in the past operated both independently as well as how sub-networks interacted together in order to generate visible effects. Under this framework, scholars are able to speak of “Silk Road cities” as local nodes that also belonged to a shared wider context (Dawkes 2013). The Silk Road framework similarly allows researchers to examine developments like Buddhism as a multiscale phenomenon with local variations and engagements as well as simultaneously a widespread process that developed alongside transregional mercantile networks. This emphasis on multiscale thinking additionally makes the Silk Road intelligible to a range of globalization models, such as World-systems theory, network analysis and assemblage theories (Knutson 2021), and “trans-local” globalization theory (Hoo 2018; cf. Miller and Brosseder 2017). Within these kinds of models, multiscale analysis avoids the tendency to essentialize cultures and speak of processes of cross-cultural interactions as ‘hybridization’—an analytical move that similarly implies the mixture of distinct or pure “essences” (Canepa 2010; Yao 2012; Bhandare 2018; Hoo 2018: 172). Rather, the attention to multiscale phenomena and their articulations and variations across scales eschews the search for ‘original’ cultural elements and instead appreciates the interaction of cultural networks as dynamic, interrelated systems that are constantly renegotiated by daily and generational human practice (Canepa 2010: 9).

### ***Deterritorialization***

Thirdly, as a model, the Silk Road does not inherently presume a predefined spatial boundary, least of all an ahistorical geographic category, such as the nation-state, for its spatial unit of analysis. Instead, Silk Road scholars largely rely on human geography, allowing fluid and transforming human movements and interactions in the past to define its spatial context. The “Silk Roads” “is a convenient term for extremely inconvenient geographies, histories, peoples, and spiritual expanses” (Whitfield 2019: 10). But this ‘inconvenience’ has forced Silk Road scholars to critically and creatively frame the Silk Road context in ways that are more historically intelligible to the reality of ancient Eurasia. The Silk Road model therefore recognizes space, at any scale, as the dynamic juncture of social communications and movements rather than as a self-evident, static plane that humans and materials simply traverse. Christian (2000) best conceptualized the Silk Roads as a “constantly shifting network of pathways for many different types of exchanges” across Afro-Eurasia (2). Following this framework, I suggest that conceiving the Silk Road as a *network* better communicates the historical reality of ancient Eurasia than the useful but still misleading *Silk Roads* term. The main limitation of the pluralized emendation of Richthofen’s original term is that *Silk Roads* still obscures the influential role of maritime

exchanges which, as we have seen, operated in a patchwork fashion as much as the overland routes, but still informed ancient Eurasian exchanges and communications.

Understanding the Silk Road as a network builds upon an important theoretical development in Human Geography and Anthropology that argues that human agency can exist without being situated within a territory or a clearly demarcated geographic space, a process called *detrterritorialization* (Deleuze and Guattari 1987; García Canclini 1990; Appadurai 1997; Martí 2006). Deterritorialization implies the presence of social forms of contact and involvement which exceed the limits of a specific territory and therefore is often discussed within the context of globalization (Martí 2006: 92; Giddens 1990). This anthropological process therefore provides a framework for the researcher to better interrogate the social experiences of globalization in the past, to unravel territoriality as it has been constructed in the modern era, and to replace this construct with a networked organization of space whose boundaries are fluid and dynamic (Popescu 2010). Although the boundaries of social networks are fluid, theorists maintain that they are not impositions of the analyst—they are real historical entities that exist and have ontological reality (Harris 2016: 26).

As part of globalization, deterritorialization complicates the relationship between the places that individuals inhabit and their cultural activities, experiences, and identities. Recent archaeological research has revealed the presence of strong social network relationships that span impressively long distances, using ‘social distance’ as a specific metric for evaluating the extent and impact of human interactions (Knappett 2011; Mills 2017 and citations within). Such work demonstrates that *social distance* does not always correlate with *spatial distance*, a finding that holds for certain past and present networks. In cases, then, where communities experience and negotiate the effects of globalization and deterritorialization, and therefore, where a long spatial distance does not naturally indicate great social distance, “individuals can imagine other lives, become familiar with landscapes and cultural products alien to their locality, create new materials for the re-elaboration of the local experience,” develop transcultural relationships, and bring greater cultural diversity to their locality (Martí 2006: 93-94). This process effectively characterizes the deterritorial social and spatial experiences of the ancient Eurasian Silk Road exchanges and how these processes played out at the local level. After all, this prioritization of human geography in the study of the past originated in Richthofen’s own conception of the Silk Road. His suggestion that scholars should examine human interaction within transforming environments (Richthofen 1877: 726; Waugh 2007; Khakimov 2014) has left a legacy in which Silk Road scholarship fundamentally treats the Eurasian past as a dynamic, transformative process whose cultural and political borders are fluid and cannot be taken for granted in any analysis. The Silk Road therefore maintains an academic tradition where human settlement in ancient Eurasia is rarely conceived of as static material traces and social processes that are frozen in time. Instead, scholars are compelled to situate even small-scale, site-based research within larger historical narratives of continuity. This is not to suggest that globalization rendered ancient Eurasia entirely borderless but rather to understand that processes of globalization generate spatial reborderings that are fluid, dynamic, and transform according to social networks of humans, materials, ideas, and forces—a process termed *reterritorialization* in anthropological scholarship.

The Silk Road model’s emphasis on deterritorialization and human geography provides a powerful tool for exploring global interactions in ways that do not obscure the agency and

experience of the local while destabilizing artificial spatial boundaries or predetermined centers and peripheries (Nurulla-Khodjaeva 2017). Rather than opting for a Silk Road “center,” Silk Road scholars sometimes identify “exchange corridors” that link East Asia to the Mediterranean via Central Asia, where each broadly-defined spatial entity maintained its own agential role within the wider Silk Road network. Frachetti (2012) identifies the “Inner Asian Mountain Corridor” as an influential prehistoric exchange and ecological vector that eventually overlaps with large portions of the Silk Road. Honeychurch (2015) similarly describes three later exchange corridors with overlapping geographies that are understood as complex spheres of multidirectional and intercultural interaction, rather than simply routes for the movement of goods. Recognizing that these ‘exchange corridors’ were emergent spaces, this framework manages fluid notions of space to identify (bidirectional) human movements. Outside of Silk Road studies, scholars approach bodies of water as boundaryless spaces of cultural interactions (for instance, the North Atlantic and the Mediterranean as respective cultural realms). While this approach similarly seeks to deterritorialize the past, the Silk Road model’s approach productively examines human activity without relying on static landscape features. With its emphasis on networks, the Silk Road model articulates how ancient global exchanges incorporated many different communities across long distances, making *diaspora* a compatible framework (Skaff 2003), while also explaining how spaces across Afro-Eurasia shared a common context but were not any more integrated (Christian 2000).

### ***Uniting Multidisciplinary Research***

Fourthly and finally, the Silk Road provides an important academic framework for uniting what would otherwise be disparate area studies, language studies, traditional disciplines, and nation-based research projects into a common research focus and, at some institutions, a formal research center. Whitfield (2019) argued that a major advantage of the Silk Roads model is its “interaction across ‘boundaries,’ be they chronological, geographical, cultural, political, or imaginary” (16) as well as, it is worth mentioning, disciplinary. As I have suggested earlier in this chapter, Silk Road studies offer a way to transcend traditional disciplinary boundaries that encourages transnational, multidisciplinary, and interdisciplinary research approaches that would otherwise permit certain knowledge to fall through the disciplinary cracks. To take one example, traditional East Asian studies tend to overlook the western Chinese region of Xinjiang, but this region is similarly not always included in traditional Central Asian studies. As a model that emphasizes direct and indirect exchanges, historical processes as multiscale phenomena, and deterritorial approaches to space and social interactions, the Silk Road can hardly be constrained to research from any single academic discipline. Rather, the Silk Road encourages greater collaboration and interdisciplinary and multidisciplinary practices within academic institutions. Not least, as Christian (2000) suggests, the Silk Road model offers a remedy to the lacuna that persists between historical and archaeological approaches to the past. In addition, the Silk Road network provides a framework for developing an interdisciplinary vocabulary as well as a common forum for scholars to engage in interdisciplinary debates (Canepa 2010). Ultimately, the “Silk Road,” as it has come to be understood in twenty-first century scholarship, provides a model for academic practices that directly impact what research is conducted in the Academy and how such research is conducted.

## **Discussion: Bringing Eastern Europe into the Silk Road Network**

Thus far, this chapter has examined what I argue are important theoretical approaches to the global processes of ancient Eurasia that together form an important analytical model. The main problem with the Silk Road metaphor in archaeology is that it tends to examine objects, people, and ideas as if they had moved uniformly along a single spatial plane in the past. By presenting some key examples of complex movements in ancient Eurasia, I hope to have shown that global movements and processes are rarely so simple. As I have noted, the Silk Road model engages with and applies to a number of other archaeological theories and methods on globalization and global phenomena. I argue that the Silk Road model's most important contribution to global archaeology, however, is its critical incorporation of theoretical approaches to global connections, multiscalar phenomena, deterritorialization, and uniting otherwise disparate research projects in order to identify and better explain how global direct and indirect exchanges operated spatially and socially in the past. The Silk Road model thus complicates archaeology's imbalanced attention to the ways that humans, nonhumans, forces, developments, and ideas circulated in the past at the expense of indirect vectors of transmission and connectivity. This model effectively applies to a range of disparate lines of evidence, including objects, organic materials, human remains, texts, and artistic motifs, for the study of direct and indirect channels of interaction.

As discussed earlier, Silk Road studies encourage interdisciplinarity and trans-disciplinary collaborations to a greater extent than many other subdisciplines. One possible reason for this observation is that other topics of archaeological research, until quite recently, have fallen more conveniently into modern disciplinary and geographic boundaries. Current Silk Road scholarship is predominantly hosted by East Asian, Southeast Asian, Central Asian, and Near Eastern studies. After all, the geographic areas represented by these fields occupied a significant role in the trans-continental exchanges of Eurasia and are therefore commonly considered the recipient locales of Silk Road interactions, histories, and legacies. However, this current understanding of the Silk Road network has its blind spots; in surveys of Silk Road archaeology as well as current and potential world heritage sites based on a Silk Roads context, the northern Black Sea region and sites in Eastern Europe are often not considered as part of this shared, transnational context (Williams 2014, 2015). Nevertheless, it is worth pointing out that the Silk Road has a legacy that extends beyond Asia to include the Arab World (including North Africa) and parts of Europe (Beckwith 2009; Liu 2010). The region of Eastern Europe presents one such space that has often been overlooked in core anglophone Silk Road scholarship. For the purposes of my discussion here, I will examine some connections between medieval Eastern Europe (c. 500- 1400 CE) and the rest of the Silk Road network. In addition to locating some direct and indirect exchanges between Eastern Europe and wider Eurasia that deserve to be more widely considered part of the Silk Road context, I also argue that archaeological understandings of this region can be improved by incorporating the theoretical perspectives of the Silk Road model.

As an analytical category, "Eastern Europe" poses many challenges to researchers. Firstly, "Eastern Europe" lacks any consistent definition even in the modern period, since scholars sometimes take the term to connote the post-war "Eastern bloc," a cultural region based on certain language families, or a historical region synonymous with the eastern Byzantine Empire (in contrast to its counterpart, medieval Latin Christendom in western Europe), among other



delineations. While these geopolitical, cultural, and social connotations exist in tandem and sometimes in contradiction, I find it useful to distinguish the region from “Europe” more broadly, as a way of questioning the extent to which a discrete notion of Europe provides an appropriate analytical category for the medieval period. Perhaps given its current geopolitical context, scholars often flatten the historical processes in Eastern Europe in their discussions of the archaeology of medieval Europe (but see Curta 2019 and 2021 and related work for exceptions).

The archaeological evidence, however, reveals just as strong, if not stronger, social connections with the Eurasian landmass than with western Europe.<sup>3</sup> Therefore, for the purposes of my discussion here, I will use medieval “Eastern Europe” to interrogate a broad, socially-constructed space that was undeniably connected to long-distance exchanges in the Silk Road network.<sup>4</sup> This broad definition of Eastern Europe consists of spaces west of the Ural Mountains, including parts of modern-day Sweden, Finland, Poland, the Baltic States, Russia, and the Caucasus—areas that were connected by the Volga, Danube, and Dnieper Rivers as well as the Baltic, Black, and Caspian seaways. This delineation will find overlaps with archaeologists working on the prehistory of Eastern Europe who have long distinguished between the Pontic-Caspian, Volga-Don, and West Ukraine regions and have emphasized the wider ecological connections of these spaces to a trans-Eurasian or Silk Road context. I will now discuss some material evidence of the connections between Eastern Europe and the wider Silk Road exchanges and how the Silk Road model can strengthen interpretations of medieval eastern Europe as part of the Silk Road network.

### *Direct Exchanges & Communications*

When reframed in terms of deterritorialized connectivities, the archaeology of medieval Eastern Europe can illuminate instances of direct and indirect Silk Road exchanges that similarly characterized other parts of the trans-Eurasian network. To begin with direct exchanges, archaeological materials uncovered in locales west of the Urals help confirm that the Silk Road network did not end in Central Asia during the sixth to eleventh centuries CE. Chinese and Sogdian silk textiles, for instance, have been found at a range of burial sites in the southwestern Urals (including Iamashi-Tausk, Bekeshevsk I and II, Lagerevsk, and Sterlitamansk), the Upper Kama River (Demenki), the Oka River region (Kurmank) (see Kovalev 2005 for overview and internal citations), and the Dnieper River (Gnezdovo) (Hedeager Krag 2004: 83). Some of these sites have additionally yielded Islamic coinage and, in the case of the Sterlitamansk burials, two Sogdian silver cups from the eighth century (Kovalev 2005: 75). One of the most extensive finds of silks produced in Central Asia and China comes from the site of Moščevaja Balka, located on the Pontic-Caspian Steppe in the northern Caucasus (cf. Ierusalimskaia 1996; Savchenko 1999; Kovalev 2005: 61). Consisting of multi-ethnic burials (c. 8<sup>th</sup>- 10<sup>th</sup> centuries CE), the site revealed over 700 silk textile pieces. According to archaeological analyses, the most common silk types were

---

<sup>3</sup> This is not to downplay or ignore the ways in which communities in medieval Eastern Europe also contributed to developments in regions that today form modern-day Europe. See, for example, Raffensperger 2012; Zimonyi 2017.

<sup>4</sup> Thomas Noonan (2000) delineated what he saw as the “northern” sector of the Silk Road, first developing in the late 560s, as the “Fur Road.” He used this term to describe the middle Volga region as a key component of Silk Road commerce. His concept of the “Fur Road,” as well as the similar “Silver Road,” works well with the Silk Road model’s concept of a “subnetwork” but these terms may also misleadingly convey that only one type of material was exchanged along these subnetworks.

Sogdian and Chinese, including in the uncovered *caftans*, an Asiatic style of clothing (Bollók *et al.* 2009: 155). The material finds at Moščevaja Balka, combined with its advantageous geographic position between the Black and Caspian Seas, have led many archaeologists to interpret the area as a major trading node along the Silk Road network, one that connected overland caravan routes with the major seaways and Eastern European river routes (cf. Ierusalimskaja 1996; Savchenko 1999; Hedeager Krag 2004, 2010; Kovalev 2005; Vedeler 2014). The Caucasus is therefore increasingly recognized as an important, but not the only, route through which materials from the wider Silk Road network entered Eastern Europe (Noonan 1981; Brather 1996; Kovalev 2005; Franklin 2014).



**Figure 4: Approximate position of semi-nomadic and sedentary communities in medieval Eastern Europe and Central Asia, c. 7<sup>th</sup> century CE © Sara Ann Knutson**

To the north of the Caucasus, a number of semi-nomadic and sedentary communities further connected the Silk Road network along the Eastern European river- and seaways during the early medieval period. These included the Rus', the Volga Bulgars, the Khazars, and the Pechenegs, communities who occupied spaces that were fluid and always shifting (see **Figure 4**).

Some scholars have recognized that Volga Bulgharia, for instance, was an important node along the Silk Road network prior to the thirteenth-century arrival of the Mongols (Waugh 2017: 19; cf. Zeldovich 2007). Settled by Turkic Bulgars, Volga Bulgharia was advantageously positioned for natural resources and access to trade routes. The state controlled the Volga River waterway which connected the Baltic to the Caspian Sea and Central Asia while also maintaining access to the valuable furs from the Ural Mountains via the Kama River. To the south of Volga Bulgharia, the Turkic Khazars controlled the south Volga River and had access to the North Black Sea region and the Caspian and therefore, to longstanding economic exchanges with Central Asia, Persia, and the Islamic Caliphates and, through these regions, to connections further east. These important communities connected the direct exchange of materials across Eurasia to Eastern Europe, from the Caucasus to the Volga River valley to the Baltic and beyond. The Volga, therefore, became an important artery in Eastern Europe, one through which the Khazars, for instance, influenced the ways in which certain materials moved north and, in some cases, curtailed their movement (Noonan 1981; Leontiev 1986; Dubov 1989; Asadov 2016; Kovalev 2017).

The Volga River region and nearby riverways have therefore revealed archaeological finds from the wider Silk Road network in addition to the silk textiles found near the Upper Kama, Oka, and Dnieper Rivers. For instance, Persian silver vessels reached the Vjatka and Kama Rivers from the Volga artery during the 6<sup>th</sup> and 7<sup>th</sup> centuries (Franklin and Shepard 1996: 7-8). ‘Permian’ silver rings have also been discovered predominantly in the Vjatka and Kama (Perm) regions and, to a lesser extent, in the Baltic, including on the islands of Gotland and Öland. Hårdh (2007) suggests that the influx of ‘Abbāsīd silver into the Volga and Baltic regions served as the main source of raw material for the Permian rings found in these regions; she therefore sees the presence of Permian rings in these areas as part of a long chain of contacts that led to the ‘Abbāsīd Caliphate (145). In addition to silver materials, archaeologists have examined the presence of glass beads as evidence of long-distance contacts with Central Asia. In his research on “oriental” beads found in Eastern Europe, Callmer (1991) revealed a significant distribution of beads along the Volga and Dnepr Rivers. The particularly dense concentration of foreign beads around the Volga bend led him to argue that the river was a regularly-used long-distance trade route during the ‘Abbāsīd period (Callmer 1991: 35).

Coins offer another, important example of the type of objects that frequently traveled along the Silk Road network in a direct manner. Coinage from the Iranic Sasanian and Samanid empires, for instance, circulated widely across Central Asia to Eastern Europe, reaching the Caucasus, and even further north to the Baltic and Scandinavia in the case of Samanid coinage (Tsotselia 2002; Kovalev 2002; Michailidis 2012). The Islamic Caliphates, most notably the ‘Abbāsīds, similarly produced silver *dirhams* (see **Figure 5**) in part for wider trans-Eurasian trade (c. 650 to 1100 CE). Outside of the Arab World, millions of ‘Abbāsīd silver coins flowed through the southern Caucasus and the Khazar Khaganate along the Eastern European riverways. Many of these coins were then transferred to the Baltic to as far north as Scandinavia and, to a lesser extent, even reached western Europe (Kovalev 2005; Skre 2007; Carlsson and Selin 2012). Over 1350 deposits containing coinage from the Arab Caliphates have been uncovered archaeologically across Eurasia, the majority of which have been found in association with the Baltic and the Volga River regions (Kovalev and Kaelin 2007: 562; Noonan 1992; Noonan 1998; Graham-Campbell *et al.* 2011; Adamczyk 2013; Kuleshov 2015, 2016; Gruszczyński 2019). The numismatic evidence speaks to the proliferation of global exchanges, as silver dirhams were exchanged across Eurasian

locales, leading some scholars to interpret the dirham as “the closest thing of its time to a global currency” (Deliyannis *et al.* 2019: 210). While reconstructing the circulation routes of the silver is difficult in most cases, researchers can glean important details about the movements and distribution of dirhams from compiling information about their origins in the Arab World and their later deposition as single finds or into larger deposits. Archaeologists can then begin to hypothesize the kinds of interactions and transactions that brought these itinerant materials from one area of the world to another (cf. Noonan 1984). Numismatist Thomas Noonan importantly argued that the increased presence of Islamicate coinage in the Volga River valley, which had been brought north by Arab travelers engaged wider economic networks including the fur trade, sparked the migration of Northern Europeans to the region (Noonan 1984, 1986). This argument has since influenced archaeologists who are revealing the enduring impact of transregional networks in Eastern European locales (Sindbæk 2017; Duczko 2004; Makarov 2006).



**Figure 5: Dirham from the ‘Abbāsīd Caliphate. Mint: al-Mahdi, AH 162 (778/9 CE). Madinat al-Salam (Baghdad). © Classical Numismatic Group, Creative Commons License CC BY-SA 2.5)**

In light of the numismatic evidence as well as documentary evidence, the connections of the Arab World to the Silk Road network are well-documented and acknowledged in Silk Road studies (Biran 2015; Asadov 2016). Not least, the Arab conquests in the 7<sup>th</sup> and 8<sup>th</sup> centuries CE played a pivotal role in linking trading locales in the Arab World with the immense Silk Road network (Hårdh 2007: 135). However, apart from the work of regional specialists, Silk Road scholars less frequently recognize *Eastern-Europe’s* connection to the Silk Road through the Arab World and Central Asia. I suggest that the importance of connecting strands of evidence like silks, silver, beads, and coinage found in Eastern Europe to the wider Silk Road context lies in the recognition that Eastern Europe was not simply the passive recipient of “foreign” materials from the ‘Abbāsīd Caliphate, Central Asia, and regions further east. Rather, communities in Eastern Europe maintained an active, and by no means peripheral, role in the circulation of trans-Eurasian materials (Callmer 1991: 33). These communities exchanged itinerant objects that had already traversed Central Asia to regions well west of the Ural Mountains, thus expanding the geographic reach of these materials even further beyond the locales in which they were made. Positioning

Eastern Europe within the Silk Road network therefore compels both specialists and non-specialists in Archaeology to better explain the movement of trans-Eurasian materials, including those that reached Eastern Europe and those that from there, moved further west, as part of a common global network with interconnected subnetworks that encouraged and curtailed material and human movements in complex ways (Noonan 2000; Makarov 2006).

Ultimately, the Silk Road exchanges from China and Central Asia to Eastern Europe, as revealed by the materials described above, laid the foundations for *even further* commerce and long-distance connections. As I will now show, Eastern Europe became a pivotal intermediary region that connected Silk Road materials to the Baltic region and Scandinavia (Arne 1914; Noonan 1981, 2000; Kovalev 2005; Vedeler 2014, 2015; Jarman 2021).<sup>5</sup> The archaeological record of the Baltic and Scandinavia contains traces of Silk Road exchanges. Not least, the Baltic zone, including the island of Gotland, contains the highest concentration of the silver dirhams described earlier, making this an important region for recent archaeological and numismatic research on the connections of Northern and Eastern Europe to the Arab World (Graham-Campbell *et al.* 2011; Carlsson and Selin 2012; Kershaw *et al.* 2018; Gruszczyński 2019). Archaeologists have also uncovered a range of materials transported by the Silk Road network in the Baltic, including shells from the Indian Ocean, glass beads from Egypt and Syria, and silk fragments from Central Asia in Poland (Stanisławski 2013: 107; Gruszczyński 2019: 99) and bronze vessels (c. 9th–11th centuries) from Central Asia on Gotland and in eastern Sweden (Arne 1932: 105; Odencrants 1934: 145–6; Hedenstierna-Jonson 2020b: 56). Burial sites in Sweden have also revealed important silk textiles, which have recently generated greater interest in the Silk Road in Scandinavian archaeology. Silks from Central Asia have been uncovered at Valsgärde in eastern Sweden (Larsson 2012) and Birka, Sweden (Larsson 2007; Hägg 2016). In the case of one burial at Birka, there is evidence of silk from Tang-dynasty China (Cyrus-Zetterström 1988). Archaeological analyses of the silver thread present in some of the textiles from Birka have revealed that the material originated from Central Asia or further east (Hägg 1984; Hedeager Krag 2004: 82). These finds in Sweden have been compared to textiles and passementerie in other medieval Scandinavian contexts with apparent Central Asian influences, including at Ladby, Denmark (Hedeager Krag 2004) and the Oseberg burial in Norway (Vedeler 2014). The latter site contained a range of silk items, including patterned silks from Central Asia and Persia as well as tablet-woven silk bands manufactured locally from imported silk thread. As a whole, the archaeological record of the Baltic and Scandinavia indicates the physical, trans-Eurasian movement of objects from China and Central Asia and into Eastern Europe—from there, the materials may have been brought to Scandinavia through a series of exchanges or the presence of Scandinavians in Eastern Europe who brought the materials back to Northern Europe.

### *Indirect Exchanges & Communications*

---

<sup>5</sup> For instance, Kovalev (2005) identifies Khazaria as the primary distributor of dirhams from the Arab World to Northern Europe during the 9<sup>th</sup> century. He suggests that some, if not many, Sogdian and Chinese silks that were transported to central and western Europe during the medieval period first entered western Eurasia from the middle Volga (Kovalev 2005: 104; cf. Vedeler 2015: 78).

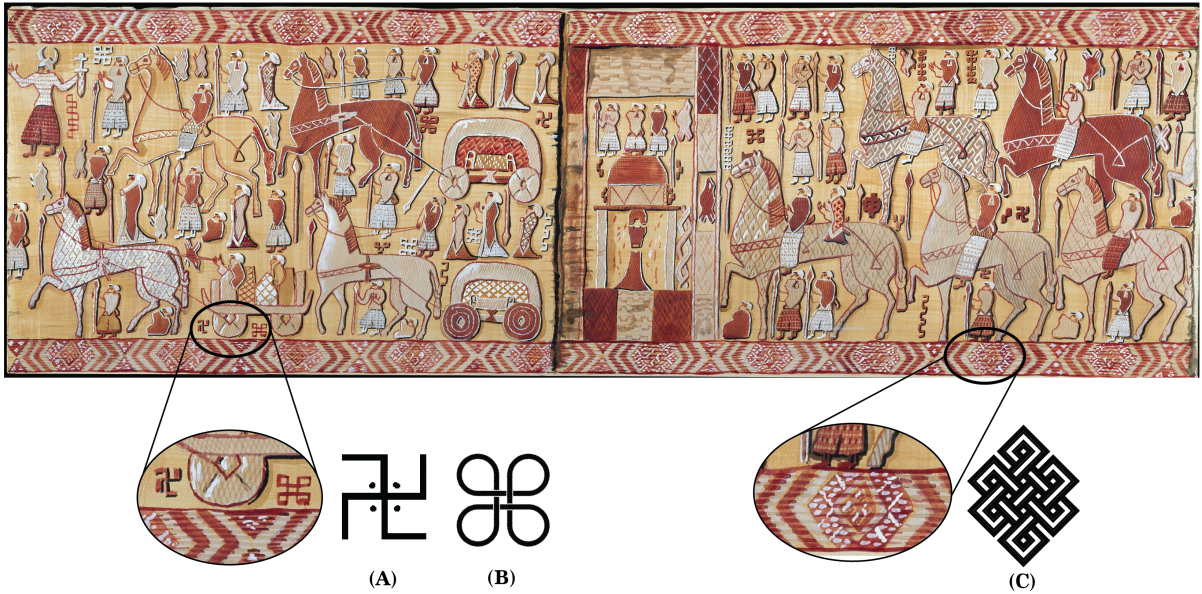
Beyond the direct movement of materials, indirect exchanges are also responsible for the long-distance flow of ideas, art, and practices from Central Asia and China to Eastern Europe. Zimonyi (2018), for instance, has examined the development of iron stirrups and the transmission of this innovation from eastern Eurasia to Eastern Europe. Another example of the indirect transmission of innovation and technologies, if not the direct movement of materials themselves, can be found in Steuer's (1978) demonstration that Arabic weight systems for precious metals influenced economic transactions in Scandinavia and the Baltic. Late 9<sup>th</sup> century weights and balances found in the Baltic reveal that similar materials from the Arab World served as prototypes, therefore implying the movement of economic systems based on weight and the intangible transmission of object models for this purpose. Much archaeological research, however, tends to focus on textiles and garment types as evidence of the indirect movement of ideas across western Eurasia from the wider Silk Road network. Archaeologists have noted that at sites like Moščevaja Balka silk was used in some cases to fashion entire *caftans* and, in other cases, only as pieces sewn to the borders of such garments. In both cases, archaeologists are able to find art historical parallels to the similar usage of silk elsewhere in Eurasia based on frescoes, wall paintings, and other images depicting silk clothing in Central Asia and the Arab World (Bollók *et al.* 2009: 208). This means that even in cases of textile traces where it is unclear whether the silk garment itself was exchanged across Eurasia as a finished product or whether the silk material moved and was later fashioned into local clothing, archaeologists can begin to discriminate between the movement of textile materials and the indirect movement of fashion. Orfinskaya's (2017) study of (non-silk) caftans found in the North Caucasus contributes to this important research. She connects the style of the caftans with typical Sasanian clothing (c. 5<sup>th</sup>- 6<sup>th</sup> centuries), thereby indicating an indirect transmission of clothing styles across Eurasia, from Persia to Eastern Europe. Orfinskaya also notes some alterations to the typical Sasanian style in the Eastern European garments, suggesting an adoption of clothing styles and patterns transmitted along the Silk Road network into a local cultural context.

Hedenstierna-Jonsson and Holmquist Olausson (2006) have similarly shown that the attire and weapons of the Central Asian nomadic steppe communities influenced the Rus' and Scandinavian traditions of dress and weaponry. They note that the "oriental" style has multifaceted origins, including from the visual cultures of the Arab World, Persia, and the Central Asian steppe that were, in turn, already influenced by other styles and artistic expressions (Hedenstierna-Jonsson and Holmquist Olausson 2006: 62), giving weight to the notion of cultural "subnetworks" as conveyed in the Silk Road model. Not least, the caftan is a garment associated with Turkic communities and Sasanian Persians in Central Asia that, as an intangible style, spread into Eastern Europe and, to a limited degree, into western Europe (Hedenstierna-Jonsson and Holmquist Olausson 2006: 48). Finds of silk brocade at Gnezdovo, for instance, confirm the transmission and use of caftan-like garments in the Dnieper region which, archaeologists suggest, may have been made by the Rus' (Hägg 1984: 208; Hedeager Krag 2004). Five burials at Birka, Sweden similarly revealed caftans, which feature fastenings of long rows of buttons, another style typical of Asian garments (Hägg 1984; Jansson 1989; Vedeler 2015: 78). As a whole, the evidence of textile remains and other materials documents the direct movement of silks across Eurasia but also the no-less important indirect trans-Eurasian exchanges of visual culture and methods of clothing manufacture into Eastern Europe and, from there, to western and Northern Europe.

## *Multiscalar Phenomena*

In identifying the Silk Road network's extension to Eastern Europe based on direct and indirect exchanges, this work also requires particular attention to the appearance of these Silk Road exchanges in Eastern Europe across multiple scales of analysis. Traditional Silk Road studies often examine the spread of Buddhism along the Silk Road network as a key example of a multiscalar phenomenon, from the macro-scale adoption of Buddhist ideologies and narratives to the micro-scale negotiation of Buddhist culture with local practices. Scholars have similarly examined the trans-Eurasian transmission of Buddhist visual culture in Scandinavian and Baltic contexts. For instance, the ninth-century Oseberg ship burial in Norway revealed a fragment of a woven tapestry, containing a blend of sheep-wool and silk, that has been dated to c. 834 CE. The image on the tapestry (see **Figure 6**) reveals a scene with human-like figures, horses, and carts as well as a decorative geometric border. The geometric pattern has been interpreted as containing the replication of the Buddhist *endless knot* motif (Whitfield 2019), an ancient symbol that Tibetan Buddhism, among other Asian religions, adopted as one of the Eight Auspicious signs (*Ashtamangala*). The tapestry also displays other traditional Asian motifs, including the Chinese *cloverleaf knot* and the *sauwastika*, an ancient symbol in Buddhist and Hindu belief long before its twentieth-century appropriation in Nazi Germany. The *sauwastika* similarly appears as graffiti on Permian rings found in Russia and on Gotland (Hårdh 2007: 141). The appropriation of these motifs from an Asian context reveals the transmission of Buddhist and trans-Eurasian culture at different levels of analysis. To take a final example, one of the most well-known material traces of trans-Eurasian exchanges in a Baltic and Scandinavian context emerged from excavations on the Swedish island of Helgö, where archaeologists uncovered a small bronze statuette, featuring an Indic Buddha seated on a lotus (see **Figure 7**). Based on comparative analysis with similar objects from northern India, Gyllensvärd (2004) suggests that the statuette originated from the Swat Valley (modern-day northern Pakistan) and dates the object to the sixth century CE. Together, the Oseberg tapestry and bronze Buddha offer rare evidence for the appropriation of Buddhist visual culture into Baltic and Scandinavian locales.

Silk Road scholarship has demonstrated that, at the macro-scale, Buddhist belief disseminated across important trade nodes in China and Central Asia. The study of indirect exchanges at different scales demonstrates that Buddhist and other Asian visual cultures spread even further across Eurasia. The motifs on the Oseberg tapestry and the bronze Buddha especially represent the reach of Buddhist visual culture at the northwestern edge of Eurasia, where they were adopted in micro-scalar contexts and modified into local visual cultures. The evidence for the indirect transmission of garment styles discussed earlier, for instance, similarly speaks to this process of the spread of ideas and visual cultures at the macro-level and their negotiation with regional and local cultures at smaller scales. In the case of the bronze Buddha and the Oseberg tapestry, the current evidence remains too limited to safely argue that Northern Europeans adopted Buddhist beliefs, although the idea is not impossible. More likely though, they suggest local negotiations of Silk Road interactions and transmissions into preexisting Baltic and Scandinavian visual cultures.



Detail of tapestry from the Oseberg burial, featuring ancient Eurasian symbols including the sauwastika (A) and the cloverleaf knot (B) and a possible interpretation of the Buddhist endless knot (C).

**Figure 6: Author's adaptation of the reconstruction of tapestry from the Oseberg burial, Tønsberg, Vestfold, Norway ©Museum of Cultural History, University of Oslo, Norway/Erik Irgens Johnsen, Creative Commons License CC BY-SA 4.0**



**Figure 7: Bronze Seated Buddha, Helgö, Ekerö, Sweden, c. 6th-7th century CE (SHM 29750:476)**



### *Deterritorialized Connectivities in Eastern Europe*

In discussing material traces of Silk Road exchanges in Eastern Europe, I have argued that this region constitutes another cultural subnetwork in the trans-Eurasian network. The recognition of Eastern Europe's role in the Silk Road network is generally accepted in Russian archaeology, if less so in anglophone scholarship, and is part of ongoing efforts to better articulate the Silk Road as the dynamic aggregation of emergent and interacting people, materials, ideas, and practices whose fluid borders were constantly transforming across a greater geographic reach than has been traditionally acknowledged (Noonan 2000; Christian 2000; Makarov 1993, 2006). The kind of analysis presented here would not be possible without specific attention to the deterritorialized processes of direct and indirect exchanges that I have discussed. By examining these exchanges through material evidence, I suggest that communities in Eastern Europe also became pivotal actors in the Silk Road network and powerful intermediaries who maintained an important, active intermediary position that carried trans-Eurasian materials and intangible practices into western Eurasia with a combination of overland routes and waterways (Kovalev 2005; Koltsov *et al.* 2019). Northern Europeans therefore largely depended on their relationship to communities in Eastern Europe for their access to trans-Eurasian materials and cultural practices; these exchanges in Eastern Europe, as mentioned earlier, prompted human migrations to the region, including the Rus' and Scandinavians. Some archaeologists have modeled Northern Europe's connection to the Silk Road as a series of concentric zones in which regions further east of Scandinavia become increasingly peripheral (Hedenstierna-Jonsson 2020b: 47) while core Silk Road studies tend to frame Eastern and Northern Europe as the northern arc of the late Silk Road. Both perspectives, however, miss the point that Eastern European locales provided the basis for an intermediary subnetwork, not simply a peripheral edge of the Silk Road network, that mediated deterritorialized exchanges. The Silk Road model reveals globalizing processes in which Eastern Europeans, too, were aware of long-distance landscapes, peoples, cultural goods, and ideas well beyond their own locality. The Northern and Eastern Europeans experienced Silk Road exchanges at different scales and intensities but they both negotiated these cross-cultural movements as much as their Central Asian and South Asian contemporaries—in a variety of ways that made sense to each local context across Eurasia. After all, each Eurasian locale connected to the Silk Road network was not only an intermediary for direct material exchanges across the landmass, but also a kind of mediator in the communication (direct or indirect) of Eurasian peoples across impressive spatial distances (Mamleeva 1999).

### **Conclusion**

In this chapter, I have argued for the productivity of reframing the Silk Road network as a model with theoretical and practical emphases on direct and indirect exchanges, multiscale phenomena, deterritorialization, interdisciplinarity, and transdisciplinary collaborations. I therefore suggest that this model has much to offer future scholarship on ancient Eurasia as well as archaeological research more broadly, especially on global phenomena. Knappett (2017) has argued for the possibilities of thinking of the 'global' through the network but points out that the "network" is still often used simply as a metaphor. What I am proposing here in the context of the

Silk Road is that the “network” is more appropriately a model than a metaphor for “complex connectivity.” Ultimately, the Silk Road model is not just about the ancient Eurasian past, but rather offers a generalizable and adaptable framework for bridging the local and the global in other archaeological analyses. The issue of explaining global connectivities and how they are accepted (or not) in each local context remains a challenge in Archaeology and in the negotiation of cultural heritage and its potential consolidation into “world heritage.” The regional and local contexts of the Silk Road are no strangers to these debates (Shepherd 2014; Winter 2016); these discussions within Silk Road studies may offer archaeologists potential strategies for thinking through global phenomena within their respective regional and temporal fields of research.

Within the field of Silk Road research more specifically, I have argued that the Silk Road exchanges are best conceived of as a network, consisting of multiple, independent subnetworks with their own cultural exchanges and developments. To demonstrate the utility of the Silk Road model for archaeological research, I have discussed potential applications of the model to medieval Eastern European contexts. Not least, the Silk Road model reconfigures how scholars interpret the presence of “foreign” and “foreign-influenced” materials in medieval Eastern and Northern European contexts. When examined from the perspective of the Silk Road model and the Silk Road network, these materials are not simply exotica or oddities in the archaeological record, they exemplify local and regional negotiations of deterritorialized practices, made possible by the direct and indirect exchanges between Eastern Europe and its Central Asian and Arab neighbors. This renewed attention to Eastern Europe as part of the broader Silk Road past also reconfigures our understandings of the Silk Road network whole. Firstly, the Eastern European connection to the Silk Road network relied on overland and waterway routes, thereby underpinning the need for Silk Road studies to address maritime networks in addition to overland travel. Secondly, the Silk Road connected what were otherwise disparate regions across Eurasia, including parts of Europe that are often overlooked in some reconstructions of the Silk Road. Ultimately, these broad connections laid the foundations for the emergence of the Mongol Empire in the thirteenth century, including the Golden Horde, which assumed control of the lucrative routes between Central Asia and Eastern Europe (Christian 2000: 20; Canepa 2010: 16). Regardless of whether scholars interpret the Mongols as continuity or discontinuity from the Silk Road network, this approach brings to light the fundamental role of Eastern Europe in the late Silk Road network as well as in its disaggregation.

## Chapter Three: Beyond “Trade Networks:” The Tangible & Intangible Movements of Islamic Coins

### **Introduction: Bringing Itinerant Islamic Coins into the Silk Road Framework**

In chapter two, I introduced what I have termed the “Silk Road model.” I argued that the Silk Road is best understood firstly as an analytical model for global archaeologists and secondly as a *network* in the context of ancient Eurasian developments. In this chapter, I bring Islamic coins further into this discussion. Islamic silver coinage, *dirhams*, were mined in the mountainous, arid landscapes of the Islamic World, collected, and transported across Eurasian sea- and riverways, and later became deposited in Northern Eurasian fields and forests. Consequently, *dirhams* circulated far and wide in transcontinental trade and exchange in ancient Eurasia. Although scholars have rarely regarded these itinerant materials typologically as “Silk Road coinage,” I suggest that Islamic silver contains unambiguous associations to people and landscapes connected by the Silk Road network across Afro-Eurasia, namely from the 8<sup>th</sup> to 10<sup>th</sup> centuries CE. In this chapter, I will argue that Islamic coins, as material traces of long-distance interactions between the Islamic World and Northern Eurasia, provide an important case study of how archaeologists can think through trade and economic interactions more broadly than simply the “hand-to-hand” exchange of goods between humans. To do this, I examine surviving ‘Abbāsīd coin assemblages, housed today in museum collections around the world, in the context of the Silk Road framework and from a network perspective that recognizes materials as influential actors in their own right that helped forge transformative interactions between Afro-Eurasian communities.

### **Material Roads?**

As mentioned in chapter two, Ferdinand von Richthofen’s nineteenth-century creation of the “Silk Road” set in motion many academic legacies and popular imaginings of ancient Eurasia. We understand the ancient past through this legacy—not least, the attention that the “Silk Road” devotes to *material* mobilities. Scholarship on ancient Northern Eurasia often poetically frames “Silk Road” material exchanges as having integral power within the landscape. Amber forged a trail (Curta 2007), Islamic silver “flowed” (Adamczyk 2006; Gruszczyński 2019), and fur, as well as silk, paved roads (Kovalev 2001; Michailidis 2012; Noonan 2000). Of course, scholars have problematised the terminology of the “Silk Road” (and its pluralised usage, “Silk Roads”) as the “road that never was” (Rezakhani 2010). They demonstrate that the “Silk Roads” is a misleading construct that conceals, among other things, the diversity of organic and inorganic materials exchanged in ancient Eurasia (Mishra 2020) and that propagates an inaccurate picture of *silk* as a primary commodity in these exchanges (Hansen 2012).

It is also worth problematizing the Silk Roads’ overstated emphasis on the *material*. Commercial goods and other objects were undoubtedly important for trade and exchange but framing ancient Eurasian connectivities predominantly in terms of materials has the effect of exoticizing objects, especially those that are considered foreign according to western European standards. The “Silk Road” term emerged in a European context to identify trans-continental exchanges between long-distance Eurasian communities—the majority of whom were not, in fact,

European. Therefore, the “Silk Roads” remains a foreign term, in its nineteenth-century perspective looking back at ancient times and in its peripheral geographical vantage point of Europe, looking eastwards across wider Eurasia.

The trans-Eurasian Silk Road exchanges, of course, mobilized much more than objects, including ecological connectivities, plants, animals, and disease (Castillo *et al.* 2016; Christian 2000; Frachetti *et al.* 2017; Spengler 2015; Stevens *et al.* 2016; Taylor *et al.* 2018; Verity *et al.* 1999), as well as *intangibles*—the cultural practices, ideas, and processes that circulated in very real ways as much as humans and organic and inorganic materials (Mehendale 1996). In Silk Road scholarship, art historians and archaeologists have illuminated our understandings of intangible practices, such as the ancient techniques and technologies used to manufacture beads, glass, and textile fibres (Brill 2009; Doumani Dupuy *et al.* 2018; Honeychurch 2014: 68; Nakai and Shindo 2013), the transmission of cultural practices that informed burials (Honeychurch 2014), the spread of Chinese and Kushan visual cultures into Buddhist visual narratives and cave art (Agnew *et al.* 2016), the spread of Central Asian visual art into tangible textile garments in the Caucasus (Bollók *et al.* 2009), and the role of memory in the *experience* of travel across “Silk Road” landscapes (Franklin 2020, 2021).

However, beyond a few exceptions, this innovative research on intangible connectivities has not yet fully developed in “Silk Road” scholarship on spaces west of the Black Sea. In Scandinavia, scholars maintain a longstanding interest in “oriental” materials that became deposited into the archaeological record in this region (Arne 1914; Bolin 1953; Callmer 1995; Hedenstierna-Jonson and Holmquist Olausson 2006; Jansson 1988; Myrdal 2020; Vedeler 2014). Much scholarship, however, has focused on East Asian, Central Asian, and Islamic materials from a Eurocentric perspective that centres Scandinavia in these exchange networks, sometimes without properly attributing the central role of communities in other regions who fostered these material movements. Scholars have recently argued that the “Silk Road” exchanges are best understood as multiscalar *networks* (Bhattacharya 2021; Knutson 2020a). Based on network models and theories, this approach acknowledges the roles, however small or influential, that all actors contributed to trans-Eurasian exchanges while simultaneously giving credit to important Eurasian communities who acted as intermediaries within “subnetworks” and facilitated tangible and intangible movements. This perspective recognises communities, for instance, in the Baltic, the Volga River valley, as well as the Islamic World who actively mobilized Silk Road exchanges and builds on current scholarship that demonstrates the pivotal roles of these communities in transregional interactions (Bloom 2001; Brather 2009; Curta 2019; Gardeła 2015; Hedenstierna-Jonson 2020a; Katona 2019; Kershaw *et al.* 2021; Kovalev and Kaelin 2007: 9; Mägi 2018; Petrukhin 2007; Priestman 2016; Steuer 1978).

The range of “Silk Road” materials deposited in Northern Eurasia reminds scholars of the urgency of examining evidence from a plurality of perspectives—not simply from the vantage of Europe looking at wider Eurasia nor from artificial categories of materials as “western” versus “eastern” or “oriental.” None of these frameworks reflect the reality of ancient Eurasian communities that were connected to the Silk Road network. Neglecting multiple disciplinary and geographical viewpoints oversimplifies and exoticizes materials that are foreign to the region in which they were archaeologically deposited, without proper consideration to the complex contexts

and meanings that these materials carried across ancient Eurasia and to the movement of intangible practices that also survive as material traces.

I argue that, in order to help destabilize Eurocentric perspectives of the Silk Road which often fetishize silk and other “foreign” ancient commodities, researchers must also attend to the *activeness* of materials, which sometimes operated independently of human awareness or intention. I will discuss some examples of itinerant Islamic coinage and their tangible and intangible movements. Applying New Materialist theories, I demonstrate how researchers can examine issues of transregional trade networks and migratory practices beyond simply the “hand to hand” exchange of objects between humans and instead scrutinize global processes of *detrterritorialization* that linked ancient Eurasian communities through merging landscapes and ecologies and itinerant people, materials, and intangible practices.

### **Islamic Coinage and Beyond an Anthropocentric View of Trade and Exchange**

In the past, as well as today, money has never been simply a matter of finance. Economic theorists and anthropologists have long understood that the stuff we call “money” is not just commodities or tokens of exchange but also an abstract accounting tool, used to measure one’s trust in other people within social interactions of exchange and reciprocity (Graeber 2012: 46-7; Codere 1968; Dodd 2014; Graeber 2001; Hart and Ortiz 2014; Maurer 2006; Mitchell Innes 1914). Money offers an obvious, important medium to contemplate *intangible* practices based on *tangible* materials, because many attitudes towards value and historically-contingent immaterial practices converge in the materials that people assigned as “money.” Even in ancient times, coins were already considered valuable as pieces of precious metal but when die-stamped, such as with the name or emblem of a political authority, coins carried additional values and meanings. David Graeber’s foundational work *Debt* (2012) demonstrated that money has arranged social relations and powerfully connected people across long distances for well over a millennium. Islamic coins minted under the ‘Abbāsid Caliphate were no exception.

Silk Road researchers have long recognized the importance of coinage to the study of the ancient Eurasian past. Coins provide evidence of communities, including nomadic peoples, that otherwise rarely left behind material traces. Coins also attest to the existence of overland and maritime trade routes and the exchange of cultures along the Silk Road (Tanabe 1993). Scholars have generally understood ‘Silk Road’ coins as materials minted in East-, Southeast-, and Central Asia and the Mediterranean (Aram 2001, 2004; Tanabe 1993; Tanabe *et al.* 1997; Wang 2004a), including those produced in Tang China (Wang 2004b), ancient Sri Lanka, the Seleucid Empire, the Iranian Sasanian Empire and the Kushano-Sasanian Kingdom, the Indo-Scythian and Indo-Parthian Kingdoms, Byzantium, as well as those made by the Central Asian Hunnic peoples and the Turkic khaganates (Aram 2014; Porter 1997; Vondrovec 2008). Numismatic and archaeological research has revealed that some “Silk Road” coins traversed long distances across Eurasia, including Byzantine coins and their imitations which have been discovered in the Avar Khaganate in the North Caucasus (Szmoniewski 2016) and in China, including Xinjiang. Scholars have interpreted these Byzantine coins, as well as other materials, as evidence of the importance of intermediaries, not least the Sogdians, in carrying certain materials across Eurasia (Ying 2005; Hansen 2011, 2012; Rose 2010). Besides coins, Silk Road scholars have also emphasised that

grain, textiles, and instruments of paper credit were also important forms of money and exchange (Wang 2004b: 30; cf. Du 2020; Hansen 2011; Hansen and Rong 2013; Wang 2013). Indeed, money, including precious metals and organic materials, existed in ancient societies for millennia, well before the first coins appeared in various parts of the world around 650 BCE (Hansen 2011: 83).

Despite Silk Road scholarship's emphasis on Eurasian monetary circulation, trade, and exchange from the first century BCE to the 13th century CE, coins produced in the Islamic Caliphates are rarely categorised as "Silk Road" coinage. Nevertheless, in recent years, the Islamic Caliphates, including the 'Abbāsids and Samanids, have emerged in discussions on the late Silk Road network (Asadov 2016; Kamyshev 2017; Knutson 2020a; Kovalev and Kaelin 2007; Whitfield 2015). Produced in locales across the Islamic World, Islamic coinage, especially silver *dirhams*, circulated not only within the confines of the Caliphates, but also in wider Afro-Eurasia, ca. 700- 1100 CE (Kovalev and Kaelin 2007; Kovalev and Rispling 2002). Consequentially, Islamic coinage eventually became deposited archaeologically across Eurasia, as **Figure 8** demonstrates. However, like all distribution maps, this Figure obscures the vast, wider range of trans-Eurasian exchanges that involved Islamic coinage. One of the most comprehensive catalogues on Islamic dirhams to date has been compiled by numismatists Thomas Noonan and Roman Kovalev. As of 2007, their catalogue included 1,656 dirham deposits, containing almost half a million individual coins (Kovalev and Kaelin 2007: 562). While the surviving evidence for the influx of coinage into Afro-Eurasia is impressive, the half million recorded dirhams constitute only a small fraction of the total production of coins under 273 registered mints by the Islamic Caliphates between the 650s to 1100 CE; Kovalev and Kaelin (2007) estimate the total production of coins in the hundreds of millions. The study of these materials and their circulation therefore greatly informs archaeological understandings of trans-Eurasian interactions and echoes Silk Road scholars' interpretations of ancient money as more than simply currency or tokens of exchange (Alram 2004). The ubiquity of Islamic coinage in archaeological contexts provides important opportunities for scholars to link social and economic theories of money with anthropological research on trade and exchange, especially at transregional, global scales like the Silk Road network. As material traces of long-distance interactions, Islamic coins deserve examination in interdisciplinary Silk Road studies as an important case study for examining ancient trade more broadly than simply the 'hand-to-hand' transfer of goods between humans.<sup>6</sup>

---

<sup>6</sup> In this chapter, I apply Oka and Kusimba's (2008) distinction between *trade* as a material economic activity and *exchange* as a broader category of social and cultural interactions.



**Figure 8: Distribution of Islamic Silver Deposits in Western and Northern Eurasia © Dan Carlsson, reused with kind permission**

Over the past two decades, anthropologists have repositioned trade and exchange as not exclusively economic activities, but also as inherently social. This scholarship examines the cultural practices that propel processes of circulation (Lee and LiPuma 2002). Such work problematises glossing circulating objects as “trade goods” or “currency” in favour of recognizing the social context and consequences of materials moving through social spaces as well as the social, symbolic, and ideational meanings of exchange (Appadurai 1986; Bauer and Agbe-Davies 2010; Kirch 1991; Terrell 2001). Archaeologists recognize that materials are not simply residues of human social interactions and that objects like coins are more than simply a medium of trade; archaeological materials also indicate intangible traditions, ideas, and values (Agbe-Davies and Bauer 2010: 18). Building on this work which commonly understands circulating materials as important traces of *human* social interactions and *human* cultures, I suggest that circulating materials also indicate *material* interactions that operate independently of human intentions and bounded cultures. Archaeologists still often examine the movement of objects to study the flow of people or intangible ideas, or we examine human movements in order to comprehend materials as the *products* of these movements. Both approaches tend to emphasize the social activity of humans but fall short of appreciating materials as active social agents in their own right. Trade, as scholars often use the term, offers an anthropocentric framework for itinerant, multilocational objects that limits agency to the hands of humans, even when material movements do not fully operate within the realm, or at the scale, of human awareness or intention.

Coins offer an important form of object that can help archaeologists move beyond anthropocentric approaches to trade and exchange. Economic anthropologist Keith Hart proposed that there are two sides to a coin: the head side reminds us that money is originally a social relation

between people and the tails side “reveals the coin as a thing, capable of entering into definite relations with other things” (Hart 1986: 638; Graeber 2012; Maurer 2006). When we examine coinage for the purpose of pursuing the humans involved with these materials, we choose the coin’s head, ignore its other half, and lose sight of the agency of these itinerant materials themselves and the complex ways that they behave and sometimes even “speak.”

As a case study, I will focus mainly on ‘Abbāsīd coinage. Mined from the mountainous, arid landscapes of the Islamic World (Mitchiner 1973), collected, and transported across Eurasian sea- and riverways, ‘Abbāsīd coins circulated across far distances in transcontinental trade. As mentioned previously, these materials were often later recovered in silver deposits, including in Northern Eurasian fields and forests. Consequently, these objects are associated with people from the ‘Abbāsīd Caliphate and from Northern Eurasia within the context of global trade interactions that connected these and other Eurasian communities. However, I propose that in addition to the important research on the *humans* involved with Islamic coinage, from the mint authorities in the ‘Abbāsīd Caliphate and the traders who transferred these materials for commodities and slaves (Gruszczyński *et al.* 2020), to the Scandinavians who hoarded these coins, we cannot neglect the agencies of the materials themselves and the tangible and intangible traces that these agencies left behind. To pursue the activeness of coins, we must examine them on their own terms—not on foreigners’ perceptions of them. By “foreigners,” I refer to the people in the past who interacted with these objects across various stages of their itinerant histories (Joyce and Gillespie 2015; Bauer 2019; Knutson 2021) as well as people in the present, including contemporary researchers. Understanding ourselves and past people as such in the context of archaeological materials complicates understandings of the coins as simply mediums of exchange or indexes of humans.

### **A New Materialist Approach to Islamic Coinage & its Intangible Movements**

My work is influenced by the multidisciplinary field of New Materialism which fundamentally argues that all matter, including humans and nonhumans, is active: things have their own autonomy apart from the human perception of them and they can act in ways that exceed and even contradict human intentions (Bennett 2004, 2010; Knutson 2020c). This multidiscipline takes seriously the terrain that human-focused research generally refuses to acknowledge: that life forms as well as other organic matter, inorganic matter, and forces are interconnected and they all operate within their own agencies and temporalities (Yusoff *et al.* 2012). Much research has devoted attention to human relationships with other living beings, including plants and animals. But many scholars stop short of recognising the agentic powers of *artefactual beings*. To contribute to this question on the activeness of materials, scholars have been drawn to, for instance, the liveliness of minerals, stone, and stone landscapes (Cipolla 2018; Cohen 2015; Ingold 2007; Joyce 2018). Cohen’s work on the liveliness of stone, including how this idea appeared in medieval European thought and literature, similarly suggests that thinking beyond anthropocentricity requires enlarging our perspectives of temporal and spatial scales (2015: 9). In other words, stone materialities, such as marble or mountains, are very active—but they act at very different intensities and tempos than humans or other biological beings.

Coins, too, are artefactual beings and understanding them as agentic actors can offer productive, exciting insights into trans-Eurasian human and nonhuman networks. Economic



anthropologists have mainly interpreted forms of money, including coins, as transactional, symbolic tools whose meanings are situationally defined and renegotiated across time and space (Nelms and Maurer 2014; Parry and Bloch 1989). In these discussions, money often remains nevertheless a *passive* tool for the human communication of value. The application of New Materialist theories to these discussions enables researchers to examine the ways that coins and other forms of money are not just *indexes* of humans—rather, they exist in tandem with humans and co-interact in complex ways. To demonstrate this in this chapter, I will examine two case studies of itinerant Islamic coinage and their tangible and intangible movements.

### ***The “Silk Road Hoard” from Gotland***

Often uncovered thousands of kilometers away from the Caliphate, Islamic coinage tends to survive well archaeologically because of the ancient practice of *hoarding*, which involved the deliberate collection of select objects and their deposition—usually also deliberate. The largest of these deposits discovered to date is the Spillings Hoard, uncovered on the Baltic island of Gotland in 1999. The deposits associated with the Spillings assemblage contained a total weight of 67 kilograms of silver, including 14,300 dirhams (Kilger 2020). The Spillings Hoard, however, constitutes part of a much vaster and multifaceted phenomenon of silver from the Caliphate found across Eurasia. In anglophone scholarship, many scholars interpret the extensive coin finds as evidence of medieval Europe’s global trade connections in ways that position Europe as the imbalanced recipient of these interactions, including the accumulation of silver wealth, and largely ignores the integral role of people in the Islamic World in these networks. When examined from the perspective of material agency, Islamic coins contain a more complicated legacy. To pursue this multifaceted past, we need to open the “hoard” and examine these materials more closely than at the typology of “Islamic coinage.”



**Figure 9: Map of Select ‘Abbāsid Mint Centers © Sara Ann Knutson**

The distribution of important mint production centres has been well known to numismatists (**Figure 9**). However, much archaeological research has not fully applied this information to unravel the monolithic category of “Islamic coinage” and understand the role of regional networks in the Islamic World that informed the exchange of silver that ultimately reached other parts of Eurasia. So instead, coins uncovered archaeologically in Northern Europe are often treated as exotic tokens of long-distance trade. These interpretations look back at the Islamic World from the vantage of Scandinavia instead of pursuing these coins from the Caliphate to Northern Europe. Baghdad (Madinat al-Salam) represents the most common ‘Abbāsīd mint production centre in the archaeological evidence, followed by al-Muhammadiyya and then by (in no particular order) al-Abbasiyya, Samarra, Basra, al-Kufa, and Samarqand. This information on common mint production centres can help scholars better understand regional trade patterns, the subsequent trans-Eurasian circulation of coinage, and processes of collection and deposition.

For example, **Figure 10** shows a silver coinage deposit (*tpq* 317 AH, 929/30 CE) that was uncovered on Gotland. Today, the assemblage is housed and exhibited at the Gotland Museum in Visby, Sweden. To the non-specialist and typical museum visitor, these objects may at first glance appear as homogenous coins with Arabic inscriptions. However, like other Islamic silver “hoards,” this deposit reveals an assemblage of distinct mints from different locales across the Islamic World. Each coin contains its own itinerant history of circulation, exchange, and mobility prior to its collection and deposition on Gotland. The deposit is relatively small, with less than 100 dirhams, consisting of four-fifths Samanid coinage and one-fifth ‘Abbāsīd coinage. The deposit’s composition is not terribly surprising, however the mint centres represented on the coins may suggest another story. The “Silk Road” cities of Tashkent (al-Shash) and Samarqand did produce coinage under the ‘Abbāsīd Caliphate but they were mainly predominant mint centres for Samanid coinage (Gustin 2004: 13). Yet, in this deposit, the cities of Tashkent and Samarqand represent 90% of all identifiable mints, and none of which are identifiably from Baghdad. Given that Baghdad represents the most common mint centre for ‘Abbāsīd coins, this finding is unusual and requires further explanation.



**Figure 10: Islamic Coin Deposit from Gotland, Housed at the Gotland Museum, Visby, Sweden © Sara Ann Knutson**

Some hypotheses, related to the circulation of coins and to practices of collecting and curating select coins, may account for the unusual representation of mint centres in this deposit. I will outline three broad, not necessarily mutually exclusive, explanations, but such research requires caution and reminds us that biases inform all objects that survive archaeologically. As one possibility, this deposit may indicate that the coins involved very specific trade routes, ones that perhaps did not necessarily converge with the typical network centres. Similarly, it is possible that the coins in this deposit traversed particular exchange routes that many other Islamic coins did not, perhaps instead circulating in networks that included more overland travel, such as in Central Asia, than what scholars have typically expected of itinerant ‘Abbāsīd silver. As a second possibility, this assemblage may indicate collecting practices (in the Islamic World, Central Asia, on Gotland, or elsewhere) that would demonstrate that the collector(s) did not value these materials *only* as struck pieces of silver. Instead, the deposit contents also suggest that the collector(s) could read enough Arabic to understand the inscribed mint cities on the coins or that they otherwise maintained enough knowledge of the coins’ specific mint origins and that this knowledge was somehow meaningful.

The Gotlandic deposit may reflect the first or second suggestion, or a combination of both, but in any case, does not represent random, exotic “treasure.” Instead, these coins are material agents that influenced human behaviour, from the routes that humans followed to make transactions, to the decisions that humans made regarding the materials that they collected and kept and those they did not. In a similar line of thinking, numismatist Thomas Noonan importantly argued (1984, 1986) that the increased presence of Islamic coinage in the Volga River valley sparked the migration of Northern Europeans, beginning in the early ninth century CE, to this region, *not* that increased presence of Northern Europeans in the region *then* encouraged the movement of Islamic silver to the area. In other words, these materials propelled human interactions and migrations, not humans alone. Some researchers have rationalised that such objects only acquire their agency from their interactions *with* humans in human-material networks or when humans delegate agency to materials (Bauer 2019: 339). But given that Islamic coins provoked human migrations to the Volga region as well as greater commercial activity that eventually mobilized “Silk Road” objects to Scandinavia (Knutson 2020a), researchers must properly account for the activeness of materials and their influence on human behaviour and developments.

The final broad explanation for the silver deposit contents is no less complicated than the previous two and requires further discussion of the hoard’s provenance. The silver deposit was uncovered, presumably in the late 2010s, through illicit metal-detecting and excavation on Gotland. Swedish cultural heritage legislation, based on the *Kulturmiljölagen* (1988), defines archaeological finds as “antiquities” if they are presumed older than the year 1850 and deems that all finds uncovered during archaeological research are owned by the state. The Swedish National Heritage Board (*Riksantikvarieämbetet*) holds the power to decide when ownership of archaeological finds is to be transferred to non-state museums. But in the case of illicit excavations, the Swedish state cannot claim looted archaeological finds without proper provenance information. Under these unfortunate, ambiguous circumstances, the silver deposit described above could not

be sent to the Swedish National Heritage Board in Stockholm, but rather remained on Gotland and is now owned by the non-profit *Gotlands Fornvänner* Association in connection with the Gotland Museum in Visby.

Traditionally, the unreliable circumstances surrounding looted artefacts has led many scholars to reject such materials as non-source-critical evidence of the ancient past. But in recent years, researchers have demonstrated that cultural heritage crime remains a global issue and others have argued for nevertheless recognising decontextualized archaeological materials for their historical value, however limited, as well as their enduring cultural heritage value (Kersel 2012; Lundeen 1997; Proulx 2013). Beyond the issue of decontextualised objects, Meskell (2002b: 565) also appropriately reminded that archaeological excavation itself is a selective, destructive process and the practice of removing antiquities from their original context and preserving and housing them in museums may similarly be considered destructive—for instance, by indigenous communities. For the purposes of the discussion here, I have chosen to examine the silver deposit on Gotland because its ambiguity contributes additional, not fewer, complex layers of meaning in relation to the Silk Road. The study of this deposit reveals the necessity for archaeologists to become more comfortable in carefully working with uncertainty and complexity in the archaeological record.

The coin deposit's unreliable and largely unavailable provenance creates uncertainty regarding whether the deposit contains *all* and *only* the coins that past people assembled. The deposit may include coins that were not discovered in the same archaeological context but were rather assembled from other sources by a contemporary collector. Even if this hypothetical were true, the assemblage would still not represent an entirely random phenomenon. Instead, the deposit would reflect contemporary practices and meanings rather than those of the ancient past. In this case, the assemblage would suggest that, in the recent past, these coins were intentionally collected based on predetermined circumstances or personal preferences that seem to involve assembling genuine Islamic coins minted mainly in Tashkent and Samarqand.

Despite the uncertainties, however, museum specialists estimate that the assemblage is very likely genuine to the 10th century CE. While the museum display conservatively introduces this deposit as a silver hoard (*silverskatt*) with an unclear provenance, researchers sometimes refer to the assemblage in informal conversations as the “Silk Road hoard” because of its apparent associations to “Silk Road” cities. Whether this association is an ancient or contemporary phenomenon will likely never be known for certain. However, an important intersecting development in cultural heritage studies and Archaeology has been the recognition that materials and other archaeological phenomena, as well as their meanings, are not “frozen in time” (Bedjaoui 2004; Ceccarelli 2017; Loulanski 2006; Macdonald *et al.* 2020; Orser 2005: 80; Tomášková 2007). Macdonald *et al.* (2020) suggest that attention to diversity, transformation, and uncertainty in the archaeological record challenges the notion of heritage as “something static, unchanging, and performed once and for all” (247). Therefore, we cannot dismiss these Islamic coins as irrelevant even if they represent a modern collection, because these archaeological materials did not stop producing layers of meaning after their deposition in Gotland around 930 CE. I have provided three broad, possible explanations for the mint composition of the “Silk Road hoard.” The thread that interweaves all these suggestions is the understanding that these Islamic coins exist, at the very least, on an imagined and cultural heritage level that connects to an ancient Silk Road past.

Thus, regardless of whether the deposit ultimately reflects an ancient or modern collection, the meanings attached to this itinerant assemblage are not separate from other research on the Silk Road and its global cultural legacies.

Following Hart's (1986) coin metaphor mentioned earlier, the "Silk Road" deposit contains two sides. On the "human" side, the Islamic materials involved networks of Eurasian communities who exchanged Samanid and 'Abbāsīd coins across long distances. These materials also involved people who collected coins like those that came to rest in assemblages in Gotlandic fields and were uncovered and displayed at the Gotland Museum, hundreds of years later. The "material" side of the 'Silk Road' deposit importantly reveals that this assemblage did not form randomly nor without consideration to the coins' minting sites. The coins' material agencies, and the multifaceted associations they actively carry, influenced human behaviour and processes of collection and deposition. Still today, the Islamic coins continue to influence human activity and actively generate meaning in association with the Silk Road.

### *'Speaking Objects' and the Pseudo-Arabic Phenomenon*

I have explored the tangible material movements and the agencies of Islamic coins in connection to Silk Road networks and its cultural legacies. The final case study examines intangible movements in the ancient past that itinerant Islamic coinage generated. Hundreds of thousands of Islamic dirhams survive archaeologically in Northern Eurasia in addition to other extant pieces of silver, such as arm-rings, which have recently been geochemically analysed and demonstrated to have been melted down from Islamic coinage (Kershaw *et al.* 2021). This research and the ubiquity of these objects suggest that people interacted with Islamic coinage in many ways once these materials reached Northern Eurasia from the Islamic World. The presence of graffiti on Islamic coins indicates one form of interaction, including counting markings, inscriptions, and pictographs, namely religious symbols (Hammarberg and Rispling 1985; Melnikova 1996: 77). These graffiti include markings interpreted as Thor's hammers and Christian crosses as well as runic inscriptions on coins uncovered in Sweden and Norway (Blackburn 2007: 67; Mikkelsen 1998: 48-9; Nordeide 2006: 219-20).

Linguistic interactions with the Arabic language present another trans-Eurasian response to Islamic coinage. This interplay is attested archaeologically with the presence of so-called "pseudo-Arabic" inscriptions. Inscriptions imitating Arabic appear on "imitation coins" as well as other non-Islamic objects. Numismatists consider "imitation coins" as locally-produced materials intended to copy a popular coin design and are therefore distinct from "counterfeit" coins or forgeries (Miles 1962: 4; Rispling 2001, 2004). Archaeologists have uncovered imitation coins (**Figure 11**) alongside Islamic coinage in Northern Eurasian silver deposits, including Khazar imitation coins produced in the Volga region (Mukhamadiev 2005). Generally, these imitation coins look similar to Islamic coinage. However, in other cases, the practice of reproducing the Arabic script draws more attention to itself. Multiple imitations coins, produced by the Rus' in the Volga region, feature a bird with a Russo-Byzantine cross above its head (**Figure 12**). The bird features in the coin's centre, where the *kalimat al-Tayiba* (word of purity) is usually displayed in Arabic on Islamic coins. These "bird" coins have interested scholars because of the presence of a presumed Christian symbol alongside the Arabic script (Kovalev 2012, 2015; Lindberger 2001;

Rispling 1987), but these objects, as well as other imitation coins, indicate intangible linguistic practices with the Arabic language outside of the Caliphate, impressively in regions where Arabic was not commonly spoken. As Lindberger (2001: 62) rightly argues, although these Islamic coin imitations were quantitatively insignificant relative to the mass of Islamic coinage, they nevertheless hold qualitative importance as a historical phenomenon.



---

**Figure 11: Late 9<sup>th</sup> or early 10<sup>th</sup> century imitation of ‘Abbasid dirham with four piercings (Object ID: YORYM-FB7039) © Portable Antiquities Scheme/ Rebecca Griffiths, CC BY-SA 4.0 License**



**Figure 12: Mid-10<sup>th</sup> century imitation of Samanid dirham (Nasr ibn Ahmad) © Trustees of the British Museum, CC BY-SA 4.0 License**

The practice of imitating the Arabic language on non-Islamic coinage firstly suggests intentions to connect objects to a pre-existing global system of commerce and exchange that Eurasian communities associated with the Islamic World. Imitation coins therefore indicate the intangible spread of the Arabic language, based most likely on human interactions with Islamic coinage, rather than necessarily indicative that Northern Eurasians travelled to, and learned Arabic in, the Caliphate, although these possibilities are not mutually exclusive. This means that the widespread, *tangible* circulation of Arabic-inscribed numismatic materials led to the widespread *intangible* circulation of the Arabic language as a visual culture that signalled respect for Islamic materials and the Islamic World's cultural prestige. The practice of inscribing Arabic outside the Caliphate was also not necessarily a proxy for Islamic religious practice (Knutson and Ellis 2021:10-12), but nor was the imitation of Arabic only intended to ensure the acceptance of imitation coins as valid currency. Imitation coins that deliberately look differently than standard Islamic coinage, such as the “bird” coins mentioned above, reveal that these objects carried a variety of meanings beyond their use as money. Indeed, imitation coins and Islamic coinage acquired different purposes and shifting meanings throughout their circulation beyond the Islamic World (Audy 2018; Rispling 2004) but their Arabic inscriptions seem to have remained valued across many Eurasian communities for their associations to an Islamic visual culture.

Beyond numismatic objects, the “pseudo-Arabic” phenomenon included imitating Arabic on other materials manufactured outside the Islamic World. These materials include, for instance, a bronze vessel from western Central Asia uncovered in Sweden (Hedenstierna-Jonson 2020b), Scandinavian-manufactured weights (Sperber 1996; Fernstål 2007/ 2008), and “Allāh”-inscribed rings found in the Volga Region and Sweden (Duczko 1998; Knutson and Ellis 2021; Wärmländer *et al.* 2015). For this discussion, I will focus on the intangible movement of a particular inscription across different mediums, from and beyond the Caliphate.

In Arabic, *bakh bakh* is a term found in the Qur'an and roughly translates to English as “excellent” or “good.” The term is largely used to signify a value judgment. Consequently, Islamic coinage (**Figure 13**) sometimes featured this phrase to convey the object's genuine value (von Erdmann and Stickel 1855). Some Northern Eurasians appear to have understood this practice from the Islamic World of inscribing the Arabic term *bakh bakh* in order to affirm an object's value. Certain Scandinavian-manufactured weights feature inscriptions that scholars assume are imitations of certain Arabic phrases (**Figure 14**), including *bakh bakh* (Sperber 1996: 96). Fernstål (2007/ 2008) argued that the use of this term on Scandinavian materials reflects a desire for such objects to appear trustworthy and genuine. Much like the imitation coins, I suggest that these Arabic imitations also reflect intentions to connect non-foreign objects to an Islamic visual culture and to an established, respected Islamic tradition of commerce that the Arabic script appears to have held for Northern Eurasian communities. But Fernstål (2007/ 2008: 63) seems to partially misunderstand the Scandinavian practice of inscribing *bakh* on materials when she observes that the word was important to include “not only once but twice,” without recognising that *bakh bakh*, not the singular *bakh*, conveys the proper Arabic meaning. This correction is especially important, because in the Caliphate, the presence of *bakh bakh* in ancient inscriptions became more complicated. Numismatists have noted that some Islamic coins used the shortened term *bakh* for

spatial or stylistic reasons (**Figure 15**) (von Erdmann and Stickel 1855). Although the singular *bakh* is not, strictly speaking, an Arabic word, an Arabic speaker would nevertheless recognise this shortened inscription as *bakh bakh*. Most Northern Eurasians likely did not understand the relationship between *bakh* and *bakh bakh* in Arabic inscriptions. This example demonstrates that itinerant Islamic coins communicated multiple layers of meaning and nuance that were understood in some contexts, both ancient and contemporary, and in others, they were lost, overlooked, or misinterpreted. Materials are most easily identifiable as agents when they act in ways that contradict or exceed human intentions: this is what I term the “misbehaving object” (Knutson 2020c). In some ways, Islamic coins like in Figure 15, are misbehaving objects in non-Islamic contexts, because they do not fully conform to the meanings that Northern Eurasians ascribed to them and they communicate information, or “speak,” in ways not always understood by the humans they interacted with.



---

**Figure 13: ‘Abbāsid Dirham (Reverse) with *bakh-bakh* inscription (encircled), Runne hoard, Sanda socken, Gotland © Sara Ann Knutson**





Figure 14: Scandinavian iron and bronze weight with Arabic-like inscription (SHM 372289) © Christer Åhlin, Statens Historiska Museum, CC BY 2.5 License



Figure 15: 'Abbāsid Dirham (Reverse) with *bakh* inscription (encircled), Lärbro Hoard, Gotland © Sara Ann Knutson

The presence of “pseudo-Arabic” phrases, like *bakh bakh* on Scandinavian weights, often perplexes both archaeologists and Arabic studies scholars. Researchers admit that the creators of “pseudo-Arabic” were likely not proficient in Arabic (Gustin 1997: 173). Islamic coins repurposed as Scandinavian necklace pendants (Audy 2018) were sometimes fastened with the Arabic faced upside down, suggesting cases in which Arabic was not well understood or where that level of Arabic comprehension was not considered essential. “Pseudo-Arabic” also remains a challenge for researchers proficient in Arabic who sometimes quickly dismiss such inscriptions as ingenuine or not Arabic at all. But important scholarship on Arabic and Persian seals offers Islamic examples of “linear Kufic” script and mirror-image writing (reversed Arabic script) which offer parallels to Arabic-inscribed materials found in Northern Eurasia (Moraekhi 2002; Porter 2010, 2011). Porter (2004) has similarly examined Arabic on Islamic magical seals and amulets, some of which feature ‘crude’ renderings of the Arabic script with irregular baselines or with bizarre words and symbols (192-3).

This work demonstrates the overdue necessity of examining “pseudo-Arabic” as more than simply “poorly executed Arabic lettering” or as evidence that Arabic inscriptions “could only be read and understood by Arabs” (Lindberger 2001: 58, 64). The imitation of Arabic indicates effort, meaning, and complex responses to cross-cultural ideas rather than “inadequate” replication. Lee and LiPuma (2002) argued that *circulation* constitutes “more than simply the movement of people, ideas, and commodities from one culture to another... [It is] a cultural process with its own forms of abstraction, evaluation, and constraint, which are created by...the *interpretive communities* built around them” (Lee and LiPuma 2002: 192, my italics). In other words, the transregional movement of materials and immaterial practices builds interpretive communities with their own internal logics and dynamics. Itinerant coins, bearing Arabic inscriptions, also built interpretive communities in Northern Eurasia. These communities consisted of people who were certainly not Arabic native speakers and thus, constrained in their abilities to reproduce Arabic. Nevertheless, these Northern Eurasian interpretive communities linguistically and visually engaged Arabic based on interactions with agentive objects. These interactions required identifying Arabic as a visual culture and selectively adapting this practice into local cultural practices in ways that made sense to Northern Eurasians and that people in the Caliphate likely never intended and would have perhaps found incomprehensible. Shulga and Suvandi (2021) similarly demonstrate how circulating coins changed meanings along the Silk Road and how other Eurasian communities “read” foreign coins in their own way, sometimes assigning them new meanings; these, too, may be considered interpretive communities.

It is important, then, to understand circulation as a complex *communicative* practice (Agbe-Davies and Bauer 2010: 19). In the Caliphate, the Arabic on coins linguistically promoted overlapping political, religious, social, and economic meanings; but by the time they reached Northern Eurasia, these coins, and the “pseudo-Arabic” inscriptions they inspired, engaged *visual* communicative practices more than *linguistic* communication. In my view, it is difficult to argue that “pseudo-Arabic” inscriptions on Scandinavian objects were intended to “trick” the viewer into believing that they were genuine Islamic materials (Fernstål 2007/2008). The ubiquity of circulating dirhams in Northern Eurasia suggests that at least some, if not most, people could visually differentiate between Arabic and “pseudo-Arabic.” On the “human” side, imitated Arabic may not have intended to deceive anyone at all, but rather to locally engage Islamic visual culture, and the meanings it conveyed, to Northern Eurasians, based on circulating coins that were certainly

not rare or “exotic” to these communities. As Codere (1968) argued in the context of money, “all symbols generalize. They abstract from the concrete what is irrelevant to them as symbols” (560). The engagement of Arabic in imitative inscriptions similarly reveals a performative practice in which Northern Eurasians replicated, adapted, changed, and excluded certain meanings. On the “material” side, Islamic coins offered more than a cultural bridge between Islamic and Northern Eurasian communities. Independently of humans, these agentive materials *taught* Northern Eurasians Islamic visual culture and, to a limited degree, Arabic writing. As much as humans, Islamic coins, too, were fundamental participants in ancient global exchanges. Like many objects, silver dirhams were indeed fashioned and shaped by humans, but these interactions do not diminish the coins’ own activeness in connecting Northern Eurasians to the Islamic World and the wider Silk Road network.

## Conclusion

I have examined Islamic coins as artefactual beings that influenced ancient human activity and practices, forging transformative tangible and intangible interactions between Eurasian communities connected to the Silk Road network. Islamic coins informed human migration, practices of exchange, collection, curation, deposition, and the engagement of Silk Road cultural legacies. Coins also advanced the spread of Islamic visual culture and the Arabic language to Eurasian spaces that few people from the Caliphate personally reached. This work destabilizes coins as simply “objects of trade” or pieces of “treasure” and develops the neglected agency of materials, independent of humans, and the traces these agencies left behind. I also problematized the uncritical use of terms like “exotic” to demarcate otherness, which creates artificial divisions that do not reflect the ancient Eurasian reality. The global circulation of materials undermines what researchers may understand as “normative” in some contexts and “exotic” or foreign in others. The study of the Silk Road past, like all global phenomena, therefore, demands a plurality of perspectives. My work contributes to this goal by helping to demonstrate the value, for instance, of pursuing research on itinerant Islamic coinage from the vantage of the Caliphate and wider Eurasia, not just of Europe, and from the vantage of the material, not just of the human.

The application of New Materialist theories to archaeological materials offers a productive framework for investigating overlooked *intangible* connectivities in addition to tangible exchanges. This approach reveals the complexity of global trade and circulation. Few people traversed the entire Silk Road network, but it is perhaps unfair to suggest that long-distance Eurasian communities were not fully aware of each other’s existence (cf. Rezakhani 2010: 421). Some artefactual beings did traverse Eurasia. Because of these material movements, Silk Road scholars can scrutinize ancient processes of *deterritorialization*, in which social distance did not always correlate with spatial distance and where ancient individuals could begin to imagine the lives of long-distance communities they would never meet and to become familiar with non-local landscapes and cultural materials (Knutson 2020a: 624). In the globalized world of the Silk Road, artefactual beings, and other matter, including landscapes and ecological connectivities (Christian 2000), largely connected long-distance communities, rather than humans themselves. Materials traversing the Silk Road network claimed deterritorialized processes—they compelled humans who interacted with them to imagine places, people, materials, and practices outside of their own locality. Such processes created new interpretive communities. Across the Silk Road network,

itinerant objects became meaningful participants at various scales. Their visual, tactile, and material, and sometimes textual, qualities informed their interactions with humans and environments. Those ancient materials that survive archaeologically continue to inform human behaviour, meaning-making, and heritage in the present day, as I will explore further in chapter five. By devoting greater attention to artefactual beings and other nonhumans, their interrelationships with humans, and their own ways informing human decision-making and intangible practices, I argue that we paradoxically come closer to understanding ancient Eurasian individuals, and the communities they were at least indirectly connected to, than before.

## Chapter Four: Itinerant Assemblages and Global Networks

### Introduction<sup>7</sup>

In this chapter, I explore the potential for assemblage theory to contribute to current approaches in Social Network Analysis (SNA) and network thinking in Archaeology. I argue that assemblage theory offers improved explanatory models for understanding how social networks in the past aggregate, change, and disassemble over time at multiple scales. In recent years, network approaches in Archaeology have encouraged the study of complex assemblages. It is suggested here that materials, human actants, forces, and other matter need not be confined to any one geographically delineated space in order to constitute an assemblage. I reframe traditional definitions of "assemblage" to a broad one that does not discriminate between assemblages of itinerant objects involved in extended networks and those situated within a self-contained site or clearly delineated space. In addition, I demonstrate that the application of assemblage theory to network models provides a valuable theoretical foundation for better addressing the interconnected agency and relationality of entities and components in network structures. To evaluate the possibilities for applying assemblage theory to archaeological network research, I examine the movements of walrus ivory objects across the North Atlantic and Afro-Eurasia, ca. 800-1550 CE. A reconstruction of the social network involved in these itinerant materials reveals large-scale human movement patterns informed by economic behavior and political change. I argue that understanding the dispersed circulation of medieval walrus ivory as an itinerant, material assemblage allows for greater complexity in identifying and explaining social networks which generated economic change between medieval Europe and Africa.

As the twenty-first century continues to become a period of profound human movement around the globe, archaeologists are similarly becoming more globally-minded and are increasingly attentive to connections, exchanges, interactions, intersections, and movements (Knappett 2017, 2018). But the study of the global is certainly not new to the discipline; research on long-distance trade networks, the spread of technological innovations, material exchanges, and cross-cultural interactions have appeared in archaeological practice since the discipline's early beginnings. Over the past decade, however, these themes have found renewed relevance alongside anthropological interest in relationality, emergence, and historical change informed by social networks and interactions. These issues challenge archaeologists to better articulate how dynamic processes in the past can be detected in the material record with increasing explanatory complexity. Social Network Analysis (SNA), broadly encompassing a range of digital tools, computational models, and theoretical paradigms related to the study of social relations, has made significant contributions to these endeavors.

Broadly speaking, formally SNA methods in Archaeology have generally consisted of two approaches to archaeological data: (1) *model-based reconstruction* and (2) *archaeological similarity networks*. *Model-based reconstruction*, including agent-based models (Romanowska et

---

<sup>7</sup> This chapter is derived in part from an article published in *Journal of Archaeological Method and Theory* 2021 © Elsevier, available online: <https://doi.org/10.1007/s10816-020-09494-3>

al. 2019) and tie-based models,<sup>8</sup> acknowledges the fragmentary nature of archaeological evidence and seeks to infer network structures and connections in instances where they cannot be readily observed through mathematical models and the simulation of data (Rivers *et al.* 2013; Amati *et al.* 2018). While the observed patterns in these models do not directly represent reality, this need not be a problem and, as archaeologists have argued, model-based reconstruction can even be advantageous for testing agnostic patterns and processes before comparing the results with phenomena observed in the archaeological record (Graham and Weingart 2015). *Archaeological similarity networks*, meanwhile, are based on the evaluation of connections in existing archaeological data using similarity measures,<sup>9</sup> by assuming that co-presence and similarity in assemblages between sites are a proxy for the existence of connections (Coward 2013; Merrill and Read 2010; Munson 2015; Mills *et al.* 2013; Östborn and Gerding 2015). To build similarity networks, archaeologists make decisions about which contexts are similar enough to be connected--*i.e.* by which measure or parameters--and which exogenous factors must be accounted for or black-boxed (Östborn and Gerding 2014, 78). While similarity networks can reveal relational patterns in archaeological data, recent work has convincingly demonstrated that tightening archaeological definitions of similarity (Habiba *et al.* 2018) and statistical testing of these results is necessary for distinguishing between meaningful and random patterns (Östborn and Gerding 2014; Prignano *et al.* 2017).

These archaeologically-tailored methods have established SNA as a productive approach to some of the "big questions" in Archaeology, including social inequalities and power (Bentley 2003; Bentley *et al.* 2005; Pailles 2014; Schortman 2014), group dynamics, cultural interactions and trade-exchange (Crabtree 2015), ethnicity and other social identities (Blake 2014; Collar 2013a; Hart and Engelbrecht 2012) and human migrations (de Groot 2019; Fulminante *et al.* 2017; Mills *et al.* 2016; Sindbæk 2007). At its core, SNA's biggest contribution, and indeed the motivation for applying such methods to the archaeological record, is its emphasis on relational thinking (Collar *et al.* 2015). In network approaches, the ties between actors (nodes) define social connections, representing any kind of social relationships, such as economic exchange, shared identities, cultural affinity, or migration-based interactions (Mills 2017). Network thinking in archaeology has forced scholars to consider five main properties that have wide applications to archaeological materials, as Knappett (2011, 57) synthesizes: (1) networks highlight the relations between entities without presuming pre-defined boundaries or static processes; network models have therefore shifted archaeological thinking from static nodes on a distribution map to more dynamic perspectives that examine how a relationship between entities changes over space and time. (2) Network nodes and edges are inherently spatial and can be situated either in physical space or purely in relational terms. (3) Networks can exist at many different scales (even simultaneously); this means that a network model cannot neglect any individual or society under study, however marginal or peripheral, because network structures inherently recognize the contributions and interconnectedness of each node to the network whole. (4) Networks can consist of heterogenous entities, including both people and objects, and therefore, SNA methods can handle fragmented or diverse materials and datasets (Paliou and Bevan 2016). And finally, (5) Networks are inherently temporal, dynamic, and can reveal how complex social patterns and behaviors change over time (Knappett 2016; Brughmans *et al.* 2016). While it is important to

---

<sup>8</sup> See Evans (2016) for an overview of other tie-based models and their respective parameters.

<sup>9</sup> See Habiba *et al.* 2018, 65 for a general overview of the common similarity measures used in archaeology.

recognize that networks offer but one approach to relationality, SNA does offer a methodological advantage in its ability to handle diverse and varied datasets and the relations between dissimilar entities. As a result, network approaches can compliment other archaeological theories, such as entanglement (Hodder and Mol 2016), Actor Network Theory (ANT) (Latour 2005, Knappett 2011, Van Oyen 2016), and, as this chapter will explore, assemblage theory.

Although the SNA-based approaches I have described above generally share similar research goals, network analysis research is currently practiced, broadly speaking, in two different flavors in Archaeology. The first is the computational variety which relies heavily on large datasets and the use of agent-based, mathematical, and statistical network models (Mills *et al.* 2015, Brughmans and Peeples 2017; Brughmans 2010; Habiba *et al.* 2018) and has led to the formation of large research teams such as the Southwest Social Networks Project, based in Arizona. The second flavor is the metaphorical variety which invokes networks as extended metaphors in order to examine the relations between people and things in the past (McAnany and Hodder 2009; Knappett 2011; Hodder 2012; Pauketat 2012; cf. Munson 2015). One of the current central controversies among SNA research in Archaeology is the issue of whether SNA remains a useful approach if it is not supported with robust mathematical methods and statistical testing. While I agree with Munson's (2015) assertion that networks are not simply metaphors or heuristics for social interaction and relational phenomena, I suggest that both quantitative and qualitative approaches to network analysis can generate valid network models. In both cases, however, the SNA-generated models still require archaeologists to best *explain* the observed phenomena in the archaeological record, which in turn demands appropriate theoretical approaches. In this chapter, I will argue that assemblage theory offers improved explanatory power for understanding how social networks in the past aggregate, change, and disassemble over time, especially at and across multiscale levels.

### **Assemblage Theory in Network Thinking**

The wide usage of “assemblage” to describe archaeological phenomena and explain heterogeneity and complexity in the material record has long made the term intrinsic to archaeological vocabulary. Assemblage contains two related meanings: (1) the aggregation of objects of the same material or which share typological or stylistic similarities, and (2) the aggregation of diverse objects that share a distinct or defined context of variable scale (Hamilakis and Jones 2017, 77). Simply put, assemblage involves making a judgment about how to organize the archaeological record according to some organizational principle. This principle is established by determining a shared similarity which can be distinguished from other differences (Anderson and McFarlane 2011, 125). An enduring legacy of “assemblage” has been the articulation of the processes involved in the aggregation of materials and how these aggregations came to rest (Schiffer 1976). This concept continues to offer theoretical advantages for interrogating and interpreting the archaeological record based on revised definitions of what constitutes an assemblage. For instance, archaeologists no longer delineate assemblage boundaries around simply site-based materials; recent work has envisioned archaeological phenomena (and archaeological practice itself) as assemblages, consisting of any combination of materials, humans, animals, plants, forces, spaces, techniques, technologies, and ideas (Sindbæk 2010; Anderson 2012; Fowler 2013b; Cobb and Croucher 2014; Jervis 2016). In particular, the recent attention to

entities in the material record that are dynamic and mobile (Joyce 2015) demands an expanded definition of "assemblage" that does not prioritize aggregated materials within a self-contained site over aggregations of *itinerant* materials involved in extended, multi-site, long-distance networks. These broadened definitions of assemblage to include materials, actants, forces, and other matter therefore insist that these aggregations need not be confined to any one geographically-delineated space in order to constitute an assemblage.

Developed by philosophers Gilles Deleuze and Félix Guattari in *A Thousand Plateaus* (1987), "assemblage theory" makes two important moves towards a general logic of assemblages: (1) the rejection of unity in favor of multiplicity and (2) the rejection of essences in favor of events (Nail 2017, 22). In this theoretical framework, an assemblage is a multiplicity, neither exclusively a part nor a whole, and is defined by its relations of composition, mixture, and aggregation which operate at multiple scales. Therefore, all entities in the world, from the smallest atom up to a nation state can be described as the aggregation of smaller, heterogenous entities that interact in various ways and to various degrees to produce the assemblage "whole" (DeLanda 2006; Latour 2007; Harris 2016). Networks, after all, have no "natural" or presumed boundaries, their interactions are dynamic and situational, as has been the work of network studies of past social organization and state formation (Mizoguchi 2009; Munson and Macri 2009; Hart *et al.* 2017). "Assemblages" likewise do not contain any presumed boundary, nor do they connote any central governing power-only *centrality*, when we pair assemblage theory with network properties. Which brings us to the second point, that assemblages are not essences because they do not contain any "eternally necessary defining features, only contingent and singular features" (Nail 2017, 24). In other words, assemblages never ultimately congeal into a final essence or form, they are constantly aggregating and disassembling over time. Deleuzian assemblage theory foregrounds this dynamic relationality, defining assemblages as "living arrangements" of the relations between human and things in the world and emphasizing their dynamic aggregation<sup>10</sup> (Deleuze and Guattari 1987; Buchanan 2015). Gavin Lucas thereby concluded that most, if not all, objects are residues of previous assemblages (2012, 204). Assemblages thus actively configure and reconfigure under historically-contingent processes: as entities move between assemblages, their agencies and meanings likewise transform.

The development of Actor Network Theory (ANT) has similarly promoted nuanced attention to the interactions between *humans* and *materials* that constitute an assemblage (Latour 2007). ANT's emphasis on human-material relations gained traction among archaeologists in the early 2010s as they became more attentive to the reflexive, agentive nature of material relations, often termed "bundling" (Pauketat 2012), "meshwork" (Ingold 2011), or "entanglement" (Hodder 2012). However, it is worth discriminating Deleuzian and DeLandian assemblage theories from such concepts here because assemblage theory goes beyond the recognition of the interrelationships between people and materials and even the ways in which people and materials are themselves the outcome of such relationships (Harris 2016, 25). Instead, the two aforementioned properties of assemblage theory make assemblages distinct from other theories of relationality. First, assemblage theory addresses heterogeneity beyond the human and the material to incorporate the conglomeration of any combination of materials, humans, animals, plants,

---

<sup>10</sup> Such thought has informed "enchainment and fragmentation" theory, the assumption that material relations connect individuals by virtue of fragmentation and accumulation processes (cf. Chapman 2000; Brittain and Harris 2010).



forces, spaces, techniques, technologies and ideas more broadly and specifically asserts that these interrelations occur simultaneously at different scales. Secondly, assemblage theory specifically asserts the ways in which assemblages are always in the process of becoming, of aggregating and disassembling. And although the boundaries of assemblages are fluid, they are real historical entities that exist and have ontological reality—they are not impositions of the analyst (Harris 2016, 26). As a result, archaeologists can examine real social phenomena in the past—such as a medieval market, the organization of Classic Maya society, or the distribution of technological innovation in the Epipaleolithic—as multiscale assemblages.

In my view, assemblage theory stakes a significant theoretical claim in archaeological practice and is especially apt for the interpretation and explanation of network models in most if not all cases of social networks. SNA-generated models allow us to observe and richly describe social networks, but these models do not inherently explain them. Thus, I will examine the case study of medieval objects fashioned from walrus ivory and their circulation throughout the North Atlantic and continental Europe (ca. 800- 1550 CE) in order to demonstrate the utility of network analysis to expose extended, itinerant social networks and then the ability of assemblage theory to account for different forms of multiscale relational phenomena and how social networks assemble and disassemble. This chapter does not presuppose that the “social” implies exclusively the “human” and similarly, it does not attempt to prioritize or simply access the people behind the things. Rather, I work from the assumption that nonhumans are equally actors in social networks. As I will demonstrate, this case study models an itinerant social network that links nonhuman actors and through them, we can begin to identify the role of the otherwise absent humans in this network.

### **An Itinerant Assemblage: The Case of Medieval Walrus Ivory**

Medieval ivory offers a captivating case study for itinerant objects, because elephant and walrus ivory became one of the most prevalent materials sourced from nonnative fauna outside of continental Europe during the Middle Ages (Pierce 2009, 55). The preference of medieval European carvers for the ivory of the African Savannah elephant for its lighter color and softer material generated an insatiable market demand for African ivory. Therefore, before the first millennium AD, walrus ivory only occasionally appeared in European workshops. The Church patronized the carving of ivory crucifixes, reliefs, bishop croziers (see **Figure 16**), and devotional diptychs. Secular patrons equally desired ivory for the production of mirrors, combs, cosmetic vessels, hair parters, statuettes, and gaming pieces, not least the famous Lewis chessmen pieces, housed today between the British Museum, London and the National Museums Scotland, Edinburgh (see **Figures 17, 18, and 19**). This economic demand in turn generated a sophisticated international trade network between tenth-century Europe and North Africa via maritime trade centers including Constantinople, Venice, and Genoa (Barnet 1997, 3; Seaver 2009, 275). However, in the eleventh century, political turmoil within the Fatimid Caliphate in North Africa made trade routes into Europe unreliable, largely severing the circulation of elephant ivory from Africa into the Mediterranean (Guérin 2010, 161). These political and economic developments posed an immediate challenge to the European ivory market; however, the demand for ivory opened an economic opportunity for Scandinavian traders who responded by sourcing an alternative material to elephant ivory: ivory sourced from northern marine mammals, especially

walrus. During the early medieval period, walrus populations resided in the Barents Sea in the Arctic region and on Iceland and along the southern coasts of Greenland (which became the *norðrsetur*, the Scandinavian hunting grounds) in the North Atlantic. The resulting long-distance trade of walrus ivory required disparate communities across the North Atlantic, Scandinavia, and continental Europe to develop an alternative socio-economic network, consisting of new sources of contacts, infrastructure, and sustainable modes of exchange in response to the declining elephant ivory trade.



**Figure 16: The Allen crozier, likely crafted in the British Isles, ca. 1150- 1175 CE ©Trustees of the British Museum (CC BY-NC-SA 4.0 license)**



**Figure 17: Queen from the Lewis Chessmen set, likely made in Trondheim, Norway, ca. 1150- 1175 CE**  
©Trustees of the British Museum (CC BY-NC-SA 4.0 license)



**Figure 18: Walrus Ivory Game Piece with Hercules Slaying the Three-Headed Geryonca; Crafted in Cologne, Germany, ca. 1150 CE ©Metropolitan Museum of Art, New York**



**Figure 19: Throne fragment, made in Scandinavia, ca. 1150 CE (mounts date to 14<sup>th</sup> c.) ©Trustees of the British Museum (CC BY-NC-SA 4.0 license)**

The network involved in the mobilization and circulation of medieval walrus ivory contributes to two important issues in Archaeology, as posed by Frei *et al.* 2015. First, why did the Scandinavians attempt to colonize the harsh environment and supposedly ‘marginal’ land of Greenland during the medieval period—especially provided that eventually, the settlement ‘failed’ by the 15<sup>th</sup> century? Secondly, to what extent did long-distance flows of portable materials operate at such sufficient scale and intensity in order to stimulate major social change during the early medieval period? (Frei *et al.* 2015, 440-41). Traditionally, archaeologists have offered two hypotheses to the first question: (1) the Scandinavian colonization of Iceland and especially Greenland was motivated by the desperate search for farmland at the margins of the known world, and (2) these colonizing efforts were part of “a market-driven economic strategy” (Keller 2010, 1). By examining archaeofaunal evidence in early medieval contexts in Iceland and Greenland, Frei *et al.* 2015 convincingly elaborate on previous suggestions (cf. Vésteinsson *et al.* 2002; Keller 2010) that the initial Scandinavian exploration and settlements of Iceland (c. 850-75 AD) and Greenland (c. 980-90 AD) were motivated by the exploitation of local walrus populations rather than by the prospect of new agricultural opportunities. Frei *et al.*’s influential study briefly notes the archaeological evidence for a walrus ivory trade, namely crafted objects located in western and northern Europe, but they stop short of analyzing the movement of these objects outside their origin in the North Atlantic. The study convincingly responds to the first research question on the motivation behind the emergence of the Scandinavian settlement of Greenland but does not attempt to explain how and why the colony eventually collapsed and largely leaves the second question on the transregional circulation and impact of these materials open for future research.

The general distribution of marine mammal ivory from hunting grounds and trade centers in the Arctic region to Scandinavia and continental Europe between 800 and 1450 CE is known to specialists (cf. Roesdahl 1998; Roesdahl 2003; Star *et al.* 2018; Barrett *et al.* 2020). Although ivory involved in transregional trade and the medieval European market is found infrequently at some locales, some apparent centers of trade activity and craftwork have been identified, including Cologne, Germany and Paris, France, due to art historical scholarship. Archaeological research,

however, has largely focused on zooarchaeological and isotopic analyses of raw ivory and the source origins of walrus populations in the North Atlantic and Arctic that subsequently provided the material for transregional trade. While these studies have made invaluable contributions, the study of marine resource depletion gestures towards, but cannot independently explain, how the emergence and collapse of the broader, transregional walrus ivory network is connected to the collapse and later reemergence of the African ivory network. Meanwhile, most archaeologists have avoided the study of crafted ivory materials, which has fallen to the disciplinary realm of art historians, or otherwise have treated ivory objects exclusively as *exotica*, which understands such items as fetishes and thus external to pan-European mundane life (cf. Pluskowski 2004). As a result, archaeologists have yet to see a proposed systematic and dynamic model that explains the history, mobility, and shifting distribution of medieval walrus ivory beyond the Arctic and North Atlantic.

This study therefore builds off of the important research findings of previous scholarship (cf. Frei *et al.* 2015; Star *et al.* 2018; Barrett *et al.* 2020) and takes a macro-scale approach to walrus ivory materials, from a wider spatial and longer temporal perspective, in order to explain the emergence and collapse of this network. In order to examine the trans-regional socio-economic network behind the circulation of medieval walrus ivory, I delineated the extended assemblage of this material by locating the surviving archaeological and historical evidence for medieval human-sourced walrus ivory, either in the form of raw walrus tusks collected for trade or in the form of human-crafted objects produced from walrus ivory. This assemblage therefore consists of dispersed materials whose transitory locations in between circulation spanned from Greenland and Iceland in the North Atlantic and the Arctic to sites across Scandinavia and continental Europe.

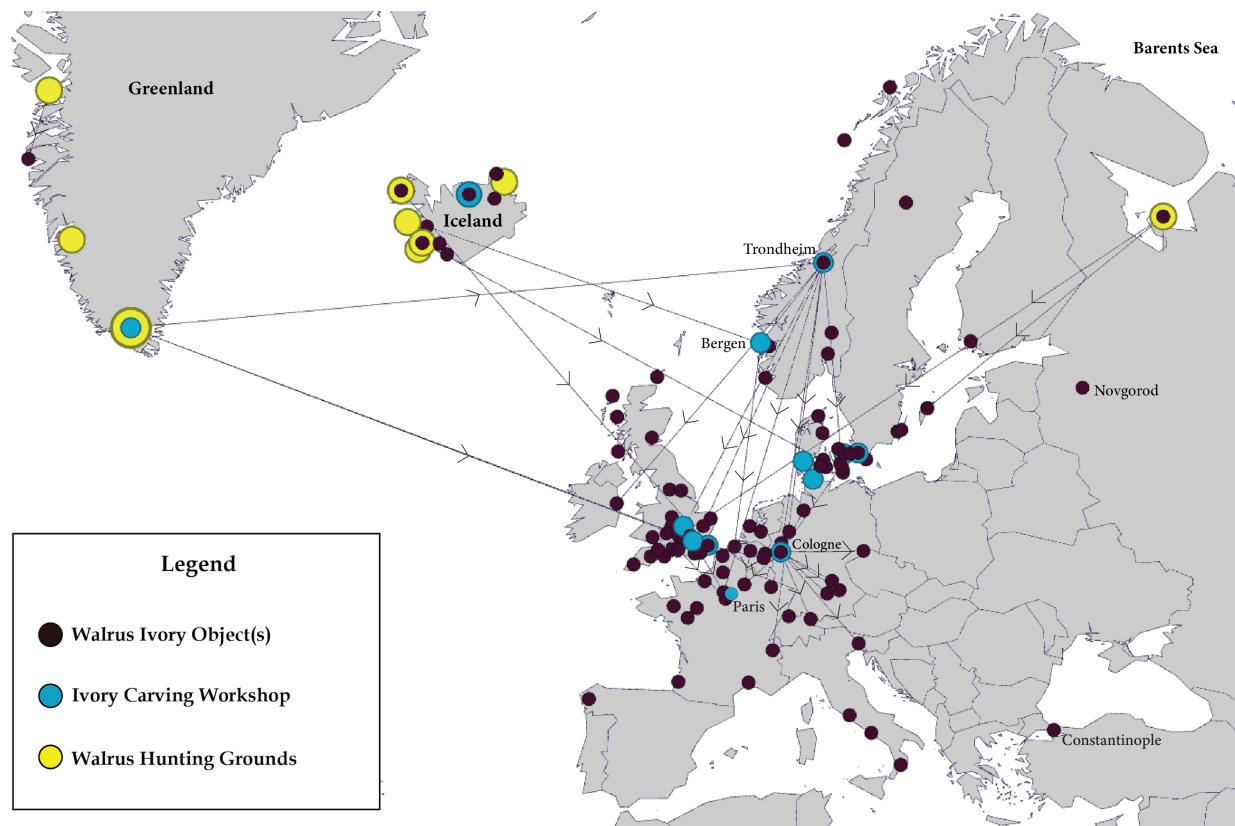
I therefore argue for the productivity of framing the trade and exchange of dispersed medieval walrus ivory materials as an assemblage. Single-material assemblages, sharing a common material but consisting of heterogeneous forces, actors, production histories, and locales, have received less theoretical attention in Archaeology than assemblages of heterogeneous materials united by, for instance, a shared spatial context or typology. However, some archaeologists have made significant contributions to the discipline by demonstrating the importance of examining homogenous material assemblages from a diachronic perspective, especially through network analysis, to reveal major economic and social change (cf. Golitko *et al.* 2012; Golitko 2015; Golitko and Feinman 2015). Single-material assemblages (including those not limited to any one demarcated space) are crucial for illuminating the arrangement of the material world and its influence on the social world (cf. Hodder 1985). They allow us to gaze into the overwhelming world of matter at the resolution of one material network in order to identify the interconnected forces and actants whose 'key symbolic actions' (Beaudry *et al.* 1991, 294) mobilized the material, for which purposes, and how these interactions and social behavior forged visible socio-economic change in the past. The assemblage of itinerant medieval walrus ivory similarly formed under a combination of forces and social patterns, including economic activity, supply and demand, trade and exchange, production, patronage, and collection. As part of the walrus ivory assemblage, these forces collectively produced a network devoted to the aggregation of a material across all stages of its itinerant histories, from its collection as raw material in the North Atlantic to its production as a craft medium in European workshops to its subsequent movements and exchanges. Throughout these aggregational processes, the components of the assemblage exchanged owners, changed intended uses, and connected otherwise disparate

individuals and places. Whereas many scholars have previously assumed that these ivory materials constituted only site-based or intraregional assemblages,<sup>11</sup> I understand this dispersed assemblage as a specific historical conjuncture that is not simply the reification of smaller-scale assemblages and therefore requires particular attention and explanation at the macro-scale. The scope of my work here, therefore, is different than the equally important research that gestures to the processes that influence which materials end up in a museum-based assemblage (cf. Philips 2011, 284; Terrell 2013). For objects that come to form assemblages in a museum-based collection operate at a smaller scale than assemblages of dispersed objects, most likely housed across many collections. Assemblage theory, after all, holds that objects can and are simultaneously part of multiple, overlapping assemblages; therefore, objects in the world can be dispersed across different locales and yet still form an assemblage while the examination of these objects at the scalar resolution of a museum or collection constitutes another kind of assemblage.

Today, the walrus ivory materials under study are housed in private and public collections that currently span an even wider geographic breadth than their circulation during the medieval period. Thus, to investigate this extended assemblage, my museums-based research involved locating and recording over 600 known walrus ivory objects, housed in 59 museum institutions and collections in the following 14 countries: Croatia, Denmark, Germany, France, Iceland, Ireland, Italy, Norway, Russia, Sweden, Switzerland, the United Kingdom, the United States, and the Vatican. I then collected data on these materials, including information produced from previous art historical research for crafted ivory items and archaeological analysis for raw ivory material with Arctic and North Atlantic findspots. In this process, I intentionally chose not to privilege traces of raw ivory found in archaeological contexts at the expense of ignoring the evidence of “finished” ivory pieces that are often considered art- or craftwork and therefore often relegated to art historical research. The data collection on these surviving ivory materials included (when known or able to be determined) their approximate age, their provenance, and any additional information on their circulation during the medieval period. To my knowledge, no one has interpreted these materials as constitutive of the same extended assemblage, nor sufficiently explained how these items came to be dispersed at an international scale from their initial, shared origin in the North Atlantic and Arctic regions. This study therefore presents the first synthesis of this data and takes a SNA approach, using the open-source network analysis and visualization software *Gephi* to model this social phenomenon during a particular historical juncture and applying assemblage theory to explain the model.

---

<sup>11</sup> This is not to downplay or overlook the importance of site-based and intraregional studies in Archaeology, particularly for SNA-based research; for example, see Habiba *et al.* 2018.



**Figure 20: Network of walrus ivory objects and their movements, ca. 800- 1550 CE © Sara Ann Knutson**

**Figure 20** shows the directed network graph of the circulation of over 600 known surviving medieval walrus ivory materials between 800 and 1550 CE. The subsequent network graphs in this chapter divide this composite graph into time-slices of 200 or 300 years to demonstrate the diachronic emergence and collapse of the network. In these network graphs, the black nodes indicate a walrus ivory object and its geographic location at some point along its itinerant history.<sup>12</sup> The edges represent an object's movement across geographic space and are shown whenever evidence exists for where the object relocated—any outliers in the model are therefore not products of the network methods but rather the nature of the surviving fragmentary evidence.<sup>13</sup> For example,

<sup>12</sup> Note that in order to visualize the movement of objects along their itinerant histories, the network graph does not visualize the distinction between nodes that represent a single object versus nodes that represent multiple objects at the same locale.

<sup>13</sup> Such evidence may include, for example, art historical data about an object's workshop origin based on stylistic similarities and archaeological data on the local origin of the raw ivory material from the North Atlantic region, based on *terminus post quem* dating. In the North Atlantic, medieval walrus populations existed on Iceland and Greenland; archaeological traces of walrus bone and ivory in early medieval contexts on Iceland suggest that Scandinavian hunting activity drove local Icelandic walrus populations to extinction around 1000 CE. Scandinavians began to settle Greenland around this time, suggesting that walrus ivory objects that date post-1100 CE increasingly originate from Greenland or the White Sea region (Frei *et al.* 2015). More recently, see Star *et al.* 2018 and Barrett *et al.* 2020.

a walrus tusk that was sourced from Greenland and provided the raw material for a carved draughts piece in a workshop in Cologne (see **Figure 18**) is represented in the network as two nodes: one on Greenland and one on Cologne, with an edge connecting the two nodes. It is therefore worth emphasizing here that these figures are *not* distribution maps, nor are they hypothetical or metaphorical representations—these network graphs, overlaid onto geographic space for the purposes of contextualizing the trans-spatial movement of these materials, are intended to model what this historical material network looked like based on the fragmentary evidence and existing data (cf. Larson 2013, 242), and they claim to represent historical reality in a way that a network metaphor does not intend to. The directed edges in the network graph, representing the circulation of materials, are therefore markers for the social (human and material) relations behind this network and therefore simplify what was a much more complex social phenomenon; the edges thus indicate broad but not always necessarily *direct* pathways between two nodes. This model therefore shares a limitation that quantitative and qualitative methods face, not just SNA approaches, in representing knowledge about a past phenomenon: the model purposefully oversimplifies a complex past in order to make the method useful for presentational and analytical purposes. As with most models, archaeologists can only determine an object's "input" and "output"—its origin and its site of deposition in the archaeological record—without knowing much about the object history in between, a challenge Sindbæk (2013) termed the "black box problem" in archaeology. Because the walrus ivory model here was built to highlight the relationships and interactions involved in the *movement* of itinerant objects across geographic space, the model omits other possible visualizations which could optimize the visualization of other network properties.

As a whole, the network graph reveals some large-scale patterns, otherwise imperceptible on the micro-level of an object. Some of these patterns confirm previous research on medieval ivory and its circulation. For instance, based on quantitative data, the model corroborates previous arguments that the majority of walrus ivory from Greenland entered Europe first through the Norwegian Kingdom (Gaborit-Chopin 1978). After all, Norway maintained political hegemony over the Scandinavian North Atlantic during this time and therefore had primary access to its economic and natural resources. The network graph visualizes Norway's brokerage role in the export of Greenlandic ivory which became not only a viable but profitable economic venture. Based on the structure of this reconstructed model, one might expect that the collapse of certain nodes, such as the influential trade and craftwork hub at Trondheim, to have powerful residual effects on the entire network structure, as I will later discuss.

### ***The Relationship Between Assemblage Parts and Wholes***

The network model offers new information on the ivory assemblage based on the macro analysis of the mobility and geographic extent of these itinerant materials and the complex network that mobilized their movement. The model itself, however useful for visualizing this data on a macro-level, requires the explanatory power of assemblage theory to theorize how the phenomena under study emerged. To begin, one advantage of integrating assemblage theory into network thinking is its useful framework for articulating the relationship between assemblage *parts and wholes*. DeLandaian assemblage theory describes assemblage components as *autonomous* parts, a reworking of Deleuzian thought which maintained that assemblages are neither parts nor wholes. This framework has found resonance among New Materialists in Archaeology (Normark 2010;



Harrison 2011; Lucas 2012; Olsen 2010; Olsen *et al.* 2012; Witmore 2014) who have repositioned agency as an egalitarian, animating force between humans and nonhumans within assemblage wholes and their constituent parts. DeLandian assemblage theory inculcates the argument that an assemblage's properties emerge from the interactions between its parts; consequentially, assemblages increase in both scale and complexity as additional components are added (DeLanda 2016, 12; DeLanda 2006; Buchanan 2015, 388). The interactions between assemblage parts, therefore, have agentive, detectable effects.

This theoretical attention to parts and wholes therefore emphasizes two key properties of assemblages: (1) the agentive capacities of assemblage parts affords the assemblage whole distributive agency (Bennett 2010, 34) and (2) this distributive agency of assemblage wholes enables them to act as “*more than the sum of [their] parts*” (DeLanda 2006, 5; cf. Bennett 2010, 24; italics are mine). Reframing networks as assemblages built of autonomous components—each with their own agentive power—enables the researcher to identify how the aggregation of interacting parts produces action and meaning that exceed the sum of these components exerting agency alone (cf. Jervis 2016). In network terms, the agentive capacity of the network structure is not the composite sum of its local interactions, it is the result of aggregated, complex interactions operating simultaneously at different scales to produce action that no component alone is capable of. This approach dispels the presupposition that network analysis of the local resigns scholars to focus only on individual agencies or that attention to macro-scale processes necessarily implies less analytical accountability to smaller-scale phenomena.

For the purposes of the case study, I will examine how the emergent walrus ivory assemblage maintained agentive power and left appreciable, large-scale effects in ways that no individual assemblage component alone was capable of. The network model reveals the interactions of different network components, however the researcher chooses to delineate them, but requires further interpretation of the macro-scale effects of these interactions. The walrus ivory assemblage whole emerged from the social interactions and agencies of humans and nonhumans spanning across continental Europe, Scandinavia, the Middle East, and Africa, to the ecological fringes of the known world in the North Atlantic, and included settlers, hunters, traders, merchants, craftworkers, patrons, ivory materials, the forces of economic supply and demand, artistic and cultural preferences, and technological innovations. Before the first millennium, when elephant ivory still circulated the European market, very little activity existed around the mobilization of raw or crafted walrus ivory (see **Figure 21**). But the collapse of the African ivory trade in the eleventh century sparked remarkable economic demand and over the next three centuries, the new, intricate social network devoted to walrus ivory circulation emerged (see **Figure 22**). Art historians estimate that ivory items crafted in Europe between 1000 and 1300 CE were almost exclusively from walrus materials (Williamson 2010; 2014). By 1200, England alone had already established two centuries of ivory craftwork, again, almost always from walrus ivory. In both cases, the reorientation of markets and workshops in England and, more broadly, continental Europe to walrus ivory would not have been possible without their connections to other key parts of the assemblage, the social actors in Scandinavia and the North Atlantic.

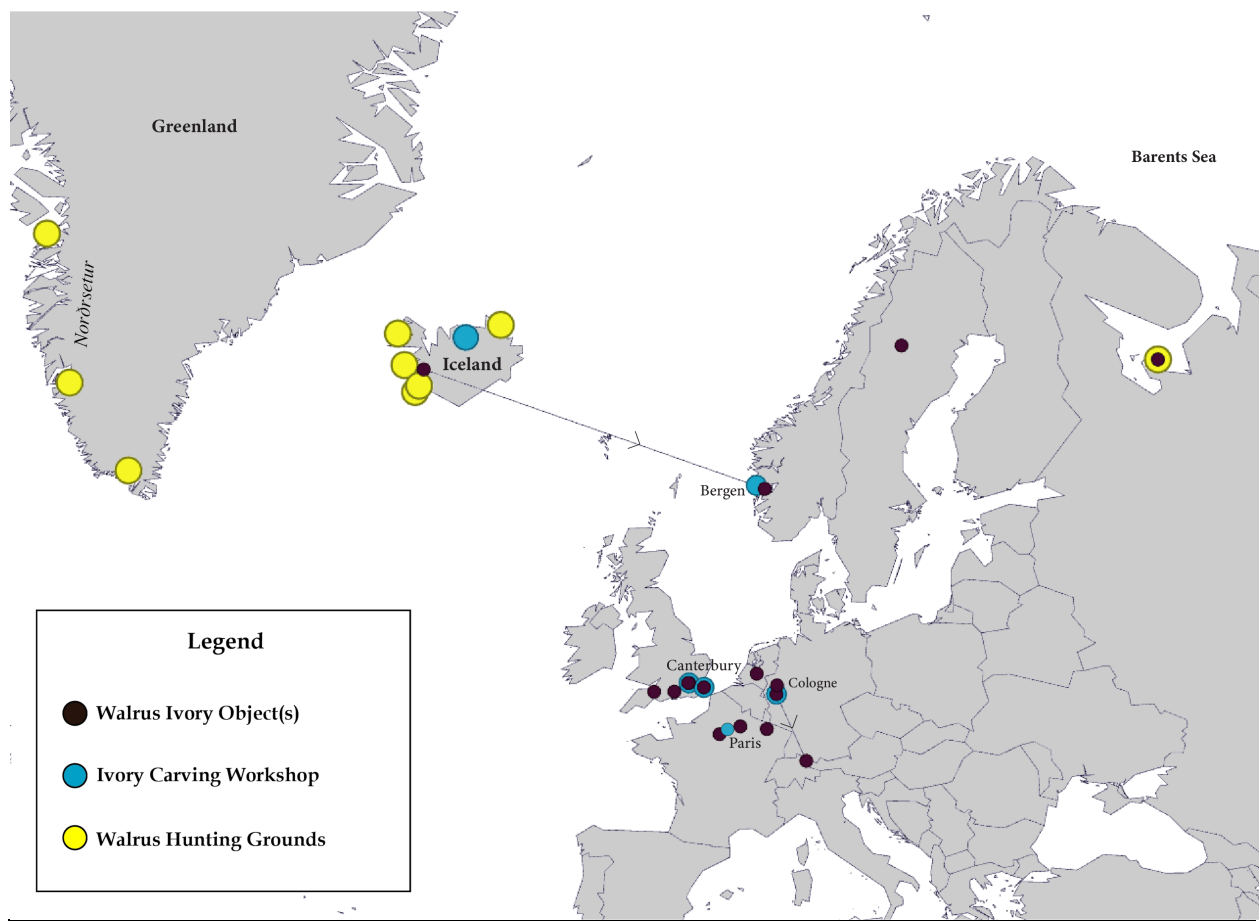
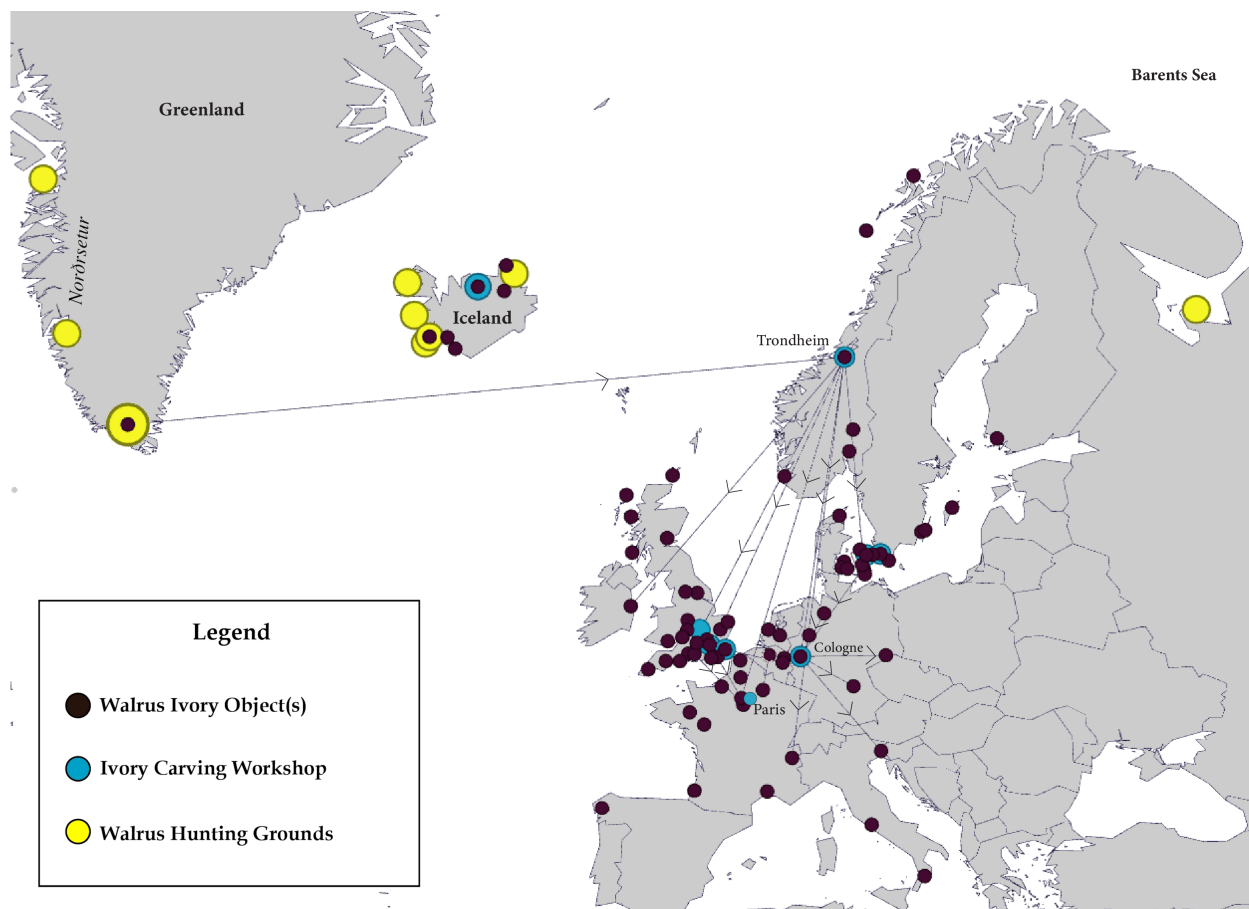


Figure 21: Network of walrus ivory objects and their movements, ca. 800- 1000 CE © Sara Ann Knutson



**Figure 22: Network of walrus ivory objects and their movements, ca. 1000- 1300 CE © Sara Ann Knutson**

The structural changes in the network model, as revealed by the time-slices, speak to the emergence and transformation of the walrus ivory assemblage over time and reveals how people and spaces, once unconnected in these ways, came to forge local, regional, and transregional relationships. However, what is only clear from pairing the model with assemblage theory is that these connections did not simply work collectively at the regional (network component) level, where the sum of these regional-scale relations constitute the assemblage whole; instead, the assemblage whole operationalized these connections, making them possible to emerge at all and then to be sustained over time. For instance, in 1327, approximately 520 walrus tusks were shipped to Bergen via the archbishop of Trondheim as a tax to finance the Norwegian King Magnus Eriksson's crusade against Novgorod (Munch 1864, 25; Keller 2010, 3-4). After all, medieval trade records document that the Norwegian crown preferred Scandinavian communities in the North Atlantic to pay their taxes in ivory. From Bergen, this shipment reached a Flemish merchant, who most likely dispersed the ivory to local workshops or other trade centers. Archaeologists estimate that this ivory shipment alone was worth more than the collective annual tax from four thousand Icelanders (Keller 2010, 5-6). At the regional level, this shipment signified the mobilization of wealth for North Atlantic communities and the Norwegian king, and different actors within the Scandinavian part of the assemblage made this process possible. However, at the level of the assemblage whole, the movement of walrus ivory materials becomes not simply about

mobilizing wealth but about the accumulation of an economically and socially valuable material, which required international, long-distance interconnections.

Ultimately, the agency of the walrus ivory assemblage stimulated social change on a scale that no sum of its parts alone could have produced. Continental Europe shifted to an alternative market that relied almost exclusively on Scandinavian-controlled resources where, two centuries before, the market had operated almost exclusively on connections to the African ivory trade. The reconfiguration of the European ivory market towards different regional distributors and a different material of ivory, suggests the extent of new infrastructure, connections, contacts, and sustained modes of exchange that was required to maintain the medieval European ivory market demand throughout the Middle Ages. The movement of marine ivory to southern Germany, for instance, did not arrive directly from the source origin in Greenland but instead entered western Europe first through nodes in brokerage positions. For its part, the network graph reveals how such smaller components were connected to and depended upon intermediary nodes for the distribution of ivory, and therefore operated within the assemblage whole in ways and at a scale that these components alone could not have achieved. In this way, the economic demand at trade and artistic centers like Cologne and Paris had profound effects for humans and materials over 3,000 kilometers away because they were broadly connected in a dispersed assemblage. Such hubs of artistic and economic activity that supplied smaller locales with ivory (the ‘pendants’ in the network graph) became anchors that sustained the network whole. Therefore, constraining the study of the medieval ivory trade exclusively to a limited number of component parts without properly addressing the assemblage whole obscures the fundamental role that each component played in supporting the macro-scale network.

The network graph furthermore reveals how social activity that surrounded the circulation of ivory materials generated global socio-economic change; at the resolution of the assemblage whole, we can better comprehend how political-economic developments in eleventh-century North Africa influenced activity on Greenland, located at the supposed fringes of the known medieval world. These transcontinental effects developed from the emergence of the walrus ivory assemblage and then with its later collapse and disaggregation, was once again the result of political-economic developments in Africa and the Middle East. Scholars have speculated about the various factors that may have contributed to the resumption of the African ivory trade to Europe in the thirteenth century, including an expansion of transregional trade, the crusades as a reopening of extended contact between Europe and the Arab World, and early colonial activity which weakened the Arab monopoly on exports from North Africa (Roesdahl 1998; Roesdahl 2003; Stratford 1987, 107; Wilson and Ayerst 1976, 26-7). The walrus ivory trade substantially declined and by the mid-fourteenth century, there was once again an abundance of African ivory in Europe and only a small number of walrus ivory materials still circulated from the North Atlantic to, and across, Europe (see **Figure 23**) (Lasko 1984, 211). Following the reopening of the African ivory trade into Europe, the ivory trade in the North Atlantic and Arctic regions declined and, as the next section will explore, the walrus ivory assemblage consequentially disassembled. The collapse of this three-hundred-year social network, however, demonstrates the impressive long-distance interconnections that had to be established and sustained in order to supply the medieval ivory market. As a disassembling assemblage, the walrus ivory trade reminds researchers that these connections are neither natural, automatic, nor self-explaining. The long-distance flows of portable marine ivory had effectively simulated transformative, international social change, not least by

propelling new communities and activity in the North Atlantic and by generating an innovative new social network that operated at a transcontinental scale to connect what were otherwise disparate communities located thousands of kilometers apart.

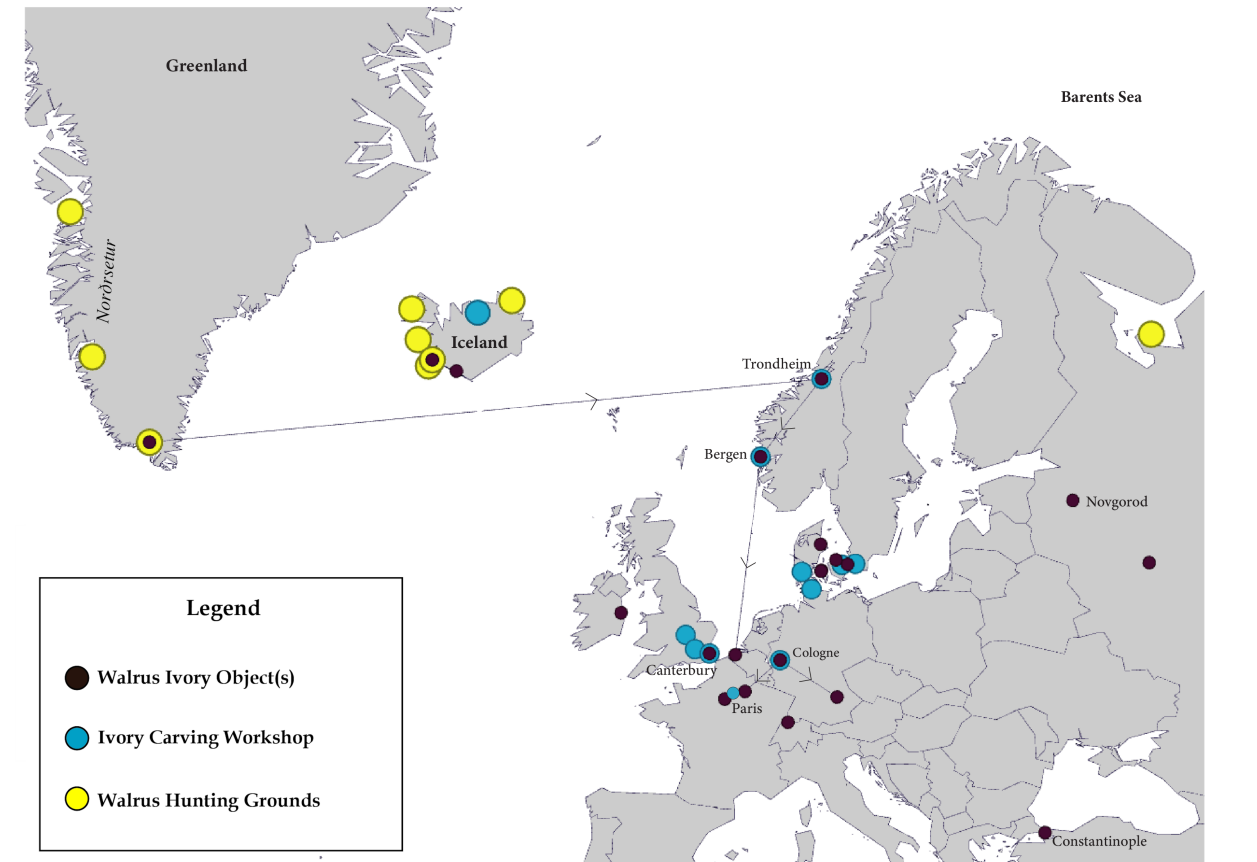


Figure 23: Network of walrus ivory objects and their movements, ca. 1300- 1550 CE © Sara Ann Knutson

### *Intra-Assemblage Interactions*

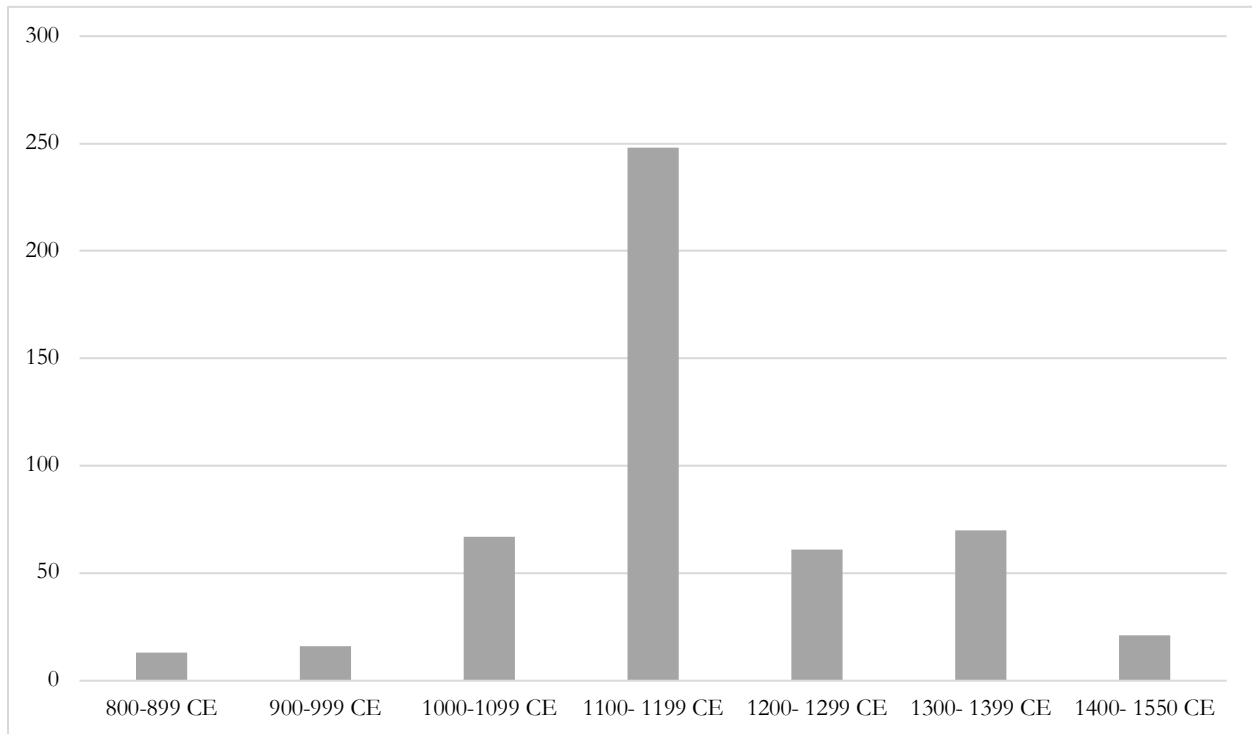
In addition to assemblage theory’s capacity to shed light on the agentive power of assemblage wholes, this theoretical approach offers another significant advantage for network models: the articulation of agencies and effects at multiscale levels. As previously discussed, SNA has demonstrated a powerful capability to visualize and examine the diachronic, network-wide effects of local relationships (Mickel 2016) because these methods require the researcher to recognize and account for how even the largest, trans-regional networks have local effects. As a result, archaeological research sometimes receives criticism when the explanations of network models exclusively examine the structure of the network whole at the expense of overlooking smaller-scale processes within the observed network or doing so in reductionist ways. However, recent archaeological applications of assemblage theory are addressing these concerns through greater attention to *intra-assemblage interactions* and the effects that multiscale relations generate within the assemblage whole (Lucas 2017, 188; Harris 2017). Some regional-scale assemblage studies (Allen and Cochrane 2007; Jervis 2016) have even anticipated the application of

assemblage properties to macro-scale network models and the benefits of identifying different crosscutting structures of social interaction at each spatial resolution (cf. Mills *et al.* 2015). For example, Jervis' study of social relationships in medieval urban life argued that towns are more accurately interpreted as stratified, multi-scalar assemblages and that social action at one scale will have implications for others (2017, 16). This relational thinking readily overlaps with SNA's emphasis on accounting for macro-scale relations without obscuring or homogenizing the local differences that produced them. Therefore, examining a network model at different scalar resolutions with specific attention to the relationship between network components and the whole offers a powerful framework for identifying how these multi-scalar interactions operate both separately and together in order to generate visible effects. When researchers evaluate multi-site networks as assemblages, multiscalar intra-assemblage interactions become more intelligible and researchers can better articulate the processes that render these interactions visible in the archaeological record.

The walrus ivory network graph contains many examples of components that demonstrated agency as an assemblage part and how this agency in turn influenced the assemblage whole. For my purposes here, I will focus on one significant example of a component in the walrus ivory assemblage: the activity on Scandinavian-colonized Greenland. Recent studies revealed that Scandinavian activity on Iceland depleted walrus populations to extinction around 1000 CE (cf. Frei *et al.* 2015, 458). As scholars have observed, it hardly seems coincidental that Scandinavians then began colonizing Greenland at this time and that from the year 1000 onwards, the walrus ivory that appeared in Europe came increasingly from Greenland (Roesdahl 2003, 46). Framing the social network on Greenland as an active assemblage component that operated independently as well as part of the assemblage whole—at different scales—supports the argument that economic demand for ivory motivated the Scandinavian colonization of Greenland. Most importantly, this framework also more effectively articulates the social relations that operated at such sufficient scale and intensity to sustain the entire network structure and how Greenland's tenuous connection to the network whole can help explain the later decline of the Scandinavian settlement. Previous archaeological work on medieval Scandinavian contexts on Greenland have revealed local and regional marine hunting and farming activity. Placing the Greenlandic assemblage component into the wider assemblage now enables the researcher to observe how the less obvious transregional connections anchored Scandinavian activity and settlement on Greenland.

Assemblage theory, as previously discussed, productively attends to the intra-assemblage interactions of assemblage parts; this framework thus implies that it is the agency of intra-assemblage interactions that effectively makes the assemblage whole a multi-scalar phenomenon. Therefore, in this case study, assemblage theory requires the researcher to examine social activity and processes on Greenland as an independent assemblage part as well as to articulate how this assemblage component informs the entire network structure. The network model in **Figure 21** suggests that only a small handful of walrus ivory materials circulate pre-1000 CE, none of which can be traced to a determinable ivory exchange on Greenland. The model then reveals the circulation of over 460 objects between 1000 and 1550, the majority of which date to the twelfth century (see **Table 1**). The vast majority of the post-1000 CE walrus ivory materials originate with high probability from Greenland, although a smaller portion may have originated from the Barents Sea region (cf. Barrett *et al.* 2020, 12). Due to the fragmentary nature of the evidence for walrus ivory circulation, the network model does not reveal the strength and frequency of connections

between Greenland and Europe; however, the mobility of these objects becomes readily more visible in the network model once they appear on the European continent. Assemblage theory can, in turn, help with “black box” of the Greenland component within the network whole.



**Table 1: Frequency of medieval walrus ivory materials in Europe, ca. 800-1550 CE © Sara Ann Knutson**

In order to explain the medieval ivory trade from the perspective of Greenland, I delineate the assemblage component of Greenland as constitutive of colonizing Scandinavian communities on Greenland, local Scandinavian settlements and infrastructure, marine hunting activity in the *Norðrsetur* and the consequential ecological processes of marine mammal population decline in the North Atlantic, local and regional exchange that connected Greenland to Scandinavia and continental Europe, the, and the bidirectional flows of economic and cultural capital (cf. Bourdieu 1986) that emerged from these long-distance interactions. Framing these forces and social activity within the same assemblage component enables us to observe how these complex processes interacted in order to mobilize ivory materials at a far larger scale. Even though the network graph cannot model the movement of materials within and from Greenland to the same extent as in Europe, it nevertheless provides framework for thinking about how networked social structures facilitated certain activities and behaviors and curtailed others. Assemblage theory then mobilizes this methodology by insisting that social relations are always behind networked interactions and developments. Assemblage theory therefore requires the researcher to attribute distributive agency to the social activity on Greenland, represented by the nodes and edges that connect Greenland to the network whole. This social activity mobilized a significant amount resources, labor, and external long-distance relationships to other regions and locales in order to sustain the Scandinavian settlement that supported this lucrative, but challenging, economic venture in the North Atlantic. The network graph additionally reveals Greenland as an assemblage component that was connected, almost exclusively, to Scandinavia’s brokerage position. Based on this

observation of the network structure, researchers can better articulate how Greenland maintained an effective monopoly on the ivory chain (cf. Star *et al.* 2018, 6) while also simultaneously confronted continual internal pressure to fulfill European market demand. The network structure demonstrates that the European hubs relied as much on eleventh- and twelfth-century Greenland for sustaining the ivory market as much as Greenland relied on the economic demand for sustaining the Scandinavian settlement and these intra-assemblage interactions. If one were to remove the tenuous interconnection between Greenland and Europe (via Scandinavia) in the network model, the network would collapse.

Particular analytical attention to the role of Greenland as an autonomous assemblage component within the larger network structure also allows for a better articulation of the multiscale patterns of social activity on Greenland that both informed and were influenced by the assemblage whole. **Figure 22** reveals the circulation of walrus ivory at its peak, powered by Greenlandic exchange, including the majority of objects which cluster in western and northern Europe and a smaller number that move to the Mediterranean and southern Europe. By the fourteenth century (**Figure 23**), walrus ivory materials still circulated between Scandinavia to Europe, but these movements are appreciably less frequent and are increasingly confined to the lower Rhine region and Northern France with a few rare exceptions. Thus, while the long-distance flow of ivory from Greenland to Scandinavia lingered after the twelfth century, the geographic reach of these materials largely retracts to regional locales near the main hubs of economic and artistic activity. These observations on the changing network structure between Greenland and the assemblage whole across the medieval period can be explained by the emergence and decline in the walrus ivory assemblage in response to the medieval African ivory trade, which some scholarship has alluded to but had not been able to analyze at a sufficient scale. This network model supports the claim that developments in the medieval African and North Atlantic ivory trades were interrelated and similarly lends support to previous arguments that the Scandinavian colonization of Greenland was economically driven by the (temporarily) lucrative walrus ivory trade. The model demonstrates that the timing of the emergence and decline in connections between Greenland and Europe in the network model aligns with the collapse and reemergence of the African ivory trade, in the eleventh century and beginning in the mid-thirteenth century, respectively. As assemblage theory maintains, **assemblages emerge in response to a stimulus, are transient, and their effects leave visible material traces**. Before the year 1000, walrus ivory materials entered Europe in limited numbers because of the higher market value and demand for the African variety. Following the resumption of the African trade in the thirteenth century, we observe a sharp decline in walrus ivory materials circulating Europe, with just approximately 20 known pieces circulating after 1400 (see **Table 1**). The research of Star *et al.* (2018) has indicated that the White Sea trade likely did not supply walrus ivory to the European market at the same scale as Greenland nor for as long. The evidence for the decline in circulating walrus ivory materials in Europe therefore strongly indicates that the ivory trade from Greenland in particular declined with the renewed supply of African ivory. The walrus ivory assemblage thereby collapsed, giving way again to the assemblage that had preceded it. Given the preference for African ivory and therefore, its higher market value, the relative value of walrus ivory presumably dropped, rendering the Scandinavian venture in the North Atlantic no longer profitable.

Previous work on SNA methods in Archaeology has similarly discussed network collapse, particularly in response to transforming economic and social conditions (Gotliko *et al.* 2012).



Assemblage theory further helps explain this phenomenon in its emphasis on the fluid assembling and disassembling of assemblages. As Mickel (2016) observed, "the creation of the archaeological assemblage involves as much disassembling as it involves aggregation" (1095). Indeed, networks and assemblages are always only temporary, for they assemble and disassemble over time in response to a variety of factors and leave traces of their effects. In the case of the walrus ivory, however enduring its effects and traces, the transregional assemblage itself eventually collapsed in response to new economic and social networks. Developing across impressive geographic distances, the walrus ivory assemblage was neither stable nor given and highly depended on sustained connectivity with continental European hubs, and the interactions of human actors, materials, supporting infrastructure, and processes of interaction for its existence (cf. Conrad 2016, 102). The medieval ivory trade therefore illuminates how networks assemble and disassemble based on the relationship between parts and wholes. The assembling of Scandinavian activity on Greenland, as an integral component of the network, was largely made possible by a European market demand for a material that was otherwise inaccessible from North Africa for almost three centuries during the medieval period. Later, after reorientation of the European market to the African ivory trade, the Scandinavian communities on Greenland appear to have lost the economic incentive to continue large-scale sourcing marine mammal ivory. The tenuous connection between Greenland and Europe therefore collapsed after the reopening of the African ivory trade and was perhaps even further exacerbated by the possibility of resource depletion in the most accessible walrus hunting areas of Greenland (cf. Barrett *et al.* 2020). The transregional walrus ivory network largely disassembled by the mid-fourteenth century and in turn, prompted the internal disassembling of the Greenland network component. Eventually, the Scandinavian communities on Greenland dissipated as the declining revenue could not sustain the settlement in an unforgiving environment (cf. Keller 2010) and as Scandinavian Greenland's dependent economic exchange with Norway declined, further compounded the demographic impact of the Black Death (Dectot 2018, 167).

## **Discussion & Conclusion**

This chapter has presented a theoretical development of network-based research in Archaeology, from the perspective of assemblage theory. Following Deleuzian and DeLandaian thought, I have argued for an expansion of traditional archaeological definitions of "assemblage" to include materials, human actants, forces, and other matter which need not be confined to a shared spatial context (however delineated) in order to constitute an assemblage. The productivity of uniting Social Network Analysis (SNA) methods and network thinking with assemblage theory has been examined through a case study on the medieval walrus ivory trade. In this research, I have argued for framing the sourcing and circulation of walrus ivory as part of a dispersed, itinerant assemblage, united by its shared material and origin in the North Atlantic. This study of dispersed materials, currently housed in museum collections, contributes to existing archaeological scholarship that understands objects as material traces of past social connectivity and movement.

As informed by the case study, I argue that assemblage theory's main contribution to Archaeology is to provide a theoretical framework, concepts, and common vocabulary for explaining, not simply describing, networks and relational phenomena in the archaeological record. This framework allows archaeologists to focus on understudied phenomena, including itinerant assemblages, inter-assemblage interactions, human-material interactions, and the

transformation of assemblages through processes of assembling and disaggregation. Assemblage theory has explanatory power that can tell us things about networks that we did not know previously. Not least, assemblage theory allows us to broaden our judgements of what may constitute a social network (and an assemblage), to untangle networks into multiscale phenomena that require attention to the independent effects at each scale as well as the effects of the network whole acting as more than the sum of its parts. The materials that I have discussed in my case study are not random; this set of dispersed things in the world could not be thought of as a social network and an itinerant assemblage without the theoretical framework of assemblage theory. This framework therefore mobilizes social network methods in order to generate a model that enables researchers to examine the network whole and to begin explaining its structure with historical and archaeological evidence.

As a whole, the contributions of assemblage theory to archaeological networks compel researchers to think in different ways, to ask more diverse research questions, and to challenge traditional lines of interpretation. For instance, Munson (2015) has drawn attention in her SNA-based research to the necessity of reconciling “varied scales of observed phenomena with culturally meaningful forms of explanation, which currently remains a central challenge in Archaeology” (429). Assemblage theory offers one productive framework for addressing this challenge and better articulating multiscale relational phenomena in the archaeological record. The application of network modelling and the explanatory perspective of assemblage theory to the case study has revealed dispersed, transcontinental social networks behind the emergent medieval ivory trade. This work has shown that the long-distance flows of ivory materials operated at remarkable scales and intensities to generate transregional social and economic change because of the relationship between the assemblage whole and its components and their respective agentic effects. These social connectivities spawned a complex assemblage of itinerant activity which propelled the formation of new communities and shifted an economic market at the scale of a continent towards a new, emergent supply chain situated at the ecological edges of Europe. The case study has also explored how assemblage components operate both independently and as part of the assemblage whole to generate effects. As such, assemblage theory helps explain Greenland’s structural connection to the network whole which created an advantageous monopoly over the ivory supply but also was easily severed by the re-emergence of the African ivory trade. Most importantly, the application of network modelling with assemblage theory has helped to explain the medieval walrus ivory network as neither natural nor stable: the social network of ivory emerged in response to a stimulus (a market demand), left material traces of its effects, and similarly disassembled in response to a stimulus (the African ivory trade).

Finally, readers may note that I have used “network” in this chapter to connote the representational network model and “assemblage” to refer to the conceptual or theoretical phenomena; I have mainly adopted this terminological distinction for ease of reading and to distinguish between explanations of model versus concept. However, I understand assemblages and networks as, theoretically speaking, the same phenomena, bundles of social relations that contain no predetermined boundary and are always in the process of assembling and disassembling. In this chapter, I noted a distinction between Deleuzian and DeLendian assemblage theories in their distinct approaches to the conception of assemblage parts. Scholars may consider this distinction to be irreconcilable, but I do think this is the case, particularly from a New Materialist interpretation that follows Karen Barad’s conception of the ‘agential cut’ (Barad 2007).

Gilles Deleuze introduced the notion of the *plane of immanence*, on which all materiality exists as continuous, but heterogenous matter (cf. Grosz 2017, 136) and the Deleuzian assemblage theory similarly frames assemblages as heterogenous, boundaryless, conglomerates of materials. DeLandian assemblage theory simply chooses to make an ‘agential cut’ to the continuous matter within an assemblage, opting to delineate what the analyst determines are theoretically useful subcomponents. This concluding point is important because in archaeological applications of assemblage theory and networks, the archaeologist must always make a judgment regarding what are useful limits or organizational principles that theoretically define the network and assemblage and its parts. For instance, while this study has treated the respective medieval elephant and walrus ivory trades as separate assemblages for the purposes of analysis, these assemblages in reality were by no means mutually exclusive. It would be a mischaracterization not to recognize that many actors, materials, forces, and spaces were readily involved in both assemblages; therefore, these overlapping assemblages feature striking similarities as well as distinct differences. It is perhaps more accurate to describe the later medieval elephant ivory trade in Europe as a residual assemblage of the walrus ivory trade, which was in turn a residual assemblage of the preceding elephant ivory trade. Humans, materials, and other matter belong simultaneously to multiple, emergent assemblages that assemble and reassemble as they circulate throughout the world over time. As assemblage studies in archaeology underscore, assemblages lack predefined boundaries—their limits depend on their intra-actions at any given time (Fowler 2013a, 246).

While this chapter has focused on the applicability of assemblage theories to network analysis, I would like to briefly recognize that network thought also has much to offer the future theoretical development of assemblage theory. For example, formal network analysis reminds us that even fragmented archaeological signatures have a place in network models, because of the focus on *relations* rather than entirely on *substance*. This point should inform applications of assemblage theory, which also need not assume that assemblages must consist of only stable, invariable, comparable things, traits, or properties (Van Oyen 2016, 35). Therefore, the adoption of both approaches, network analysis and assemblage theory, in archaeological research may prove to offer reciprocal benefits: assemblage theory provides necessary theoretical perspectives to network analysis as discussed above and network analysis can offer future assemblage theories discipline-specific methods, tools, and visualization techniques for unraveling the complexities of how the relations of people, matter, and forces operate in specific historical contexts.

## Chapter Five: Islamic(ate) Global Archaeology and Heritage Futures

### **Introduction: Pursuing Islamic(ate) Cultural Heritage Through Coins**

This dissertation has examined museum-based ivory objects and coinage from the Islamic World as materials that became deposited into the archaeological record across Afro-Eurasia, including those that were involved in complex processes of collection through which these materials came to be currently housed in museums and archives. On a broad level, this dissertation has demonstrated that the ancient circulation of valuable materials, such as ivory or silver, indicate not only influential global economic networks but an equally complex past of human and material movements that connected long-distance communities across Afro-Eurasia in powerful, irreversible ways. This chapter, however, is not strictly about the past but also the present and future. The COVID-19 pandemic has compelled archaeologists to find alternative methods to pursue the questions that have typically been addressed through excavations and other forms of fieldwork. Materials housed in GLAM (galleries, libraries, archives, and museums) contexts offer important opportunities for traditional archaeological evidence, such as coinage, as well as what is known as “legacy data” to contribute to timely discussions in Archaeology. It is important to ask how GLAM evidence can be used to democratize Archaeology and expand its impact to local communities. But instead of asking what archaeological research can offer local communities, I argue that it is important to flip the question and ask: how can local community members be actively involved from the outset, in archaeological research design as well as its outcomes, rather than simply remain the recipients of research that they may not always have meaningful connection to or stake in?

This question has powerful ramifications for the study of surviving Islamic coinage, much of which today is located in museums around the world, predominantly in Europe and the Middle East, but has been studied predominantly in the context of the Ancient Eurasian past (Lowick 1976; Kovalev and Kaelin 2007; Audy 2018; Burström 2020; Gruszczyński *et al.* 2020; Ingvarðson 2020). Consequentially, these important objects of archaeological and cultural heritage value often remain largely inaccessible to local source communities while scholarship has not yet considered the value of knowledge production surrounding Islamic coins from individuals and communities beyond the Academy. In this dissertation, I have understood these archaeological materials as important evidence of social networks in the Eurasian past, not least in the role that *the circulation* of Islamic coinage played in the Silk Road. But I also argue that these Islamic coins are more than simply remnants of an ancient past: they contain a variety of complex cultural, social, and political meanings to people around the world today.

To understand these various meanings of Islamic materials during the COVID-19 pandemic, during which time research travel and access to museums remained unpredictable if not entirely inaccessible, I conducted an international online survey of people connected to the Middle East and North Africa (MENA) region. The survey was available in both English and Arabic and requested anonymous, individual-reported information about how people understand their relationship to museums, Islamic objects, and the construction of cultural heritage. By sharing this survey opportunity on online forums such as social media posts, Facebook groups, list serves, as well as word of mouth, online communities helped me to reach people around the world with whom I share an active interest and engagement in Islamic and trans-Eurasian cultural heritage.

The survey ran between June 2021 and November 2021 and when it closed, the survey contained responses from over 130 individual respondents. It should be made clear that the results from this survey are not generalizable—I do not suggest that these data are in any way representative of the vast number of people who culturally identify with the MENA region nor of any other stakeholders who are connected to this region. The results presented in this dissertation are based on preliminary data and analysis taken from the survey on 27 October 2021; the data discussed here therefore does not represent the final total sample of respondents when the survey closed on 01 November 2021.

In this chapter, I will discuss the preliminary results and analysis of this international qualitative research survey. The online survey consisted of individual respondents culturally connected to the MENA region as well as respondents who identified as professionals working in and/ or on the MENA region in a cultural heritage field or related sector, such as Anthropology or Archaeology. I developed this survey with the objective of gathering information on how contemporary individuals connected to the MENA region understand their relationship to museums, museum-based Islamic(ate) materials, and the construction of cultural heritage. I also investigated how respondents understand Islamic(ate) heritage in relationship to the ancient Silk Road network. As discussed in Chapter three, previous scholarship rarely recognizes Islamic materials like ‘Abbāsīd coins as part of the ancient Silk Road past, which has more often provided a framework for Chinese and Central Asian studies and cultural heritage work. In developing this cultural heritage survey, I hypothesized that the cultural heritage represented in ‘Abbāsīd coins, like other Islamic(ate) materials, is significantly more diverse and multifaceted than much previous research allows and cuts across national borders, languages, and far distances. Informed by the preliminary results from this survey, I argue that Islamic coins are more than simply curiosities in museum collections: they contain a variety of complex cultural, social, and political meanings to people around the world that would otherwise remain unintelligible to anthropologists, archaeologists, historians, and other researchers in the Humanities and Social Sciences. The values of these stakeholders reveal the often understated and under-explored importance of museum-based assemblages for Islamic(ate) heritage and archaeological futures and the values that are placed on past and present global networks in the construction of Islamic(ate) cultural heritage.

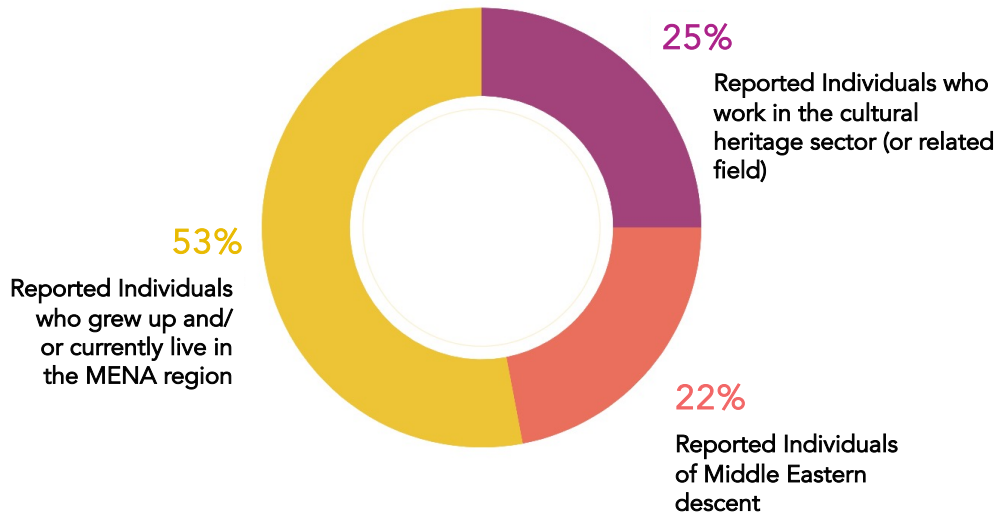
Cultural heritage is understood by scholars to be an inheritance of practices, identities, and values from the past, be they tangible or intangible (Cleere 1996; Meskell 2011; Harrison 2013). In the countries which were sources in the past of the coins under examination, or in those countries where such materials are now held in museums, few studies have examined notions of “heritage.” Exceptions include the essays in the volume *Archaeology Under Fire* (Meskell 2002a) and some key critical studies of archaeologies of the Middle East (Pollock and Bernbeck 2005; Bahrani 2006; Al Quntar 2017). Outside the MENA region, there is a vast literature on how descendants, source, and local communities view archaeologically excavated materials as “heritage.” Some of the key works deal with sites that are World Heritage (Meskell 2018). The Elgin Marbles are a key example of heritage whose movement in space was not inherent to the form—architectural sculpture—and that rally sentiment from source communities and others (Merryman 2009). Close to the coins under examination here would be the heritage status of objects that were made to be portable. The Benin Bronzes, looted by the British military, have recently attracted a great deal of attention (Hicks 2020). Coins, however, were made to be transacted, and so there are few, if any, scholarly works about them as points of connection to local populations. This project will provide the first such study. In this chapter, I will demonstrate how I have chosen to address this issue and

how I have incorporated stakeholder values into my research design. I intend to demonstrate the magnitude of this kind of work in Archaeology, namely in its importance for local communities, the opportunities for self-reflection among researchers, as well as for the preservation of heritage and the exciting possibilities to take academic research in new directions.

## Survey Demographics

In this section, I will provide some demographic data on the anonymous reporting respondents. Over half of reporting individuals identified as growing up and/ or currently living in the Middle East and North Africa region (see **Figure 24**). A quarter of individuals identified as of Middle Eastern descent and slightly less than a quarter of individuals reported working in the cultural heritage sector or a related field, like anthropology or archaeology. In the survey, the respondents also reported demographic data, including their religious affiliation, where they grew up, and their education level. Slightly over half of the respondents identify as Muslim with the other half reporting as non-Muslim or who chose to not disclose their religious affiliation (see **Figure 25**). **Figure 26** reveals the countries where respondents reported growing, however they chose to define this. The pending survey sample includes people who have grown up in most of the Arab or Middle Eastern countries but some countries, such as Yemen, are regrettably but understandably not represented in this survey. I suggest that the wide range of countries outside the MENA region represented in Figure 26 also speaks to the large diaspora as well as to the diversity of the cultural heritage professionals who also took part in the survey. Finally, I was delighted that the survey was able to appeal to people from a wide range of education levels and backgrounds (see **Figure 27**). On the whole, the sample of survey respondents includes people who are well-educated with 55% of respondents reporting a master's degree or higher, education level. 37% of respondents reported having a bachelor's degree. 1% of respondents reported having some secondary education and the remaining 7% reported a high school degree. In presenting this demographic data on the respondents' cultural or professional connection to the MENA region, their religious affiliation, the location where they grew up, and their education level, it is important to note that there are, of course, biases in the respondent sample, as in all data, in regards to the demographics represented in this survey.

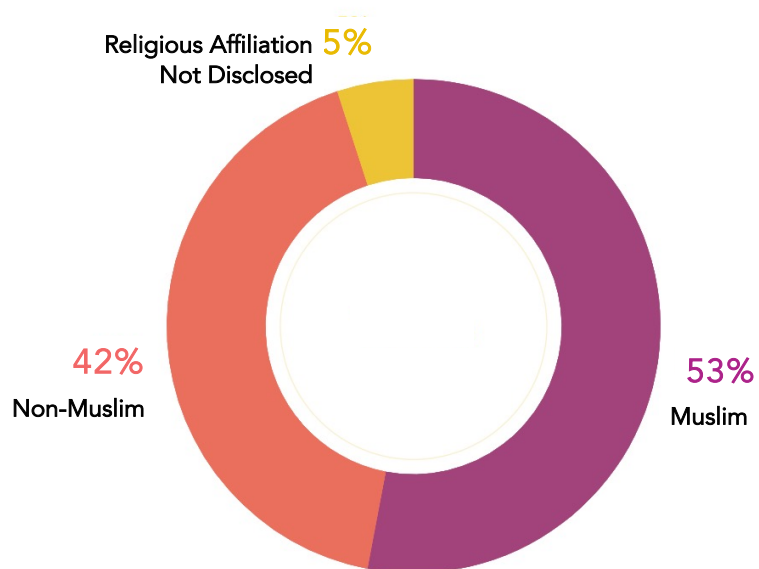
## The Survey Respondents



Pending Survey Results (as of October 27, 2021)

**Figure 24: Reported Demographics of Respondents in Cultural Heritage Survey**  
© Sara Ann Knutson

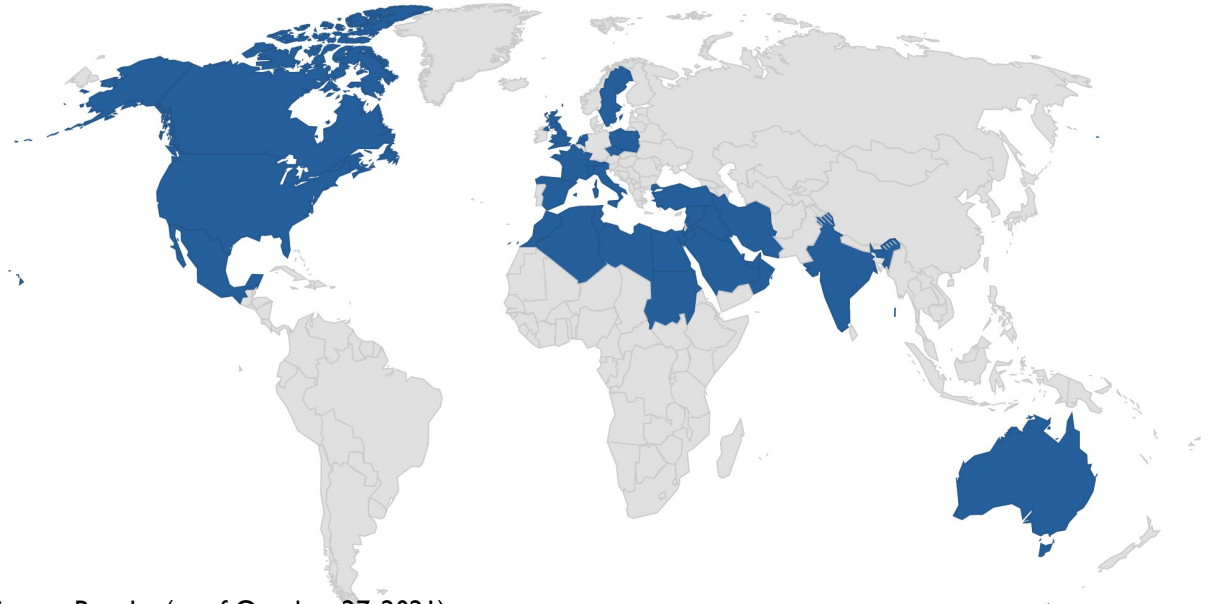
## The Survey Respondents: Religion



Pending Survey Results (as of October 27, 2021)

**Figure 25: Reported Religious Demographics of Respondents in Cultural Heritage Survey**  
© Sara Ann Knutson

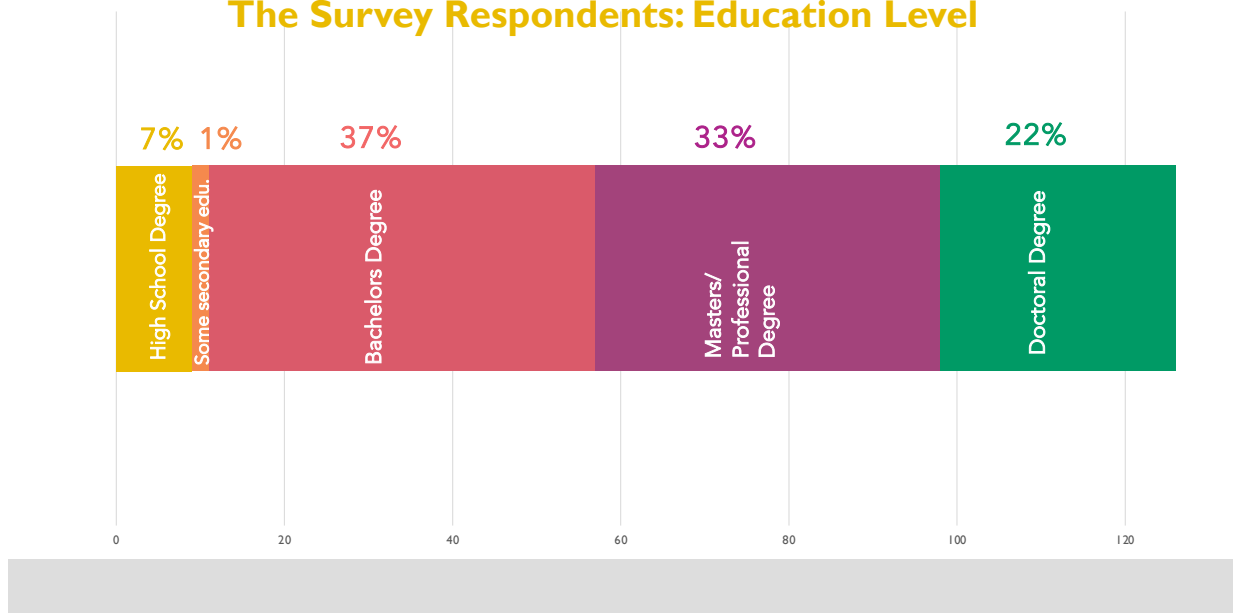
## The Survey Respondents: Where they grew up



Pending Survey Results (as of October 27, 2021)

**Figure 26: Reported Country of Childhood Residence of Respondents in Cultural Heritage Survey**  
© Sara Ann Knutson

## The Survey Respondents: Education Level



Pending Survey Results (as of October 27, 2021)

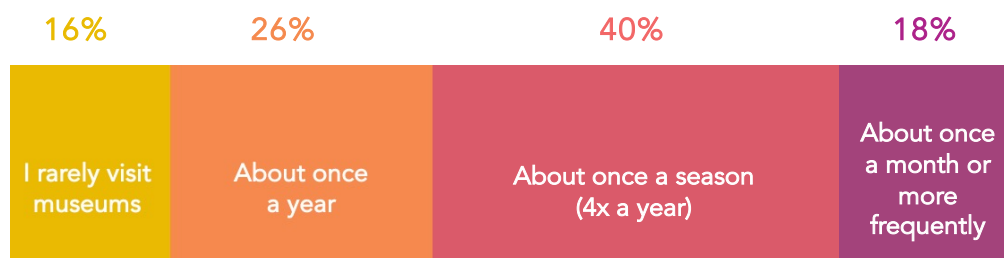
**Figure 27: Reported Education Demographics of Respondents in Cultural Heritage Survey**  
© Sara Ann Knutson



## The Survey Results and Discussion

The survey contained a variety of questions related to museums, cultural heritage, and global networks. For example, the survey asked respondents how often they visited museums before the COVID-19 pandemic (see **Figure 28**). About 16% of respondents reported that they rarely visit museums, 26% reported once a year, 40% reported once a season, and 18% reported attending museums once a month or more frequently. This data indicates that overall, the respondents represent what I consider a fairly active museum-attending sample, with over half of respondents attending museums at least once a season and the majority attending museums at least once a year. Based on this data, I hypothesize that there was a correlation of some kind between survey respondents who are interested in cultural heritage and the past and those who attend museums. That said, this data also indicates that museums are certainly not the only space or way that interested individuals are engaging with cultural heritage and engaging in knowledge production. It is of course also a worthy question for future research to examine whether and how these statistics might change in light of the COVID-19 pandemic.

### Before the COVID-19 pandemic, how often did you visit museums?



**Figure 28: Reported Museum Attendance Frequency (Before the COVID-19 pandemic)**  
© Sara Ann Knutson

In addition to museums-related questions, I asked respondents in the survey questions about their understandings of the Silk Road, its global cultural heritage, and the role of the Middle East and Islamic World in these ancient global networks. I designed these questions particularly because I understand the Islamic coins under examination in this dissertation as important traces of ancient Eurasian networks and I argue that the circulation of Islamic coinage played an important role in the later Silk Road network. Therefore, in the context of cultural heritage connected to the MENA region, I was curious about public understandings of the Silk Road and the Middle East's role in this ancient past. When I asked respondents in the survey about their understanding of the Silk Road, the vast majority (95%) reported that they were at least aware of ancient Silk Road (such as from school, a museum exhibit, personal travel experiences, reading, or even studying the Silk Road in detail) and only 5% reported that they had never heard of the Silk Road or were only vaguely familiar with the term. I then asked respondents: What do you think is the most important contribution of the Middle East to the Silk Road? For this question, the survey prompted respondents to select one choice from a predetermined list of options or to offer

their own response. **Figure 29** demonstrates the survey results to this question. In this figure, the size of the circles is proportional to the number of individuals who selected each category. Figure 29 therefore reveals that the majority of respondents answered the question “What is the most important contribution of the Middle East to the Silk Road past?” by selecting the option, “the development of the Middle East/ Islamic World as a center of trade, exchange, and commerce.” This selection is followed by the second most frequently chosen option: “the construction of important Silk Road cities like Petra and Palmyra” and in third place, “the spread of Islam across Eurasia.” Options like “the creation of a ‘global’ currency based on Islamic coinage”, or “the exchange of Islamic art” or “the exchange of the Arabic language” were less popular selected options.

## What do you think is the most important contribution of the Middle East to the Silk Road past?



**Figure 29: Reported Ranking of the Middle East’s Most Important Contribution to the Silk Road Past**  
© Sara Ann Knutson

Already this data provides significant information about respondents’ values, perceptions, and understandings in regard to the Middle East and the Silk Road past. The purpose of this question was not to suggest that people do not care about the exchange of art or the spread of the Arabic language during ancient times. Indeed, a number of respondents wrote in the comment section that they understood that all of these options are important contributions from the Middle East to wider Eurasia. As is the case for all constructed categories, the various developments and processes that I listed in the survey are in reality not as mutually exclusive as these categories would appear to suggest. But framing the question in this way sheds light into what the respondents *value*, namely in the context of the Silk Road. And the results also shed light on how people understand, or have been taught the history of, the Silk Road. These results seem to suggest that in the popular imagination, the Silk Road is still very much a conceptual framework for

understanding the overland movement of trade and commercial goods, even if, as a scholar, I personally understand the value of the “Silk Road” primarily as an analytical model and as an important historical, trans-Eurasian network for the movement of intangible practices (see Chapter three). In the case of this question, the survey respondents’ responses provided a useful reality check and a reminder that simply because scholars may interpret Islamic coinage in a certain way, that other people do not necessarily need to, or will, share the same values and ideas as researchers. And the goal of my research is not to prioritize one form of value judgment over another.

Another approach in the survey that I used in order to analyze respondents’ values was to ask them to evaluate levels of importance based on a question. For example, I asked respondents: “How important to you is it that Middle Eastern communities are recognized for their contributions to the Silk Road past and their connections to other Eurasian communities? **Figure 30** demonstrates the respondents’ responses to this question, where the majority (85%) of respondents reported that the recognition of Middle Eastern communities in this context was either somewhat important or very important. Only 10% of respondents reported that this issue was “not that important” or “not important at all” to them.

### How important to you is it that Middle Eastern communities are recognized for their contributions to the Silk Road past and their connections to other Eurasian communities?



**Figure 30: Reported Ranking in Importance for the Recognition of Middle Eastern communities’ Contribution to the Silk Road Past © Sara Ann Knutson**

In another question, respondents were provided a list of broad geographic areas that can be considered, broadly speaking, “Silk Road” cultural regions. I posed the question: “which broad Silk Road region (outside the Arab World) holds the most personal or cultural significance or interest for you?” In **Figure 31**, the circles are, again, proportional to the number of respondents who selected each option. I was surprised to discover that most respondents selected the Classical/Hellenistic Mediterranean from the predetermined list of cultural regions. Persia was selected as the second most popular option, followed by Eastern Europe, Central Asia, and East Asia which each contained roughly the same number of respondents. My intention with this question was to gather a sense of how contemporary values might correlate with ancient trans-regional networks. Or put a different way, outside of the Islamic world, which specific cultural regions or “sub-

networks” of the Silk Road network seems to capture the most interest for contemporary communities who are culturally connected to the Middle East? This means that even if the past, constructed around the “Silk Road,” does not necessarily hold much interest or carry much weight to some individuals, their interest in another region’s ancient past might still carry some meaning, even if the wider, global network may not.

### Which broad Silk Road region (outside the Arab World) holds the most personal/ cultural significance or interest for you?

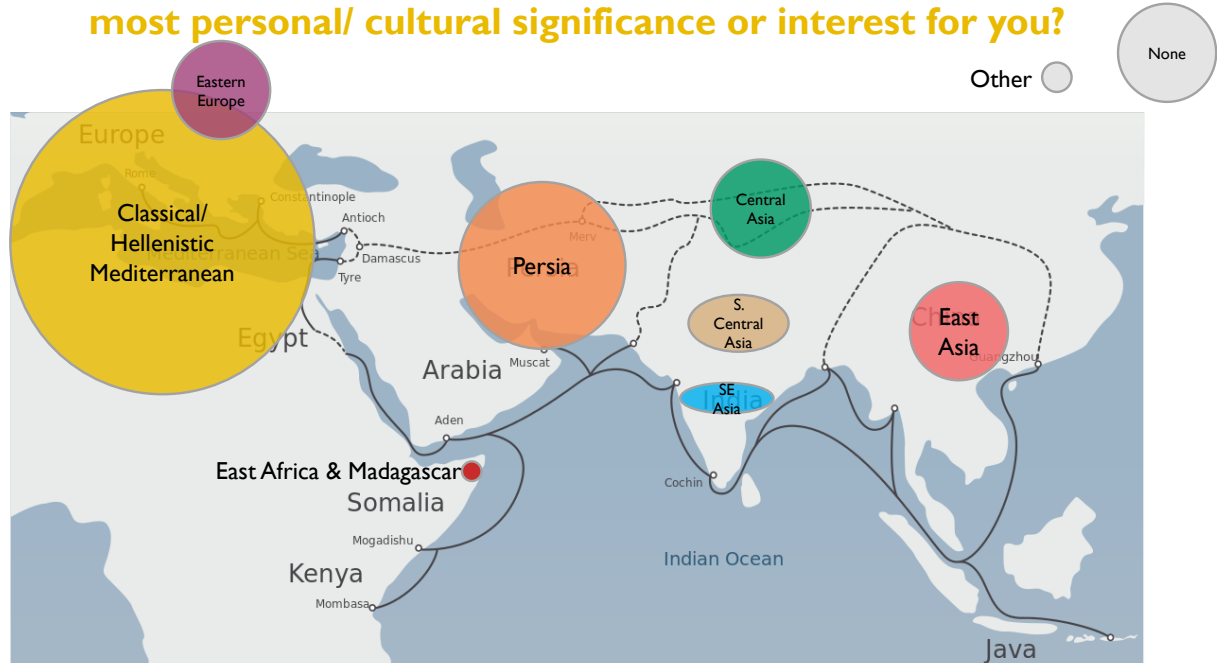
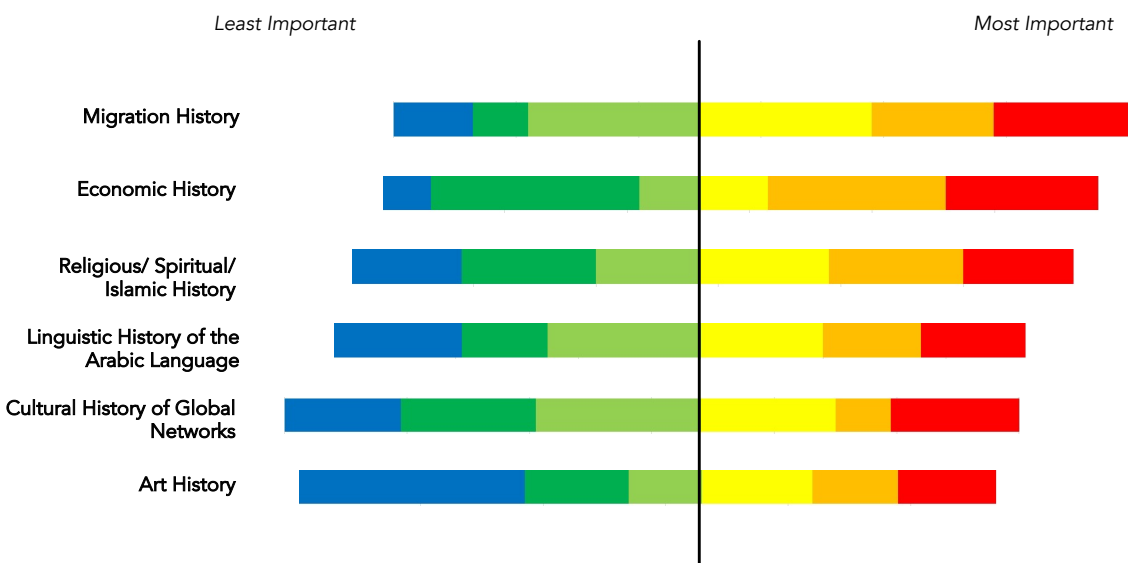


Figure 31: Reported Ranking in Interest for a Broad “Silk Road region” (Outside of the Arab World) © Sara Ann Knutson

Beyond the Silk Road, I also asked respondents questions related specifically to Islamic coins. Firstly, I was interested in what broad type of historical analysis interested respondents the most in the context of archaeological materials like coins. I gave respondents a predetermined list of categories (migration history, economic history, religious/ spiritual/ Islamic history, linguistic history of the Arabic language, cultural history of global networks, and art history) and I ask respondents to rank these categories, from most important to least important. **Figure 32** visualizes the reported results and presents the data by examining the top three most important categories, according to the survey respondents. For example, for migration history bar at the top, the red bar indicates the number of people who valued migration history as the most important topic for coins, the orange bar indicates the number of people who valued migration history as the second most important, and the yellow being the number of individuals who valued it as the third most important category. The data for this question show, firstly, the wide range of interests among respondents when thinking about materials like coins from various modes of historical analysis. For each predetermined category, the survey revealed a number of respondents who valued the topic as most important as well as a number of people who valued the same category as least important. As a result, there was not an overwhelming trend in the values that respondents reported, but based on the top three categories, survey respondents ranked migration history, economic

history, and religious/ spiritual/ Islamic history as the three most important types of history in this question.

## What type of history is most important to you when thinking about ancient materials like coins? (rank in order of importance)



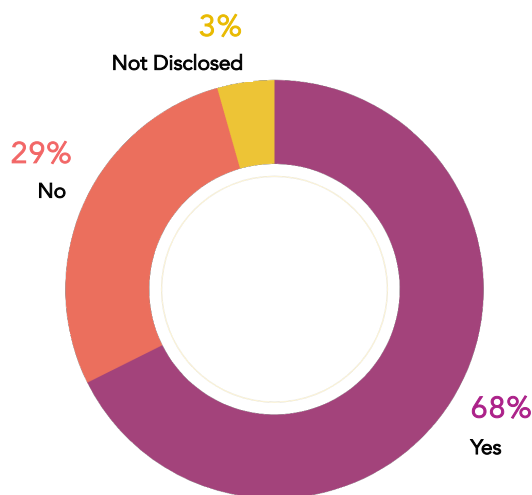
**Figure 32: Reported Ranking in Personal Importance for Types of History in Relationship to Ancient Materials Like Coins © Sara Ann Knutson**

The final section of the cultural heritage survey turns back to role of museums in cultural heritage discussions with reference to the specific Islamic coinage (‘Abbāsīd) that I have examined in this dissertation. As Figure 9 in Chapter three indicates, ‘Abbāsīd coins were minted at locales throughout the ‘Abbāsīd Caliphate, spanning across North Africa, the Arabian Peninsula, the Levant, parts of modern-day Turkey and the Caucasus, Persia, and parts of modern-day Afghanistan and Central Asia. The ‘Abbāsīds exchanged these coins not only within their own borders but also with wider Eurasian communities across Afro-Eurasia. As a result of these global exchanges, these materials have been uncovered archaeologically across Eurasia, as discussed in Chapters two and three. Partially as a result of where these coins were found archaeologically, today these materials are often displayed in museum collections across Europe in addition to museums in the Middle East. As I have discussed in the introduction of this chapter, there is a vast body of scholarship on how descendent, source, and local communities view archaeological materials as “heritage.” The Benin Bronzes and the Ishtar Gate are just two examples that rally sentiment from source communities and other stakeholders, particularly because they were looted from source communities by foreigners under processes of colonialism. I want to be clear in joining these conversations on heritage that the Islamic coins that I have examined in this dissertation by and large came to Europe under different circumstances than the examples of the Benin Bronzes and the Ishtar Gate. Islamic coins were made to be transacted and for circulation across different communities, both within and beyond the Caliphate. But as a result, there are few, if any, scholarly research on these coins as points of connection to local populations. That is my intervention in

these conversations. And I argue that just because Islamic coins were willingly transacted in the Islamic past does not mean scholars do not have to pay attention to how these materials are displayed to the public and to the curated narratives regarding these coins.

In the survey, I do not provide this brief context to these coins, in order to not bias the survey responses. I only mentioned that many of the Islamic coins are located today in museum collections in Europe. And I asked respondents, “Do you see these specific material collections in Europe as part of your cultural heritage?” This question was sometimes off-putting to stakeholders who are of white European descent, as they reported in the survey. However, this was intentional because I wanted to examine the range of values and perspectives across different respondent backgrounds. As **Figure 33** shows, 68% of respondents responded “yes” to this question while 29% indicated “no”. I will further break down these responses according to the reported demographic data in order to show the role of intersectional identities in this question.

**Do you see ‘Abbāsīd coins (that are housed in European museum collections) as part of your cultural heritage?**



**Figure 33: Reported Understanding of ‘Abbāsīd Coins Housed in European Museums as Part of Respondents’ Cultural Heritage © Sara Ann Knutson**

For respondents who identified as of Middle Eastern descent or have family living in the Middle East, 79% responded, yes, they understand these materials as part of their heritage. One respondent described that they identified with the coins as Muslim and therefore saw the materials as a connection to Islamic history and its wider articulations in culture: “Yes, [the coins] connect me as a Muslim to the history that was grounded [in] Islam and it allows me to understand how Islam turned from a religion into a culture, architecture, politics, etc.” Another individual revealed that the coins connected them to their ancestors and their families' origin:

“نعم، لان اسلافي عاشوا في الدولة العباسية.”

(English translation: “Yes, because my ancestors lived in the ‘Abbāsīd state.”)

One respondent wrote that, “Abbasid coins...belong to the political, socio-economic, and cultural environment in which they were created and introduced.” They also added that they see themselves also “belonging to this environment” and therefore they understand these materials as part of their

heritage. Other respondents responded no, explaining that coins are “less meaningful to [their] cultural heritage than other materials. They only represent one particular historical government” or that they felt “no connection” to these materials because they had never personally seen one.

For respondents who identified as growing up and or currently living in the Middle East, 70% responded yes to the question “Do you see ‘Abbāsīd coins (that are housed in European museum collections) as part of your cultural heritage?” and about a third responded, “no.” Overall, this response indicates a fairly similar statistic to reporting respondents who identify as of Middle Eastern descent as described above. Among the respondents who identify as growing up and or currently living in the Middle East, a number of people described being connected to ‘Abbāsīd coins in association with an Arab identity: “As an Arab, it is only natural that I consider them part of my cultural heritage; Arab history is my own history.” Another respondent wrote,

”نعم، إننا المسلمين نفتخر بالخلافة الإسلامية كثيراً“

(*English translation: “Yes, we Muslims are very proud of the Islamic Caliphate.”*)

Other respondents associate ‘Abbāsīd coins with a Muslim identity, regardless of where these materials may be currently housed: “They are connected to a part of Islamic tradition with which I identify. I identify with them regardless of where they are located.” One respondent wrote that the coins bear witness to the historical relations between their country and the Arab countries, therefore associating these coins to a cultural heritage that is based on transregional connections (original text in Arabic:

”هي تشهد على العلاقات التاريخية بين وطني والبلاد العربية.“

*English translation: “They [the coins] bear witness to the historical relations between my country and the Arab countries.”*)

Another individual responded, “yes” and expressed frustration that these Islamic materials are displayed in European countries where Islamophobia remains a problem, highlighting a tension of these interactions in the present day (“it frustrates me to have our art and history displayed by Islamophobic countries.”) Another common response was the sense of pride that these materials evoke as part of one’s history and identity. Finally, other respondents responded “no,” explaining that the global ubiquity of these coins is important for “everyone’s heritage” while another respondent explained that the ‘Abbāsīd association of these particular materials instead evoked a history of invasion and exploitation (“The ‘Abbāsīds were invaders and exploiters of my country.”) Some others wrote no, simply suggesting that they had never thought about their heritage in connection with these particular materials before.

Finally, in the third category of respondents, who identified mainly as cultural heritage professionals (but came from a number of racial and ethnic backgrounds), the responses to this question showed the greatest change from the overall statistics (see **Figure 34**). About half of respondents who identified as cultural heritage professionals responded “yes” and 45% responded “no.” One respondent wrote that an artifact’s identity “should not be affected by its location of display,” echoing some respondents discussed above. Another respondent wrote that the presence of Islamic coins in Europe indicates the interest of the West in their ancient history

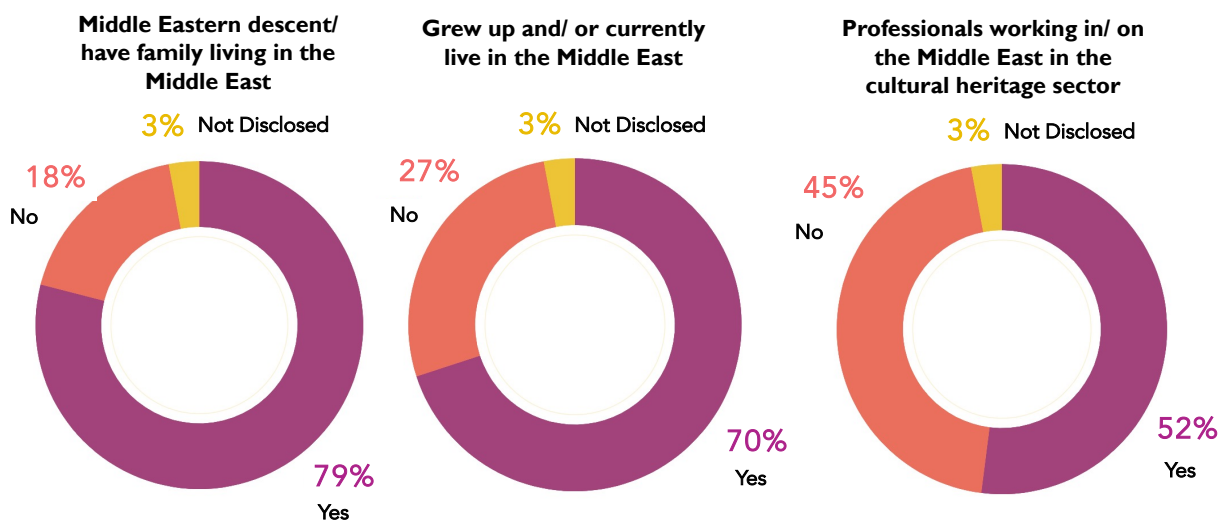
(original text in Arabic: "نعم واعتقد بأن وجودها يدل على اهتمام الغرب بتاريخنا العريق")

*English translation: “Yes, and I think that its presence indicates the interest of the West in our ancient history”*).)

Some respondents indicated “yes,” and wrote that “Islamic coinage is part of wider Islamic heritage and belongs to all.” Others wrote no, indicating that they didn’t identify with ‘Abbāsīd

materials since their ancestors “were not yet living in the Middle East at that time” while other felt that the object case study was too specific, that they were “not interested in ‘Abbāsīd coins.” Finally, a number of respondents in this category indicated that they were not originally from the Middle East or were of white European descent and therefore felt that these coins “do not have a significance towards European cultural heritage, they still belong entirely to the Arabic-speaking world.”

**Do you see ‘Abbāsīd coins (that are housed in European museum collections) as part of your cultural heritage?**



**Figure 34: Reported Understanding of ‘Abbāsīd Coins Housed in European Museums as Part of Respondents’ Cultural Heritage (Divided by Respondent Demographics) © Sara Ann Knutson**

My cultural heritage survey has so far revealed the competing perspectives surrounding Islamic(ate) cultural heritage and museums-based materials as well as the complex ways in which respondents’ relationship to and understandings of Islamic coins inform the construction of cultural heritage and in some cases, where these materials may not hold much meaning for some individuals. My main purpose of presenting data and select responses from the survey is to demonstrate how multifaceted the perspectives connected to these archaeological materials are and the range of different identities and meanings that these kinds of materials can evoke. My cultural heritage survey has revealed that Islamic coins undoubtedly do not hold the same meanings to everyone—and they do not need to. Some people understand these objects more narrowly, as indicative of simply the past ‘Abbāsīd State and its activities, while others understand Islamic coins and other cultural materials as encompassing a range of identities and perspectives that are still relevant to the Middle East and wider Muslim World. As a researcher, one of the most important takeaways from the survey was to better recognize and understand the plurality of perspectives surrounding cultural heritage and to try to honor these. After all, each respondent took on average twenty to thirty minutes to complete the survey and share their personal thoughts and experiences. I especially appreciated the individual responses to some survey questions, which allowed me to examine personal examples of cultural engagements with these materials.



I suggest that it is important for researchers to have these conversations with the wider public, not least in order to understand that just because our work as scholars may take place in libraries, museums, or archives, the implications of academic knowledge production do not remain in those spaces. To demonstrate just how far-reaching the cultural heritage of Islamic coinage is, I will briefly discuss two case studies that emerged from my ethnographic work, outside of the survey.

The first example comes from my museums-based and ethnographic research in Summer 2021 on the island of Gotland, Sweden, where many Islamic coins have been uncovered archaeologically since the ‘Abbāsid Caliphate. On Gotland, it is considered lucky if a silver deposit is uncovered on one’s property or farmland—and indeed such the recovery of archaeologically-deposited materials is relatively frequent on Gotland, with the most recent deposits of coins being registered in 2021. During my stay on one such farmstead on Gotland, the owners of the property recounted the story of an extensive silver deposit that was found on their property in the 1960s. Although the Islamic coins were sent to the Royal Coin Cabinet in Stockholm, the owners still retain scanned photos of the coins. They cannot read the Arabic inscriptions on the coins, but they celebrate that their ancestors on Gotland were so well-connected to Arab merchants.

The second example comes from Amman, Jordan. A friend who grew up in the city recollected stories of her grandma who privately owns a few Islamic coins. The private collection of Islamic coins is not terribly unusual—today, collectors around the world trade and legally collect Islamic coins more than many non-numismatic scholars might be aware of. However, my sense in this particular case was that the coins had been passed down through the family for some generations. My friend’s grandmother explained that she enjoys comparing the old Islamic coins with contemporary coinage, because to her, the ancient coins are important symbols for the history of Palestine and a tangible reminder that Palestine’s history runs deep into the Islamic past.

## **Conclusion**

What value then, do Islamic coins hold for local stakeholders? This is an interesting, complicated question in and of itself and one that cannot be separated from my research on the ancient past. The stories of cultural heritage in Sweden and in Jordan are just two of many and they demonstrate the power and cultural currency of intangible stories that tangible materials can evoke. These stories also demonstrate the ways that spaces like those in Sweden and Jordan are much more connected, still in the present day, than one may initially assume from examining Islamic coinage behind museum glass.

The implications of anthropological work, in online interactions and digital surveys as well as in-person interactions, are manifold but I argue that this approach is different than “giving people a voice.” People have a voice. And it is essential for anthropologists and archaeologists to create space to these perspectives in order to properly understand which aspects of cultural heritage are most important to stakeholders and to navigate the multiplicity of values and perspectives, rather than simply privilege the perspective and understanding of the researcher. Not least, the values of stakeholders in my project reveal the understated importance of museum-based materials for cultural heritage, especially those that span across national borders, languages, and far distances. The stakeholder feedback on my cultural heritage survey was overwhelmingly positive

and constructive. The perspectives of the survey respondents continue to help me think through some important heritage issues, some of which I may have never considered otherwise.

## Chapter Six: Conclusion

In this dissertation, I sought to analyze premodern itinerant objects, namely ivory and Islamic silver coins, and their complex modes of global circulation, beyond simply as items of “trade.” My work joins a growing body of archaeological scholarship that recognizes that the “social” no longer implies exclusively the “human.” I therefore do not prioritize or intend to access the “people behind the things.” Instead, I examine nonhumans as agents on their own terms, not human ones. This perspective enabled me to understand itinerant objects as meaningful and meaning-making participants along the Silk Road network. This theoretical commitment also enabled me to realize that Assemblage Theories stake important theoretical claims in archaeological practice, and they help better explain “social” networks and global processes. My contributions in this dissertation are intended to help researchers move beyond the uncritical use of distribution maps in the explanation of global archaeological phenomena and to better recognize that the material record of Islamic silver coinage and trans-Eurasian ivories contain biases in regard to the deposition, recovery, and collection of itinerant archaeological materials. My two main case studies of itinerant assemblages, Islamic silver and carved ivory objects, demonstrate the utility of understanding archaeological assemblages more broadly than those that are confined to a clear, delineated space.

Today, the kinds of objects under examination in this dissertation are often housed in museum collections around the world and are therefore involved in curated textual and visual narratives about their historical and contemporary meanings. For this reason, it was important at the beginning of the dissertation research process to situate my work within the body of scholarship on race and racialization, including how these processes operated in the premodern world as well as in contemporary power structures. This scholarship helped me to see that stakeholders in the contemporary Islamic World and MENA region have important practices and values of cultural heritage related to the materials under study in this dissertation that scholars have not yet recognized. For this reason, I developed the international cultural heritage survey of local stakeholders. Based on their responses, I realized the complex and understudied ways in which itinerant materials like ‘Abbāsid coins are important for understanding the global past and its enduring influence on the global present. An important issue that I have not been yet able to pursue, but plan to examine in the future, is how the historical and contemporary processes described in this dissertation are tantamount to racialized practices and ideologies of othering. Recently, scholars have been revisiting the ways in which concepts of race are relevant to the study of the relations and connections between the Islamic World and Europe. My future research will examine how nonhuman materials in the premodern past are exoticized in certain contexts and are incorporated into processes that “other” certain communities. And in examining knowledge production and heritage of premodern materials, I will examine the academic power imbalances that afford certain people and materials history and heritage over others.

Building on this dissertation, my future work will observe the many, fascinating ways that the ancient and premodern past holds enduring influence in the lives of contemporary communities. The Middle East and North Africa (MENA) region and its Islamic(ate) heritage is no exception. I aim to demonstrate that reframing of the “social” in Anthropology and Archaeology should not be simply about collecting other people’s stories (past or present). Instead, my work aims to ground anthropological theories based on the important connections that people, especially

those in non-academic spaces, make about their relationship to the past. In doing so, I intend to decenter Europe in these conversations about Islamic(ate) heritage futures and reposition the important forms of archaeological knowledge production that are taking place outside Euro-Western academic spaces.

My current and future work demonstrates that conversations about the premodern past require the contributions of anthropological perspectives on the “vast archive of human experience” (Graeber 2004: 96). This is especially true of the ancient past, which has often been treated without regard to the kinds of analyses that Anthropology can offer and often without proper attention to ethics in developing academic research. By devoting greater attention to artifactual beings and other nonhumans, their interrelationships with humans, and their own ways informing human decision-making and intangible practices, I argue that we paradoxically come closer to understanding people in the past as well as the present and future.

## References

- Adamczyk, D. 2006. Silver, Markets, and States: The Impact of Islamic Trade on Eastern Europe in the Ninth through Eleventh Centuries. *World History Bulletin* 22(2): 47-49.
- Adamczyk, D. 2013. "The Political Economy of the Arab Silver Redistribution Networks in Viking Age Eastern and Central Europe: Polycentric Connections or Entangled Hierarchies?" *Review (Fernand Braudel Center)* 36(3/4): 265-286.
- Agbe-Davies, A.S. and A.A. Bauer. 2010. Rethinking Trade as a Social Activity: An Introduction, in Bauer, A.A. and A.S. Agbe-Davies (eds) *Social Archaeologies of Trade and Exchange: Exploring Relationships among People, Places, and Things*: 13-28. London: Routledge.
- Agnew, N., M. Reed, and T. Ball (Eds.) 2016. *Cave Temples of Dunhuang: Buddhist Art on China's Silk Road*. Los Angeles: Getty Conservation Institute.
- Al Quntar, S. 2017. "Repatriation and the Legacy of Colonialism in the Middle East." *Journal of Eastern Mediterranean Archaeology and Heritage Studies* 5(1): 19-26
- Allen, J. and A. Cochrane. 2007. "Beyond the Territorial Fix: Regional Assemblages, Politics and Power." *Regional Studies* 41(9), 1161-1175.
- Aram, M. 2001. Coins and the Silk Road, in A. Juliano and J. Lerner (eds) *Monks and Merchants. Silk Road Treasures from Northwest China*: 271-291. New York: Asia Society.
- Aram, M. 2004. The History of the Silk Road as Reflected in Coins. *Parthica* 6: 47-68.
- Aram, M. 2014. From the Sasanians to the Huns: New Numismatic Evidence from the Hindu Kush. *The Royal Numismatic Society* 174: 261-291.
- Amati, V., T. Shafie, and U. Brandes. 2018. "Reconstructing Archaeological Networks with Structural Holes." *Journal of Archaeological Method and Theory* 25, 226-253.
- Anderson, B. and C. McFarlane. 2011. "Assemblage and geography." *Area* 43(2), 124-127.
- Anderson, J. 2012. "Relational places: The surfed wave as assemblage and convergence." *Environment and Planning D: Society and Space* 30(4), 570- 87.
- Appadurai, A (ed.). 1986. *The Social Life of Things: Commodities in cultural perspective*. Cambridge: Cambridge University Press.
- Appadurai, A. 1997. *Modernity at Large: Cultural Dimensions in Globalization*. Minneapolis: University of Minnesota Press.

- Arne, T.J. 1914. *La Suède et l'orient: études archéologiques sur les relations de la Suède et de l'orient pendant l'âge des Vikings*. Uppsala: K.W. Appelberg.
- Arne, T.J. 1932. "Ein bemerkenswerter Fund in Östergötland." *Acta Archaeologica* 3: 67-112.
- Asadov, F. 2016. "Reinstatement of Long-Distance International Trade After the Arab Conquest: The Khazar-Arab Partnership on the Silk Road in the 9-10<sup>th</sup> centuries." *Acta Via Serica* 1(1): 33-50.
- Audy, F. 2018. *Suspended Value: Using Coins as Pendants in Viking-Age Scandinavia*. Stockholm: Stockholm University.
- Bacchetta, P., F. El-Tayeb, and J. Haritaworn. 2015. "Queer of colour formations and translocal spaces in Europe." *Environment and Planning D: Society and Space* 33(5): 769- 778.
- Bahrani, Z. 2006. "Race and ethnicity in Mesopotamian Antiquity." *World Archaeology* 38(1): 48-59.
- Bandhare, S. 2018. "Numismatics of 'The Other': Investigating Coinage and "Greekness" at Taxila." In *Buddhism and Gandhara - An Archaeology of Museum Collections* (Ed. H.P. Ray). New Delhi: Routledge.
- Barad, K. 2007. *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Duke University Press.
- Barber, P.G. and Lem, W. (Eds.) 2018. *Migration, Temporality, and Capitalism: Entangled Mobilities Across Global Spaces*. London: Palgrave Macmillan.
- Barnet, P. (Ed). 1997. *Images in Ivory: Precious Objects of the Gothic Age*. Princeton University Press: Princeton.
- Barrett, J.H., S. Boessenkool, C.J. Kneale, T.C. O'Connell, and B. Star. 2020. "Ecological globalisation, serial depletion and the medieval trade of walrus rostra." *Quaternary Science Reviews* 299 (106122): 1-15.
- de Barros Damgaard, P., N. Marchi, S. Rasmussen, et al. 2018. "137 Ancient Human Genomes from Across the Eurasian Steppes." *Nature* 557 (7705), 369-374.
- Bauer, A.A. 2019. Itinerant Objects. *Annual Review of Anthropology* 48: 335-52.
- Bauer, A.A. and A.S. Agbe-Davies (eds). 2010. *Social Archaeologies of Trade and Exchange: Exploring Relationships among People, Places, and Things*. London: Routledge.
- Beaudry, M. C., L. J. Cook, and S. A. Mrozowski. 1991. "Artifacts and Active Voices: Material Culture as Social Discourse." In R. H. McGuire and R. Paytner (Eds.), *The Archaeology of Inequality* (pp. 150- 91). Blackwell: Oxford.

- Beckwith, C.I. 2009. *Empires of the Silk Road: A History of Central Eurasia from the Bronze Age to the Present*. Princeton: Princeton University Press.
- Bedjaoui, M. 2004. The Convention for the Safeguarding of the Intangible Cultural Heritage: The legal framework and universally recognized principles. *Museum International* 56 (1-2): 150-55.
- Bellina, B., M. Win, K. Htwe, H. Thu, C. Castillo, C. Colonna...E. Trivière. 2018. "Myanmar's earliest Maritime Silk Road port-settlements revealed." *Antiquity* 92(366): 1-5.
- Bennett, J. 2004. The Force of Things: Steps toward an Ecology of Matter. *Political Theory* 32(3): 347- 372.
- Bennett, J. 2010. *Vibrant Matter: A Political Ecology of Things*. Durham: Duke University Press.
- Bentley, R. A. 2003. "Scale-Free Network Growth and Social Inequality." In R.A. Bentley and H.D.G. Maschner (Eds.), *Complex Systems and Archaeology* (pp. 27–45). Salt Lake City: University of Utah Press.
- Bentley, R., M. Lake, and S. Shennan. 2005. "Specialisation and Wealth Inequality in a Model of a Clustered Economic Network." *Journal of Archaeological Science* 32 (9), 1346–56.
- Bentley, R. A., and H. D. G. Maschner. 2003. *Complex Systems and Archaeology*. Salt Lake City: University of Utah Press.
- Bhattacharya, J. 2021. Old Routes, New Dreams: Reminiscences of the Southern Silk Road and Bengal-China Connectivities. *Journal of the Economic and Social History of the Orient* 64: 302-41.
- Blackburn, M. 2007. The Coin-finds, In D. Skre (ed.) *Means of Exchange: Dealings with Silver in the Viking Age: 29-74*. Aarhus: Aarhus University Press.
- Blake, E. 2014. *Social Networks and Regional Identity in Bronze Age Italy*. Cambridge University Press.
- Bloom, J.M. 2001. *Paper Before Print: The history and impact of paper in the Islamic World*. New Haven: Yale University Press.
- Boivin, N., D.Q. Fuller, and A. Crowther. 2012. "Old World globalization and the Columbian exchange: comparison and contrast." *World Archaeology* 44(3): 452-69.
- Bolin, S. 1953. Mohammed, Charlemagne and Ruric. *Scandinavian Economic History Review* 1: 5-39.
- Bollók, Á., M.T. Knotik, P. Langó, K.E. Nagy, and A.A. Türk. 2009. "Textile Remnants in the

- Archaeological Heritage of the Carpathian Basin from the 10<sup>th</sup> – 11<sup>th</sup> centuries.” *Acta Archaeologica Academiae Scientiarum Hungaricae* 60: 147-221.
- Borell, B. 2010. “Trade and glass along the Maritime Silk Road.” In *Glass along the Silk Road from 200 BC to AD 1000: international conference within the scope of the "Sino-German Project on Cultural Heritage Preservation" of the RGZM and the Shaanxi Provincial Institute of Archaeology, December 11th-12th 2008* (Eds. B. Zorn and A. Hilgner). Mainz: Verlag des Römisch-Germanischen Zentralmuseums, 127- 142.
- Bourdieu, P. 1986. “The forms of capital.” In *Handbook of Theory and Research for the Sociology of Education* (Ed. J. Richardson). Westport: Greenwood, 241-258.
- Brantingham, P. J. 2003. "A neutral model of stone raw material procurement." *American Antiquity*, 68(3), 487-509.
- Brather, S. 1996. “Frühmittelalterliche Dirham-Schatzfunde in Europa. Probleme ihrer wirtschaftsgeschichtlichen Interpretation aus archäologischer Perspektive.“ *Zeitschrift für Archäologie des Mittelalters* 23/24: 73-153.
- Brather, S. 2009. Counted and weighed silver: the fragmentation of coins in early medieval East Central Europe in J. Henning (ed) *The Heirs of the Roman West (Vol 1): Post-Roman Towns, Trade and Settlement in Europe and Byzantium* (451-471). Berlin: De Gruyter.
- Brettell, C. B. and Hollifield, J. F. (Eds.) 2015. *Migration theory: Talking across disciplines*. New York: Routledge.
- Brill, R.H. 2009. “Opening Remarks and Setting the Stage: Lecture at the 2005 Shanghai International Workshop on the Archaeology of Glass Along the Silk Road.” In *Ancient Glass Research along the Silk Road* (Eds. G. Fuxi, R.H. Brill, and T. Shouyun). Singapore: World Scientific Publishing, 109- 148.
- Brittain, M. and O.T.J. Harris. 2010. "Enchaining arguments and fragmenting assumptions: reconsidering the fragmentation debate in archaeology." *World archaeology* 42(4): 581-594.
- Brosseder, U. and B.K. Miller. 2011. “State of Research and Future Directions of Xiongnu Studies.” In *Xiongnu Archaeology: Multidisciplinary Perspectives of the First Steppe Empire in Inner Asia* (Eds. U. Brosseder and B.K. Miller). Bonn: Vor- und Frühgeschichtliche Archäologie.
- Brughmans, T. 2010. "Connecting the dots: towards archaeological network analysis." *Oxford Journal of Archaeology* 29:277-303.
- Brughmans, T., A. Collar, and F. Coward. 2016. *The Connected Past: Challenges to Network Studies in Archaeology and History*. Oxford: Oxford University Press.



- Brughmans, T. and M. A. Peeples. 2017. "Trends in archaeological research: a bibliometric analysis." *Journal of Historical Network Research* 1: 1-24.
- Buchanan, I. 2015. "Assemblage theory and its discontents." *Deleuze Studies* 9(3), 382-392.
- Burström, N.M. (2020). "A Treasured Persona: Re-Interpreting the Eketorp Precious Metal Deposition." *Current Swedish Archaeology* 28: 247-278.
- Callmer, J. 1991. "Beads as a criterion of shifting trade and exchange connections." *Studien zur Sachsenforschung* 7, 25–38.
- Callmer, J. 1995. The influx of oriental beads into Europe during the 8th century. In M. Rasmussen, U. L. Hansen, and U. Näsman (eds) *Glass Beads--Cultural History, Technology, Experiment and Analogy: Proceedings of the Nordic Glass Bead Seminar 16th- 18th October 1992*: 49-54. Lejre: Historical Archaeological Experimental Centre.
- Cameron, J. 2017. "A Prehistoric Maritime Silk Road: Merchants, Boats, Cloth and Jade." In *Beyond the Silk Roads: New Discourses on China's Archaeology of the Silk Roads* (Eds. R. Antony and A. Schottenhammer). Wiesbaden: Harrassowitz Verlag, 25-42.
- Canepa, M.P. 2010. "Preface: Theorizing cross-cultural interaction among ancient and early medieval visual cultures." *Ars Orientalis* 38: 7-29.
- Carlsson, D. and A. Selin. 2012. *In the Footsteps of Rurik: A guide to the Viking history of northwest Russia*. Stockholm: Books on Demand GmbH.
- Casey, P.G. 1986. *Understanding Ancient Coins: An Introduction for Archaeologists and Historians*. London: B.T. Batsford.
- Castillo, C.C., B. Bellina, and D.Q. Fuller. 2016. "Rice, beans and trade crops on the early maritime Silk Route in Southeast Asia." *Antiquity* 90(353): 1255-69.
- Ceccarelli, P. 2017. "Past is Not a Frozen Concept: Considerations about Heritage Conservation in a Fast Changing World." *Built Heritage* 3: 1-12.
- Chapman, J. 2000. *Fragmentation in archaeology: People, places and broken objects in the prehistory of South Eastern Europe*. London: Routledge.
- Christian, D. 2000. "Silk Roads or Steppe Roads? The Silk Roads in World History." *Journal of World History* 2(1): 1-26.
- Cipolla, C.N. Earth flows and lively stone. What difference does 'vibrant' matter make? *Archaeological Dialogues* 25(1): 49-70.
- Cleere, H. 1996. "The concept of 'outstanding universal value' in the World Heritage Convention." *Conservation and Management of Archaeological Sites*, 1(4): 227–233.

- Cobb, H. and K. Croucher. 2014. "Assembling archaeological pedagogy. A theoretical framework for valuing pedagogy in archaeological interpretation and practice." *Archaeological Dialogues* 21(2), 197- 216.
- Codere, H. 1968. Money-Exchange Systems and a Theory of Money. *Man* 3(4): 557-577.
- Cohen, J.J. 2015. *Stone: An Ecology of the Inhuman*. Minneapolis: University of Minnesota Press.
- Collar, A. 2013a. *Religious Networks in the Roman Empire. The Spread of New Ideas*. Cambridge: Cambridge University Press.
- Collar, A. 2013b. "Re-Thinking Jewish Ethnicity through Social Network Analysis." In *Network Analysis in Archaeology. New Approaches to Regional Interaction*, edited by C. Knappett, 223–46. Oxford: Oxford University Press.
- Collar, A., F. Coward, T. Brughmans, and B. J. Mills. 2015. "Networks in archaeology: phenomena, abstraction, representation." *Journal of Archaeological Method and Theory* 22, 1-32.
- Conrad, S. 2016. *What is global history?* Princeton: Princeton University Press.
- Coole, D. 2013. "Agentic capacities and capacious historical materialism: Thinking with new materialisms in the political sciences." *Millennium*, 41(3), 451-469.
- Coward, F. 2013. "Grounding the net: social networks, material culture and geography in the Epipalaeolithic and Early Neolithic of the Near East (~ 21,000–6,000 cal BCE)." In C. Knappett (Ed.), *Network analysis in archaeology: New regional approaches to interaction* (pp. 247-280). Oxford: Oxford University Press.
- Crabtree, S. A. 2015. "Inferring Ancestral Pueblo Social Networks from Simulation in the Central Mesa Verde." *Journal of Archaeological Method and Theory* 22 (1): 144–81.
- Curta, F. 2007. The amber trail in early medieval eastern Europe, in C. Chazelle and F. Lifshitz (eds) *Paradigms and Methods in Early Medieval Studies*: 61-79. New York: Palgrave Macmillan.
- Curta, F. 2019. *Eastern Europe in the Middle Ages (500-1300)*. 2 Vols. Leiden: Brill.
- Curta, F. 2021. *The Long Sixth Century in Eastern Europe*. Leiden: Brill.
- Cyrus-Zetterström, U. 1988. "A monochrome patterned silk fabric among the finds from Birka." In *Opera textilia variorum temporum* (Eds. I. Estham and M. Nockert). Stockholm: Statens Historiska Museum, 45-48.

- Dawkes, G. 2013. "Excavating a Silk Road City: The Medieval Citadel of Taraz, Kazakhstan." *Archaeology International* 16: 110-119.
- Dectot, X. 2018. "When ivory came from the seas. On some traits of the trade of raw and carved sea-mammal ivories in the Middle Ages." *Anthropozoologica* 53(14): 159-174.
- DeLanda, M. 2006. *A New Philosophy of Society: Assemblage theory and social complexity*. London: Continuum.
- DeLanda, M. 2016. *Assemblage Theory*. Edinburgh: Edinburgh University Press.
- Deleuze, G. and F. Guattari. 1987. *A Thousand Plateaus: Capitalism and schizophrenia*. Minneapolis: University of Minnesota Press.
- Delgado, R. and J. Stefancic. 2001. *Critical Race Theory*. New York: New York University Press.
- Deliyannis, D., H. Dey, and P. Squatriti. 2019. *Fifty Early Medieval Things: Materials of Culture in Late Antiquity and the Early Middle Ages*. Ithaca: Cornell University Press.
- Di Cosmo, N. 1994. "Ancient Inner Asian Nomads: Their economic basis and its significance in Chinese history." *The Journal of Asian Studies* 53(4): 1092-1126.
- Di Muzio, T., and Robbins, R. H. 2017. *An anthropology of money: A critical introduction*. New York: Routledge.
- Dodd, N. 2014. *The social life of money*. Princeton: Princeton University Press.
- Doumani Dupuy, P.N., R.N. Spengler III, and M.D. Frachetti. 2018. "Eurasian textiles: Case studies in exchange during the incipient and later Silk Road periods." *Quaternary International* 468: 228-239.
- Du, D. 2020. 'Flying Cash': Credit Instruments on the Silk Roads in J.D. Lerner and Y. Shi (eds) *Silk Roads: Local Realities to Global Narratives*: 237-266. Oxford: Oxbow.
- Dubov, I.V. 1989. *The Great Volga Way (Великий Волжский путь)*. Leningrad: LSU Publishing.
- Duczko, W. 1998. "Viking Age Scandinavia and Islam: An archaeologist's view," in E. Piltz (ed.) *Byzantium and Islam in Scandinavia*: 107-15. Uppsala: Uppsala university.
- Duczko, W. 2004. *Viking Rus: Studies on the Presence of Scandinavians in Eastern Europe*. Leiden: Brill.
- El-Tayeb, F. 2008. "'The Birth of a European Public': Migration, Postnationality, and Race in the Uniting of Europe." *American Quarterly* 60(3), 649-670.

- El-Tayeb, F. 2011. *European others: Queering ethnicity in postnational Europe*. Minneapolis: University of Minnesota Press.
- von Erdmann, V. and J.G. Stickel. 1855. Ueber das auf muhammedanischen Münzen vorkommende بح بح. *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 9(2): 606-18.
- Evans, T. 2016. "Which Network Model Should I Use? Towards a Quantitative Comparison of Spatial Network Models in Archaeology." In T. Brughmans, A. Collar, F. Coward (Eds.), *The Connected Past: Challenges to Network Studies in Archaeology and History* (pp.149–173). Oxford: Oxford University Press.
- Fernstål, L. 2007/2008. A Bit Arabic: Pseudo-Arabic Inscriptions on Viking Age Weights in Sweden. *Current Swedish Archaeology* 15-16: 61-71.
- Fontaine, J.M., 2017. "Early medieval slave-trading in the archaeological record: Comparative methodologies." *Early Medieval Europe* 25(4). 466-488.
- Fowler, C. 2013a. "Dynamic assemblages, or the past is what endures: change and the duration of relations." In B. Alberti, A.M. Jones, and J. Pollard, *Archaeology after Interpretation: Returning Materials to Archaeological Theory* (pp. 235- 256). Walnut Creek: Left Coast Press.
- Fowler, C. 2013b. *The Emergent Past: A relational realist archaeology of Early Bronze Age mortuary practices*. Oxford: Oxford University Press.
- Frachetti, M.D. 2008. *Pastoralists Landscapes and Social Interaction in Bronze Age Eurasia*. Berkeley: University of California Press.
- Frachetti, M.D. 2012. "Multiregional Emergence of Mobile Pastoralism and Nonuniform Institutional Complexity across Eurasia." *Current Anthropology* 53, 2-38.
- Frachetti, M.D., N. Benecke, A.N. Mar'yashev, and P.N. Doumani. 2010. "Eurasian pastoralists and their shifting regional interactions at the steppe margin: settlement history at Mukri, Kazakhstan." *World Archaeology* 42: 622-646.
- Frachetti, M.D., C. E. Smith, C.M. Traub, and T. Williams. 2017. "Nomadic ecology shaped the highland geography of Asia's Silk Roads." *Nature* 543: 193-198.
- Francfort, H.P. 2012. "Tillya Tepe and its Connection with the Eurasian Steppe." *Afghanistan: Forging Civilizations along the Silk Road*. New York: The Metropolitan Museum of Art. 88-101.
- Franklin, K. 2014. "A House for Trade, A Space for Politics." *Anatolica* 40: 1-21.

- Franklin, K. 2020. "Moving Subjects, Situated Memory: Thinking and Seeing Medieval Travel on the Silk Road." *International Journal of Historical Archaeology* 24: 852-876.
- Franklin, K. 2021. *Everyday Cosmopolitanisms: Living the Silk Road in Medieval Armenia*. Oakland: University of California Press.
- Franklin, S. and Shepard, J. 1996. *The Emergence of Rus 750–1200*. London: Routledge.
- Frei, K., A. Coutu, K. Smiarowski, R. Harrison, C. Madsen, J. Arneborg, R. Frei, G. Gudmundsson, S. Sindbæk, J. Woollett, S. Hartman, M. Hicks, and T. McGovern. 2015. "Was it for walrus? Viking Age settlement and medieval walrus ivory trade in Iceland and Greenland." *World Archaeology* 47, 439- 66.
- Fulminante, F., L. Prignano, I. Morer, and S. Lozano. 2017. "Coordinated Decisions and Unbalanced Power. How Latin Cities Shaped Their Terrestrial Transportation Network." *Frontiers in Digital Humanities* 4 (February): 4.
- Gaborit-Chopin, D. 1978. *Elfenbeinkunst im mittelalter*. Berlin: Gebr. Mann Verlag.
- García-Canclini, N. 1990. *Culturas híbridas: Estrategias para entrar y salir de la modernidad*. México, DF: Grijalbo.
- Gardeła, L. 2015. Vikings in Poland. A critical overview in M.H. Eriksen, U. Pedersen, B. Rundberget, I. Axelsen, and H.L. Berg (eds.) *Viking Worlds: Things, Spaces and Movement* (213-234). Oxford: Oxbow.
- Giddens, A. 1990. *The Consequences of Modernity*. Cambridge: Polity Press.
- Goldstein, J. 2020. *Money: The True Story of a Made-up Thing*. London: Atlantic Books.
- Golitko, M. 2015. *LBK Realpolitik: An archaeometric study of conflict and social structure in the Belgian early Neolithic*. Oxford: Archaeopress.
- Golitko, M., J. Meierhoff, G.M. Feinman, and P.R. Williams. 2012. "Complexities of collapse: the evidence of Maya obsidian as revealed by social network graphical analysis." *Antiquity* 86 (332): 507-523.
- Golitko, M. and G.M. Feinman. 2015. "Procurement and Distribution of Pre-Hispanic Mesoamerican Obsidian 900 BC- AD 1520: A Social Network Analysis." *Journal of Archaeological Method and Theory* 22 (1): 206-247.
- Graeber, D. 2001. *Toward an anthropological theory of value: The false coin of our own dreams*. New York: Palgrave.
- Graeber, D. 2004. *Fragments of an Anarchist Anthropology*. Chicago: Prickly Paradigm Press.
- Graeber, D. 2012. *Debt: The first 5000 years*. Brooklyn: Melville House Publishing.

- Graham, S. 2006. "Networks, Agent-Based Models and the Antonine Itineraries: Implications for Roman Archaeology." *Journal of Mediterranean Archaeology* 19(1), 45–64.
- Graham-Campbell, J., S.M. Sindbæk, and G. Williams (eds). 2011. *Silver Economies, Monetisation and Society in Scandinavia, AD 800-1100*. Aarhus: Aarhus University Press.
- Groot, B. G. de. 2019. "A Diachronic Study of Networks of Ceramic Assemblage Similarity in Neolithic Western Anatolia, the Aegean and the Balkans (6600-5500 BC)." *Archaeometry*, no. November 2018.
- Gruszczyński, J. 2019. *Viking Silver, Hoards and Containers: The Archaeological and Historical Context of Silver Coin Deposits in the Baltic, c. 800-1050*. New York: Routledge.
- Gruszczyński, J., M. Jankowiak, and J. Shepard (eds). 2020. *Viking Age Trade: Silver, Slaves, and Gotland*. London: Routledge.
- Guérin, S.M. 2010. "Avorio d'ogni ragione: the supply of elephant ivory to northern Europe in the Gothic era." *Journal of Medieval History* 36, 156-74.
- Gustin, I. 1997. Islam, merchants, or kings? Who was behind the manufacture of Viking Age weights?, in H. Andersson, P. Carelli, and L. Ersgård (eds) *Visions of the Past. Trends and traditions in Swedish medieval archaeology*: 163-177. Stockholm: Riksantikavieämbetet
- Gustin, I. 2004. Coins and Weights from the Excavations 1990- 1995. An introduction and Presentation of the Material, In B. Ambrosiani (ed.) *Eastern Connections Part Two: Numismatics and Metrology*: 11- 25. Stockholm: Riksantikavieämbetet.
- Gyllensvärd, B. 2004. "The buddha found at Helgö." In *Excavations at Helgö XVI: Exotic and sacral finds from Helgö* (Eds. H. Clarke and K. Lamm). Stockholm: Almqvist & Wiksell International, 11-28.
- Habiba, J.C.A. , B. J. Mills, and U. Brandes. 2018. "Social Networks and Similarity of Site Assemblages." *Journal of Archaeological Science* 92, 63–72.
- Hammarberg, I. and G. Rispling. 1985. "Graffiter på vikingatida mynt." *Hikuin* 11: 63-78.
- Hamilakis, Y. and A.M. Jones. 2017. "Archaeology and assemblage." *Cambridge Archaeological Journal* 27(1), 77-84.
- Hannaford, I. 1996. *Race: The history of an ideas in the west*. Baltimore: Johns Hopkins University Press.

- Hansen, V. 2011. The place of coins and their alternatives in the Silk Road Trade in Shanghai Bowuguan (ed.) *Proceedings of the Symposium on Ancient Coins and the Culture of the Silk Road*: 83-113. Shanghai: Shanghai Books Press.
- Hansen, V. 2012. *The Silk Road: A New History*. Oxford: Oxford University Press.
- Hansen, V. and X. Rong. 2013. How the Residents of Turfan used Textiles as Money, 273- 796 CE. *Journal of the Royal Asiatic Society* 23(2): 281-305.
- Harris, O.T.J. 2016. "Becoming Post-Human: Identity and the Ontological Turn." In *Creating Material Worlds: The Uses of Identity in Archaeology* (Eds. E. Pierce, A. Russell, A. Maldonado, and L. Campbell). Oxford: Oxbow Books. 17- 37.
- Harris, O.T.J. 2017. "Assemblages and scale in archaeology." *Cambridge Archaeological Journal* 27(1), 127-139.
- Harrison, R. 2011. "Surface Assemblages: Towards an Archaeology *in and of the Present*." *Archaeological Dialogues* 18(2): 141- 161.
- Harrison, R. 2013. *Heritage: Critical Approaches*. New York: Routledge.
- Harrower, M. and I. Dumitru. 2017. "Digital maps illuminate ancient trade routes." *Nature* 543, 188-189.
- Hart, J. P., and W. Engelbrecht. 2012. "Northern Iroquoian Ethnic Evolution: A Social Network Analysis." *Journal of Archaeological Method and Theory* 19 (2), 322–49.
- Hart, J. P., J. Birch, and C. G. St-Pierre. 2017. "Effects of Population Dispersal on Regional Signaling Networks: An Example from Northern Iroquoia." *Science Advances* 3 (8): e1700497.
- Hart, K. 1986. Head or Tails? Two Sides of the Coin. *Man* 21(4): 637- 656.
- Hart, K. and H. Ortiz. 2014. The anthropology of money and finance: between ethnography and world history. *Annual Review of Anthropology* 43: 465-82.
- Hatcher, S. 2013. "The Birth of the Monsoon Winds: On the Existence and Understanding of Hippalus, and the 'Discovery' of the Apogeous Trade Winds." *Terrae Incognitae* 45(1): 19-29.
- Hedeager Krag, A. 2004. "New light on a Viking garment from Ladby, Denmark." *Acta Archaeologica Lodziensia* 50(1): 81-86.
- Hedeager Krag, A. 2010. "Oriental influences in the Danish Viking Age: Kaftan and Belt with Pouch." In *North European Symposium for Archaeological Textiles X* (Ed. X. Nesat). Oxford: Oxbow Books.

- Hedenstierna-Jonson, C. 2020a. Entering the Viking Age through the Baltic in L. Kitzler Åhfeldt, C. Hedenstierna-Jonson, P. Widerström, and B. Raffield (eds) *Relations and Runes: The Baltic Islands and Their Interactions During the Late Iron Age and Early Middle Ages* (11-22). Visby: Swedish National Heritage Board.
- Hedenstierna-Jonson, C. 2020b. "With Asia as neighbour: Archaeological evidence of contacts between Scandinavia and Central Asia in the Viking Age and the Tang Dynasty." In *Bulletin of the Museum of Far Eastern Antiquities* 81: 43-64.
- Hedenstierna-Jonsson, C. and L. Holmquist Olausson. 2006. *The Oriental Mounts from Birka's Garrison: An Expression of Warrior Rank and Status*. Stockholm: Kungl. Vitterhets-, historie-, och antikvitetsakademien.
- Heldaas Seland, E. 2011. "The Persian Gulf or the Red Sea? Two axes in ancient Indian Ocean trade, where to go and why." *World Archaeology* 43(3): 398-409.
- Heng, G. 2018. *The Invention of Race in the European Middle Ages*. Cambridge: Cambridge University Press.
- Hermes, T.R., M.D. Frachetti, E.A. Bullion, F. Maksudov, S. Mustafokulov, and C.A. Makarewicz. 2018. "Urban and nomadic isotopic niches reveal dietary connectivities along Central Asia's Silk Roads." *Scientific Reports* 8: 1-11.
- Hickel, J. 2017. *The Divide: A Brief Guide to Global Inequality and its Solutions*. London: Windmill.
- Hicks, D. 2020. *The British Museums: The Benin Bronzes, Colonial Violence, and Cultural Restitution*. London: Pluto Press.
- Higuchi, T. and G. Barnes. 1995. "Bamiyan: Buddhist cave temples in Afghanistan." *World Archaeology* 27(2): 282-302.
- Hochmann, A. 2019. "Is 'race' modern?: Disambiguating the question." *Du Bois Review: Social Science Research on Race* 16(2): 647-665.
- Hodder, I. 1985. "Post-processual archaeology." In M. Schiffer (Ed.), *Advances in Archaeological Method and Theory* (pp. 1-26), Harcourt: Academic Press.
- Hodder, I. 2012. *Entangled: an archaeology of the relationships between humans and things*. Malden: Wiley-Blackwell.
- Hodder, I., and A. Mol. 2016. "Network Analysis and Entanglement." *Journal of Archaeological Method and Theory* 23 (4), 1066-94.
- Hodos, T. (Ed.) 2017. *The Routledge handbook of archaeology and globalization*. Abingdon:



Routledge.

- Hofman, C., A. Mol, M. Hoogland, and R. Valcárcel Rojas. 2014. "Stage of Encounters: Migration, Mobility and Interaction in the Pre-Colonial and Early Colonial Caribbean." *World Archaeology* 46 (4): 590–609.
- Honeychurch, W. 2010. "Pastoral nomadic voices: a Mongolian archaeology for the future." *World Archaeology* 42(3): 405- 417.
- Honeychurch, W. 2014. "Alternative Complexities: The Archaeology of Pastoral Nomadic States." *Journal of Archaeological Research* 22: 277-326.
- Honeychurch, W. 2015. "From Steppe Roads to Silk Roads: Inner Asian Nomads and Early Interregional Exchange." In *Nomads as Agents of Cultural Change* (Eds. R. Amitai and M. Biran). Honolulu: University of Hawai'i Press, 50-87.
- Hoo, M. 2018. "Ai Khanum in the Face of Eurasian Globalisation: A Trans-Local Approach to a Contested Site in Hellenistic Bactria." *Ancient West & East* 17: 161-186.
- Hsu, Y., T. M. Luckett, and E. Vause (Eds.) 2016. *The Cultural History of Money and Credit: A Global Perspective*. Lanham: Lexington Books.
- Hägg, I. 1984. "Birkas orientalska praktplagg." *Forvännen* 78, 204-223.
- Hårdh, B. 2007. "Oriental-Scandinavian Contacts on the Volga, as Manifested by Silver Rings and Weight Systems." In *Silver Economy in the Viking Age* (Eds. J. Graham-Campbell and G. Williams). Walnut Creek: West Coast Press.
- Ierusalimskaia, A.A. 1996. *Die Gräber der Moščevaja Balka: frühmittelalterliche Funde an der nordkaukasischen Seidenstrasse*. Munich: Editio Maris.
- Ingvardson, G.T. (2020). *Vikingskattenees mennesker: Bornholmske sølvskatte som aktører i det økonomiske, sociale, kulturelle og symbolske felt fra ca. 850-1150*. Doctoral Dissertation. Copenhagen: University of Copenhagen.
- Ingold, T. 2007. Materials Against Materiality. *Archaeological Dialogues* 14(1): 1-16.
- Ingold, T. 2011. *Being alive: Essays on movement, knowledge and description*. New York: Routledge.
- Inikori, J.E. "Atlantic slavery and the rise of the capitalist global economy." *Current Anthropology* 61(22): S000-S000.
- Jankowiak, M. 2020. "Dirham flows into northern and eastern Europe and the rhythms of the slave trade with the Islamic world," In J. Gruszczynski, M. Jankowiak, & J. Shepard (Eds.), *Viking age trade. Silver, slaves and Gotland*. London: Routledge: 105- 131.

- Jansson, I. 1988. Wikingerzeitlicher orientalischer Import in Skandinavien. *Bericht der Römisch-Germanischen Kommission* 69: 564–647.
- Jarman, C. 2021. *River Kings: A New History of Vikings from Scandinavia to the Silk Road*. New York: HarperCollins.
- Jervis, B. 2016. "Assemblage Theory and Town Formation in Medieval England." *Cambridge Archaeological Journal* 26(3), 381-395.
- Jervis, B. 2017. "Assessing urban fortunes in six late medieval ports: An archaeological application of assemblage theory." *Urban History* 44(1), 2- 26.
- Jones, R.A. 2009. "Centaur on the Silk Road: Recent Discoveries of Hellenistic Textiles in Western China." *The Silk Road* 6(2): 23-32.
- Jones, S. and P. Graves-Brown. 1996. "Introduction: archaeology and cultural identity in Europe." In *Cultural Identity and Archaeology: The Construction of European Communities* (Eds. P. Graves-Brown, S. Jones, and C. Gamble), 1-24. London: Routledge.
- Joyce, R.A. 2015. "Making things out of objects that move." In R.A. Joyce and S.D. Gillespie (Eds.), *Things in Motion* (pp. 3-19). Santa Fe: School for Advanced Research Press.
- Joyce, R.A. 2018. Becoming Marble. *Scapegoat: Architecture/ Landscape/ Political Economy* 11: 40- 51.
- Joyce, R.A. 2020. *The Future of Nuclear Waste: What Art and Archaeology Can Tell Us About Securing the World's Most Hazardous Material*. Oxford: Oxford University Press.
- Joyce, R.A. and S.D. Gillespie (eds). 2015. *Things in Motion: Object Itineraries in Anthropological Practice*. Santa Fe: School for Advanced Research Press.
- Kamyshev, A.M. 2017. Coins on the Great Silk Route (Kyrgyzstan). *Нумизматика и Знуграфика* 6: 7-13.
- Katona, C. 2019. Communication between the Viking Rus and the Turkic Nomads of the Steppe in I. Csepregi (ed.) *Annual of Medieval Studies of Central European University* 25: 11-28. Budapest: Central European University.
- Keller, C. 2010. "Furs, fish, and ivory: Medieval Norsemen at the Arctic fringe." *Journal of the North Atlantic* 3, 1-23.
- Kersel, M.M. 2012. The Value of a Looted Object: Stakeholder Perceptions in the Antiquities Trade, in R. Skeates, C. McDavid, and J. Carman (eds) *The Oxford Handbook of Public Archaeology*: 253-272. Oxford: Oxford University Press.

- Kershaw, J., G. Williams, S. Sindbæk, and J. Graham-Campbell (Eds.). 2018. *Silver, Butter, Cloth: Monetary and Social Economies in the Viking Age*. Oxford: Oxford University Press.
- Kershaw, J., S.W. Merkel, J. Oravisjärvi, E. Kooijman, and M. Kielman-Schmitt. 2021. "The scale of dirham imports to the Baltic in the ninth century." *Fornvännen* 116: 185- 204.
- Khakimov, R.S. 2014. "Historical Invariants in Time and Space" (Исторические инварианты во времени и пространстве). *ЗОЛОТООРДЫНСКОЕ ОБОЗРЕНИЕ / Golden Horde Review* 2(1): 4-21.
- Kilger, C. 2020. Long distance trade, runes, and silver: a Gotlandic perspective, in *Relations and Runes: The Baltic Islands and their interactions during the late Iron Age and Early Middle Ages*: 49-63. Visby: Riksantikvarieämbetet.
- Kim, D. 2019. "Introduction to literature compass special cluster: Critical race and the Middle Ages." *Literature Compass* 16(9-10): e12549.
- Kirch, P.V. 1991. Prehistoric Exchange in Western Melanesia. *Annual Review of Anthropology* 10: 141-165.
- Knappett, C. 2011. *An Archaeology of Interaction: Network Perspectives on Material Culture and Society*. Oxford: Oxford University Press.
- Knappett, C. 2016. "Networks in Archaeology: Between Scientific Method and Humanistic Metaphor." In T. Brughmans, A. Collar, F. Coward (Eds.), *The Connected Past: Challenges to Network Studies in Archaeology and History* (pp. 21–33). Oxford: Oxford University Press.
- Knappett, C. 2017. "Globalization, connectivities and networks: an archaeological perspective." In: *The Routledge Handbook of Archaeology and Globalization*. Ed. T. Hodos. London: Routledge. 29-41.
- Knappett, C. 2018. "From network connectivity to human mobility: Models for Minoanization." *Journal of Archaeological Method and Theory*, 25(4), 974-995.
- Knutson, S.A. 2020a. Archaeology and the silk road model. *World Archaeology* 52(4): 619-638.
- Knutson, S.A. 2020b. "An Archaeology of Diasporas." *Encyclopedia of Global Archaeology* (Ed. C. Smith). New York: Springer Reference. 1-7.
- Knutson, S.A. 2020c. "When Objects Misbehave: Materials & Assemblages in the Ancient Scandinavian Myths." *Fabula: Zeitschrift für Erzählforschung/ Journal of Folktale Studies* 61 (3-4): 257-277.
- Knutson, S.A. 2021. "Itinerant Assemblages and Material Networks: The Application of

- Assemblage Theory to Networks in Archaeology.” *Journal of Archaeological Method and Theory* 28(3): 793-822. <https://doi.org/10.1007/s10816-020-09494-3>
- Knutson, S.A. and C. Ellis. 2021. “‘Conversion’ to Islam in Early Medieval Europe: Historical and Archaeological Perspectives on Arab and Northern Eurasian Interactions.” *Religions* 12: 544. 1-21.
- Koltsov, P.M., B.A. Baitanayev, and M.S. Gadjiev. 2019. “Infrastructure of Great Silk Road North Branch in Areas: Western Kazakhstan- Lower Volga Region- Don region – North Caucasus” (ИНФРАСТРУКТУРА СЕВЕРНОЙ ВЕТВИ ВЕЛИКОГО ШЕЛКОВОГО ПУТИ НА УЧАСТКАХ: ЗАПАДНЫЙ КАЗАХСТАН – НИЖНЕЕ ПОВОЛЖЬЕ – ПОДОНЬЕ – СЕВЕРНЫЙ КАВКАЗ.” *ПОВОЛЖСКАЯ АРХЕОЛОГИЯ* 4(30): 8-22.
- Kovalev, R.K. 2001. The infrastructure of the northern part of the 'Fur Road' between the Middle Volga and the east during the Middle Ages. *Archivum Eurasiae Medii Aevi*. 25-64.
- Kovalev, R.K. 2002. “Dirham Mint Output of Samanid Samarqand and its Connection to the Beginnings of Trade with Northern Europe (10<sup>th</sup> century).” *Histoire & mesure* XVII(3/4): 197-216.
- Kovalev, R.K. 2005. “Commerce and Caravan Routes Along the Northern Silk Road (sixth-ninth centuries), Part I: The Western Sector.” *Archivum Eurasiae Medii Aevi* 14: 55-106.
- Kovalev, R.K.. 2012. Grand Princess Olga of Rus’ Shows the Bird: Her ‘Christian Falcon’ Emblem. *Russian History* 39 (4): 460-517.
- Kovalev, R.K. 2015. Where Did Rus’ Grand Princess Olga’s Flacon Find its Cross?, in P.B. Golden, R.K. Kovalev, A.P. Martinez, J. Skaff, and A. Zimonyi (eds) *Festschrift for Thomas T. Allsen in Celebration of His 75<sup>th</sup> Birthday*: 161-181. Wiesbaden: Otto Harrassowitz.
- Kovalev, R.K. 2017. “The Role of the Rus’ and Volga Bulgars in the Import of Northern Iranian Dirhams into Northern Europe During the Second Half of the Tenth to Early Eleventh Centuries” (О РОЛИ РУСОВ И ВОЛЖСКИХ БУЛГАРОВ ИМПОРТЕ СЕВЕРОИРАНСКИХ ДИРХЕМОВ В ЕВРОПУ ВО ВТОРОЙ ПОЛОВИНЕ X-НАЧАЛЕ XI В.). *Древнейшие государства Восточной Европы* (2015). 95-143.
- Kovalev, R.K. and A.C. Kaelin. 2007. “Circulation of Arab Silver in Medieval Afro-Eurasia: Preliminary Observations. *History Compass* 5(2): 560- 580.
- Kovalev, R.K. and G. Rispling. 2002. Thomas S. Noonan in memoriam. *Revue numismatique* 6 (158): 375-83.
- Krist, G. and L. Zhang (Eds). 2018. *Archaeology and Conservation along the Silk Road*. Vienna:

Böhlau Verlag GmbH.

Krugman, P. 2020. *Arguing with Zombies: Economics, Politics, and the Fight for a Better Future*. New York: W.W. Norton.

Kuleshov, V.S. 2015. "Chronology of Circulation of Islamic Coins in Eastern Europe (Late IX-XI c.)" (Хронология обращения исламских монет в Восточной Европе (конец IX — XI в.)). In *Нумизматические чтения Государственного Исторического музея 2015 года (Москва, 30 ноября — 1 декабря 2015 г.)* (Ed. E. V. Захаров). Москва: Государственный Исторический музей. 73-76.

Kuleshov, V.S. 2016. "The Age of Ibn Fadlan in the Monuments of Numismatics" (ЭПОХА ИБН ФАДЛАНА В ПАМЯТНИКАХ НУМИЗМАТИКИ). In *Путешествие Ибн Фадлана: Волжский путь от Багдада до Булгара: Каталог выставки / Государственный Эрмитаж* (Eds. A. I. Торгоев и И. Р. Ахмедов). Москва: Издательский дом Марджани. 512-517.

Larson, K A. 2013. "A Network Approach to Hellenistic Sculptural Production." *Journal of Mediterranean Archaeology* 26 (2), 235- 259.

Larsson, A. 2007. *Klädd Krigare: Skifte i skandinaviskt dräktskick kring år 1000*. PhD Dissertation. Uppsala: Uppsala University.

Larsson, A. 2012. "Från dräkt till koppar och järn." In *Birka nu* (Ed. C. Hedenstierna-Jonson). Stockholm: National Historical Museum, 129-40.

Lasko, P. 1984. "Ivory Carvings: Introduction." In G. Zarnecki, J. Holt, and T. Holland (Eds.), *English Romanesque Art 1066- 1200* (pp. 210- 211). London: Weidenfeld and Nicolson.

Latour, B. 2007. *Reassembling the Social: An Introduction to Actor-Network Theory*. Oxford: Oxford University Press.

Le Goff, J. 1996. *Das alte Europa und die Welt der Moderne*. Munich: Beck.

Le Goff, J. 2010. *Money and the Middle Ages*. Cambridge: Polity.

Lee, B. and E. LiPuma. 2002. Cultures of Circulation: The imaginations of modernity. *Public Culture* 14(1): 191-213.

Leontiev, A.E. 1986. "Volga-Baltic Trade Route in the Ninth Century" (Волжско-Балтийский торговый путь в IX в.). *КРАТКИЕ СООБЩЕНИЯ ИНСТИТУТА АРХЕОЛОГИИ* 183: 3-9.

Lerner, J.D. and Y. Shi (Eds). 2020. *Silk Roads: From Local Realities to Global Narratives*. Oxford: Oxbow.

- Lilley, I. 2004. "Diaspora and Identity in Archaeology: Moving beyond the Black Atlantic." In *A Companion to Social Archaeology* (Ed. L. Meskell and R.W. Preucel). 287-312.
- Lindberger, E. 2001. The Falcon, the Raven and the Dove. Some bird motifs on medieval coins, In B. Ambrosiani (ed.) *Eastern Connections Part One: The Falcon Motif*: 29- 86. Stockholm: Riksantikavieämbetet.
- Liu, X. 2010. *The Silk Road in World History*. Oxford: Oxford University Press.
- Lowick, N. (1976). *The Kufic Coins from Cuerdale*. British Numismatic Society: 19-28.
- Loulanski, T. 2006. Revising the concept for cultural heritage: The argument for a functional approach. *International Journal of Cultural Property* 13: 207-233.
- Lucas, G. 2012. *Understanding the archaeological record*. Cambridge: Cambridge University Press.
- Lucas, G. 2017. "Variations on a theme: assemblage archaeology." *Cambridge Archaeological Journal* 27(1), 187-190.
- Lundeen, M. 1997. Looted Archaeological Sites: Are they worthy of scientific investigation? *Nebraska Anthropologist* 109. <https://digitalcommons.unl.edu/nebanthro/109>
- Macdonald, S., J. Morgan, and H. Fredheim. 2020. "Doomed?" In R. Harrison, C. DeSilvey, C. Holtorf, et al. (eds) *Heritage Futures: Comparative Approaches to Natural and Cultural Heritage Practices*: 238- 248. London: UCL Press.
- Mair, V.H. and J. Hickman (Eds.) 2014. *Reconfiguring the Silk Road: New Research on East-West Exchange in Antiquity*. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology.
- Makarov, N.A. 1993. "Portage of the Russian North in the System of Medieval Communications" (Волоки Русского Севера в системе средневековых коммуникаций). In *Культурно-историческое единство Евразии и Великий шелковый путь*. Moscow: Moscow State University Publishing.
- Makarov, N.A. 2006. "Traders in the Forest: The Northern Periphery of Rus' in the Medieval Trade Network." In *Pre-Modern Russia and its World: Essays in Honor of Thomas S. Noonan* (Ed. T.G. Stavrou and J.D. Tracy). Wiesbaden: Harrassowitz Verlag, 115-133.
- Mamleva, L.A. 1999. "Formation of the Great Silk Road in the System of Transcivilizational Interaction of the Peoples of Eurasia" (тановление Великого шёлкового пути в системе трансквилизационного взаимодействия народов Евразии). *Vita Antiqua* 2: 53-61.
- Martí, G.-M. H. 2006. "The Deterritorialization of Cultural Heritage in a Globalized

- Modernity Transfer.” *Journal of Contemporary Culture* 1: 92–107.
- Maurer, B. 2005. *Mutual life, limited: Islamic banking, alternative currencies, lateral reason*. Princeton: Princeton University Press.
- Maurer, B. 2006. “The anthropology of money.” *Annual Reviews in Anthropology* 35, 15-36.
- Maurer, B. 2019. *A Cultural History of Money*. Vol. 1-6. London: Bloomsbury.
- McAnany, P.A. and I. Hodder. 2009. “Thinking about stratigraphic sequence in social terms.” *Archaeological Dialogues* 16(1): 1-22.
- McNally, D. 2020. *Blood and Money: War, Slavery Finance, and Empire*. Chicago: Haymarket.
- Meharry, J.E. 2020. “Nationalism, Politics, and the Practice of Archaeology in Afghanistan: A case study of Bamiyan.” In *Heritage as Aid and Diplomacy* (Eds. P. Peycam, S-L Wang, H. Yew-Foong, and H-H. M. Hsiao). Singapore: ISEAS.
- Mehendale, S. 1996. “Begram: along ancient Central Asian and Indian trade routes.” *Cahiers d’Asie centrale* (1/2): 47-64.
- Melnikova, E.A. 1996. *The Eastern World and the Vikings. Eight Essays about Scandinavia and Eastern Europe in the Early Middle Ages*. Gothenburg: University of Gothenburg.
- Merrill, M., and D. Read. 2010. “A New Method Using Graph and Lattice Theory to Discover Spatially Cohesive Sets of Artifacts and Areas of Organized Activity in Archaeological Sites.” *American Antiquity* 75(3), 419–51.
- Merryman, J.H. 2009. *Thinking About the Elgin Marbles: Critical Essays on Cultural Property, Art, and Law*. Austin: Wolters Kluwer.
- Meskel, L. (Ed.). 2002a. *Archaeology under fire: nationalism, politics and heritage in the Eastern Mediterranean and Middle East*. London: Routledge.
- Meskel, L. 2002b. “Negative heritage and past mastering in archaeology.” *Anthropological Quarterly* 75(3): 557-574.
- Meskel, L. 2011. *The Nature of Heritage: The New South Africa*. Malden: Wiley-Blackwell.
- Meskel, L. 2018. *A Future in Ruins: UNESCO, World Heritage, and the Dream of Peace*. Oxford: Oxford University Press.
- Michailidis, M. 2012. “Samanid Silver and Trade along the Fur Route.” *Medieval Encounters* 18: 315-338.

- Mickel, A. 2016. "Tracing teams, texts, and topics: Applying social network analysis to understand archaeological knowledge production at Çatalhöyük." *Journal of Archaeological Method and Theory* 23(4): 1095-1126.
- Mikkelsen, E. 1998. Islam and Scandinavia during the Viking Age, in E. Piltz (ed.) *Byzantium and Islam in Scandinavia*: 39-51. Uppsala: Uppsala University.
- Miles, G.C. 1962. *The Islamic Coins*. Princeton: American School of Classical Studies at Athens.
- Miles, R. 1987. *Capitalism and Unfree Labour: Anomaly or necessity?* London: Tavistock.
- Miller, B.K. and U. Brosseder. 2017. "Global dynamics in local processes of Iron Age Inner Asia." In *The Routledge handbook of archaeology and globalization* (Eds. T. Hodos, A. Geurds, P. Lane, I. Lilley, M. Pitts, G. Shelach, M. Stark, and M.H. Versluys). London: Routledge, 470-87.
- Mills, B.J. 2017. "Social Network Analysis in Archaeology." *Annual Review of Anthropology* 46: 379-97.
- Mills, B. J., J. J. Clark, M. A. Peeples, W. Haas, J. M. Roberts, J. B. Hill, D. L. Huntley, L. Borck, R. L. Breiger, and A. Clauset. 2013. "Transformation of social networks in the late pre-Hispanic US Southwest." *Proceedings of the National Academy of Sciences* 110, 5785- 5790.
- Mills, B J., M. A. Peeples, W. R. Haas, Jr., L. Borck, J. J. Clark, and J. M. Roberts, Jr. 2015. "Multiscalar Perspectives on Social Networks in the Late Prehispanic Southwest." *American Antiquity* 80 (1): 3–24.
- Mills, B. J., J. J. Clark, and M. A. Peeples. 2016. "Migration, Skill, and the Transformation of Social Networks in the Pre-Hispanic Southwest: Social Network Transformation in Pre-Hispanic Southwest." *Economic Anthropology* 3 (2), 203–15.
- Mishra, R.K. 2020. The 'Silk Road': Historical Perspectives and Modern Constructions. *Indian Historical Review* 49(1): 21-39.
- Mitchell Innes, A. 1914. The Credit Theory of Money. *Banking Law Journal* 31: 151-168.
- Mitchiner, M. 1973. *The Multiple Dirhems of Medieval Afghanistan*. London: Hawkins.
- Mizoguchi, K.. 2009. "Nodes and Edges: A Network Approach to Hierarchisation and State Formation in Japan." *Journal of Anthropological Archaeology* 28(1), 14–26.
- Moraekhi, M. 2002. A New Perspective on the Phenomenon of Mirror-Image Writing in Arabic Calligraphy, in J.F. Healey and V. Porter (eds) *Studies on Arabia in Honour of Professor G. Rex Smith*: 123-135. Oxford: Oxford University Press.



- Moshkova, M.G. 2005. "Middle Sarmatian Culture." In *Nomads of the Eurasian Steppes in the Early Iron Age* (Eds. J. Davis-Kimball, V.A. Bashilov, and L.T. Yablonsky). Berkeley: Zinat Press, 137-47.
- Mukhamadiev, A.G. 2005. *Древние монеты Казани (Ancient Coins of Kazan)*. Kazan: Tatar Book Publishing House.
- Munch, P.A. 1864. *Pavelige nuntiers regnskabs--og dagbøger førte under tiende-opkrævningen i Norden 1282- 1334*. Christiania [Oslo]: Norway.
- Munson, J. 2015. "From Metaphors to Practice. Operationalizing Network Concepts for Archaeological Stratigraphy." *Journal of Archaeological Method and Theory* 22: 428-460.
- Munson, J. L. and M. J. Macri. 2009. "Sociopolitical Network Interactions: A Case Study of the Classic Maya." *Journal of Anthropological Archaeology* 28(4): 424–38.
- Myrdal, E. (ed). 2020. *Bulletin of the Museum of Far Eastern Antiquities 8: Asia and Scandinavia: New Perspectives on the Early Medieval Silk Roads*. Stockholm: Östasiatiska Museet.
- Mägi, M. 2018. *In Austrvegr: The Role of the Eastern Baltic in Viking Age Communication across the Baltic Sea*. Leiden: Brill.
- Nakai, I., and Y. Shindo. 2013. "Glass trade between the Middle East and Asia." In *Modern Methods for Analysing Archaeological and Historical Glass* (Vol. 1) (Ed. K. Janssens). West Sussex: Wiley, 445-457.
- Nail, T. 2017. "What is an Assemblage?" *SubStance* 46(1): 21- 37.
- Negus Cleary, M. 2017. "Enclosure Sites, Non-Nucleated Settlement Strategies and Political Capitals in Ancient Eurasia." In *Eurasia Empires in Antiquity and the Middle Ages: Contact and Exchange between the Graeco-Roman World, Inner Asia, and China* (Ed. H.J. Kim, F.J. Vervaet, and S. F. Adali). Cambridge: Cambridge University Press, 275-317.
- Nelms, T. C., and Maurer, B. 2014. "Materiality, symbol, and complexity in the anthropology of money." In *The psychological science of money*, (Eds.) E. Bijleveld and H. Aarts. 37-70.
- Noonan, T.S. 1981. "Ninth-century dirham hoards from European Russia: A preliminary analysis." In *Viking-Age Coinage in the Northern Lands* (Eds. M.A.S. Blackburn and D.M. Metcalf). Oxford: BAR International Series.
- Noonan, T.S. 1984. "Why Dirhams First Reached Russia: The role of Arab-Khazar relations in the development of the earliest Islamic trade with Eastern Europe." *Archivum Eurosiae Medii Aevi*: 151-282.

- Noonan, T.S. 1986. "Why the Vikings First Came to Russia." *Jahrbücher für Geschichte Osteuropas* 34: 321- 348.
- Noonan, T.S. 1992. "Fluctuations in Islamic Trade with Eastern Europe during the Viking Age." *Harvard Ukrainian Studies* 16(3/4): 237- 259.
- Noonan, T.S. 2000. "The Silk Road and the Fur Road: Central Asian Trade with Northern Russia in the 6<sup>th</sup>- 7<sup>th</sup> centuries." In *Kontakte zwischen Iran, Byzanz und der Steppe* (Ed. C. Bálint). Budapest: Institut für Archäologie der UAW, 285-301.
- Nordeide, S.W. 2006. Thor's hammer in Norway, In A. Andren, K. Jannbert, and C. Raudvere (eds.) *Old Norse Religion in Long-term Perspectives: Origins, Changes, and Interactions*: 218-223. Lund: Nordic Academic Press.
- Normark, J. 2010. "Involutions of Materiality: Operationalizing a Neo-materialist Perspective through the Causeways at Ichnul and Yo-okop." *Journal of Archaeological Method and Theory* 17(2): 132- 173.
- Nurulla-Khodjaeva, N.T. 2017. "'Dancing' Merchants Beyond the Empires on the Silk Road" («ТАНЦУЮЩИЕ» КУПЦЫ ВНЕ ИМПЕРИЙ НА ШЁЛКОВОМ ПУТИ.) *MGIMO Review of International Relations* 1(52): 119-139.
- Odenocrants, R. 1934. "Ett vikingatidsfynd med orientaliskt bronskärl." *Fornvännen* 29: 144-152.
- Oka, R. and C. Kusimba. 2008. The Archaeology of Trading Systems, Part 1: Towards a New Trade Synthesis. *Journal of Archaeological Research* 16: 339-395.
- Olsen, B. 2010. *In Defense of Things: Archaeology and the Ontology of Objects*. Lanham: Altamira.
- Olsen, B, M. Shanks, T. Webmoor, and C. Witmore. 2012. *Archaeology: The Discipline of Things*. Berkeley: University of California Press.
- Omar, H. 2021. "Unexamined Life: The too many faces of Edward Said." *The Baffler* 58. <https://thebaffler.com/salvos/unexamined-life-omar>
- Omi, M. and H. Winant. 2015. *Racial Formation in the United States*. 3<sup>rd</sup> ed. New York: Routledge.
- Orfinskaya, O.V. 2017. "An Analysis of the Style of Male Caftans and Female Dresses of the Alans from the North Caucasus" (АНАЛИЗ КРОЯ МУЖСКИХ КАФТАНОВ И ЖЕНСКИХ ПЛАТЬЕВ АЛАН СЕВЕРНОГО КАВКАЗА). *Поволжская Археология* 2(20): 173-186.
- Orser, C.E. 2005. "Network Theory and the Archaeology of Modern History," in P.P. Funari, A.

- Zarankin, and E. Stovel (eds) *Global Archaeological Theory: Contextual Voices and Contemporary Thoughts: 77-95*. New York: Kluwer.
- Ortega, D., J. J. Ibañez, L. Khalidi, V. Méndez, D. Campos, and L. Teira. 2014. "Towards a Multi-Agent-Based Modelling of Obsidian Exchange in the Neolithic Near East." *Journal of Archaeological Method and Theory* 21(2), 461–85.
- Pailes, M. 2014. "Social Network Analysis of Early Classic Hohokam Corporate Group Inequality." *American Antiquity* 79 (3): 465–86.
- Paliou, E. and A. Bevan. 2016. "Evolving settlement patterns, spatial interaction and the socio-political organisation of late Prepalatial south-central Crete." *Journal of Anthropological Archaeology* 42, 184- 197.
- Parry, J., & Bloch, M. (Eds.) 1989. *Money and the Morality of Exchange*. Cambridge: Cambridge University Press.
- Pauketat, T. 2012. *An archaeology of the cosmos: rethinking agency and religion in ancient America*. London: Routledge.
- Peters, M.A. 2019. "The ancient Silk Road and the birth of merchant capitalism." *Educational Philosophy and Theory*: 1-7.
- Petrukhin, V. 2007. Khazaria and Rus': An examination of their historical relations in P. Golden, H. Ben-Shammai, and A. Roná-Tas *The World of the Khazars: 245-268*. Leiden: Brill.
- Philips, J.L. 2011. "Appendix 13.4: Obsidian Artifacts from the Sepik Coast, Papua New Guinea." In *Fieldiana: Exploring Pre History on the Sepik Coast of Papua New Guinea* (Eds. J.E. Terrell and E.M. Schechter). Chicago: Field Museum of Natural History, 284-287.
- Picketty, T. 2013. *Capital in the Twenty-First Century*. Cambridge: Harvard University Press.
- Pierce, E. 2009. "Walrus Hunting and the Ivory Trade in Early Iceland." *Archaeologia Islandica* 7, 55-63.
- Pluskowski, A. 2004. "Narwhals or Unicorns? Exotic animals as material culture in medieval Europe." *European Journal of Archaeology* 7(3): 291-313.
- Pollock, S. and R. Bernbeck (Eds). 2005. *Archaeologies of the Middle East: Critical Perspectives*. Malden: Blackwell.
- Popescu, G. 2010. "Deterritorialization and reterritorialization." In *Encyclopedia of Geography* (Ed. B. Warf). Thousand Oaks: Sage, 722-724.
- Porter, V. 1997. The Islamic coins collected by Stein in Chinese Central Asia in K. Tanabe, J.

- Cribb, and H. Wang (eds) *Studies in Silk Road Coins and Culture: Papers in honour of Professor Ikuo Kirayama on his 65th birthday*: 201-217. Kamakura: Institute of Silk Road Studies.
- Porter, V. 2004. Islamic Seals: Magical or Practical?, in E. Savage-Smith (ed.) *Magic and Divination in Early Islam*: 179-200. Aldershot: Ashgate.
- Porter, V. 2010. The use of the Arabic script in magic, in M.C.A. Macdonald (ed.) *The Development of Arabic as a written language*: 131-140. Oxford: Archaeopress.
- Porter, V. 2011. *Arabic and Persian Seals and Amulets in the British Museum*. London: British Museum Press.
- Priestman, S. 2016. The Silk Road or the Sea? Sasanian and Islamic Exports to Japan. *Journal of Islamic Archaeology* 3(1): 1-35.
- Prignano, L., I. Morer, and A. Diaz-Guilera. 2017. “Wiring the Past: A Network Science Perspective on the Challenge of Archeological Similarity Networks.” *Frontiers in Digital Humanities* 4.
- Proulx, B.B. 2013. Archaeological Site Looting in ‘Glocal’ Perspective: Nature, Scope, and Frequency. *American Journal of Archaeology* 117(1): 111-125.
- Raffensperger, C. 2012. *Reimagining Europe: Kievan Rus’ in the Medieval World*. Cambridge: Harvard University Press.
- Rezakhani, K. 2010. “The road that never was: The Silk Road and Trans-Eurasian exchange.” *Comparative Studies of South Asia, Africa, and the Middle East* 30: 420-433.
- Richthofen, F. von. 1877-1912. *China. Ergebnisse eigener Reisen und darauf gegründeter Studien*. Vol. 1. Berlin: Reimer.
- Rispling, G. 1987. Coins with crosses and bird heads—Christian imitations of Islamic Coins? *Fornvännen* 82: 75-87.
- Rispling, G. 2001. A List of Coin Finds Relevant to the Study of Early Islamic-Type Imitations. *Russian History* 28 (1-4): 325-39.
- Rispling, G. 2004. Catalogue and Comments on the Islamic Coins from the Excavations 1990-1995, In B. Ambrosiani (ed.) *Eastern Connections Part Two: Numismatics and Metrology*: 26-60. Stockholm: Riksantikvarieämbetet.
- Rivers, R., C. Knappett, and T. Evans. 2013. “Network Models and Archaeological Spaces.” In A. Bevan and M. Lake (Eds.), *Computational Approaches to Archaeological Spaces* (pp. 99- 126). Walnut Creek: Left Coast Press.

- Roesdahl, E. 1998. "L'ivoire de morse et les colonies norroises." *Proxima Thulé* 3, 10- 48.
- Roesdahl, E. 2003. "Walrus Ivory and Other Northern Luxuries: Their Importance for Norse Voyages and Settlements in Greenland and America." In S. Lewis-Simpson (Ed.), *Vinland Revisited: The Norse World at the Turn of the First Millenium. Selected Papers from the Viking Millennium International Symposium* (pp. 145- 52). St Johns: Historic Sites Association of Newfoundland and Labrador.
- Romanowska, I., S.A. Crabtree, K. Harris, and B. Davies. 2019. "Agent-Based Modeling for Archaeologists: Part 1 of 3." *Advances in Archaeological Practice*, 7(2), 178-184.
- Rose J. 2010. The Sogdians: prime movers between boundaries. *Comparative studies of South Asia, Africa and Middle East* 30-3, 410- 419.
- Rubinson, K.S. 2008. "Tillya Tepe: Aspects of Gender and Cultural Identity." In *Are All Warriors Male? Gender Roles on the Ancient Eurasian Steppe* (Eds. K.M. Linduff and K.S. Rubinson). Lanham: AltaMira Press, 51-63.
- Said, E. 1978. *Orientalism*. New York: Pantheon.
- Savchenko, E.I. 1999. "Moschevaya Balka- A Junction Point of the Great Silk Road in the North Caucasus" (Мощевая Балка—узловой пункт Великого шелкового пути на Северном Кавказе). *Российская археология* 1: 125-140.
- Schiffer, M. 1976. *Behavioral Archaeology*. New York: Academic Press.
- Schortman, E. M. 2014. "Networks of Power in Archaeology." *Annual Review of Anthropology* 43, 167–82.
- Seaver, K. A. 2009. "Desirable teeth: the medieval trade in Arctic and African ivory." *Journal of Global Hisotry* 4, 271- 292.
- Shepherd, R. 2014. "China: Cultural Heritage Preservation and World Heritage." In *Encyclopedia of World Archaeology* (Ed. C. Smith). New York: Springer.
- Shulga, D.P. 2020. Coins of Eastern Roman Empire in China as a Reflection of the Situation on the Silk Way. *MAIASP: Materials on Archaeology and History of the Ancient and Medieval Black Sea Region* 12: 774- 788.
- Shulga, D.P. and A.A. Suvandii. 2021. Монеты Ромейской Империи в Поднебесной. *Научная Молодежь: Приоритеты Мировой Науки в XXI Веке: Материалы VI Открытой научно-практической конференции г. Луганск, 15 апреля 2021 г.* 86-88. Luhansk.
- Sindbæk, S.M. 2007. "The Small World of the Vikings: Networks in Early Medieval Communication and Exchange." *Norwegian Archaeological Review* 40, 59–74.

- Sindbæk, S.M. 2010. "Re-assembling regions: The social occasions of technological exchange in Viking Age Scandinavia." In R. Barndon, A. Egevik, & I. Øye (Eds.), *The Archaeology of Regional Technologies: Case studies from the Palaeolithic to the Age of the Vikings* (pp. 263- 287). Lewiston: Edwin Mellen Press.
- Sindbæk, S. M. 2013. "Broken Links and Black Boxes: Material Affiliations and Contextual Network Synthesis in the Viking World." In C. Knappett (Ed.), *Network Analysis in Archaeology. New Approaches to Regional Interaction* (pp. 71–94). Oxford: Oxford University Press.
- Sindbæk, S. 2017. A site of intersection: Staraya Ladoga, Eastern Silver, and Long-Distance Communication Networks in Early Medieval Europe. In: J. Callmer, I. Gustin, and M. Roslund, eds. *Identity Formation and Diversity in the Early Medieval Baltic and Beyond*. Leiden: Brill, pp. 76-90.
- Skaff, J. K. 2003. "The Sogdian Trade Diaspora in East Turkestan during the Seventh and Eighth Centuries." *Journal of the Economic and Social History of the Orient* 46(4): 475-524.
- Skre, D. (Ed.) 2007. *Means of Exchange: Dealing with Silver in the Viking Age. Kaupang Excavation Project Publication Series, Vol. 2*. Aarhus: Aarhus University Press.
- Small, S. 1994. *Racialised Barriers: The black experience in the United States and England in the 1980's*. London: Routledge.
- Smith, C. 2014. *Encyclopedia of Global Archaeology*. New York: Springer Reference.
- Smith, C. and H. Burke. 2021. "Global Archaeology." In *Oxford Bibliographies*, edited by J. Jackson. Oxford: Oxford University Press. DOI: 10.1093/OBO/9780199766567-0260
- Spengler, R. N. 2015. "Agriculture in the Central Asian Bronze Age." *Journal of World Prehistory* 28(3): 215-253.
- Sperber, E. 1996. *Balances, Weights and Weighing in Ancient and Early Medieval Sweden*. Stockholm: Stockholm University.
- Stanisławski, B.M. 2013. *Jómswikingowie z Wolina-Jòmshorga*. Wrocław: Instytut Archaeologii i Etnologii PAN.
- Star, B., J.H. Barrett, A.T. Gondek, and S. Boessenkool. 2018. "Ancient DNA reveals the chronology of walrus ivory trade from Norse Greenland." *Proceedings of the Royal Society B: Biological Sciences*, 285: 20180978.
- Steuer, J. 1978. "Geldgeschäfte und Hoheitsrechte im Vergleich zwischen Ostseeländern und islamischer Welt." *Zeitschrift für Archäologie* 12: 255-60.

- Stevens, C. J., C. Murphy, R. Roberts, L. Lucas, F. Silva, and D.Q. Fuller. 2016. Between China and South Asia: A Middle Asian corridor of crop dispersal and agricultural innovation in the Bronze Age. *The Holocene* 26(10), 1541-1555.
- Stratford, N. 1987. "Gothic ivory carving in England." In J. Alexander and P. Binski (Eds.), *Age of Chivalry: Art in Plantagenet England 1200–1400* (pp. 107-113). London: Weidenfeld and Nicolson.
- Szmoniewski, B. 2016. The Byzantine Coin and its Imitations (The coin of the dead)- Evidence from finds from the Avar Khaganate Graves, in the Silk Road and abutting areas (the 6th-8th centuries) (Византийская монета и ее подражания (монета мертвых) на примере находок из погребений аварского каганата, на шелковом пути и прилегающих территорий (VI- VIII ВВ.)) *Brief Notes from the Institute of Archaeology* 244: 254-274.
- Tanabe, K. 1993. *Silk Road Coins: The Hirayama Collection*. Kamakura: the Institute of Silk Road Studies.
- Tanabe, K., J. Cribb, and H. Wang (eds). 1997. *Studies in Silk Road Coins and Culture: Papers in honour of Professor Ikuo Kirayama on his 65th birthday*. Kamakura: Institute of Silk Road Studies.
- Taylor, W., S. Shnaider, A. Abdykanova, A. Fages, F. Welker, F. Irmer, A. Seguin-Orlando, N. Khan, K. Douka, K. Kolobova, L. Orlando, A. Krivoschapkin, and N. Boivin. 2018. Early pastoral economies along the Ancient Silk Road: biomolecular evidence from the Alay Valley, Kyrgyzstan. *PloS one* 13(10): e0205646.
- Terrell, J.E. 2001. Archaeology, Material Culture, and the Complementary Forms of Social Life, in P.B. Drooker *Fleeting Identities: Perishable Material Culture in Archaeological Research*: 58-75. Carbondale: Southern Illinois University Press.
- Terrell, J. 2013. "Social Network Analysis and the Practice of History." In *Network Analysis in Archaeology* (Ed. C. Knappett). Oxford: Oxford University Press: 17- 41.
- Tomášková, S. 2007. "Mapping a Future: Archaeology, Feminism, and Scientific Practice." *Journal of Archaeological Method and Theory* 14: 264-284.
- Tsotselia, M. 2002. "Recent Sasanian coin findings on the territory of Georgia." *Histoire & mesure* XVII(3/4): 143-153.
- Van Oyen, A. 2016. "Networks or Work-Nets? Actor-Network Theory and Multiple Social Topologies in the Production of Roman Terra Sigillata." In *The Connected Past: Challenges to Network Studies in Archaeology and History*, edited by Tom Brughmans, Anna Collar, and Fiona Coward, 35–56. Oxford: Oxford University Press.
- Vedeler, M. 2014. *Silk for the Vikings*. Oxford: Oxbow.

- Vedeler, M. 2015. "Silk Trade to Scandinavia in the Viking Age." In *Textiles and the Medieval Economy: Production, Trade, and Consumption of Textiles, 8<sup>th</sup>- 16<sup>th</sup> centuries* (Ed. A.L. Huang and C. Jahnke). Oxford: Oxbow, 78-85.
- Verity, D.H., J.E. Marr, S. Ohno, G.R. Wallace, and M.R. Stanford. 1999. Behçet's disease, the Silk Road and HLA-B51: historical and geographical perspectives. *Tissue Antigens* 54(3): 213-220.
- Vésteinsson, O., T.H. McGovern, and C. Keller. 2002. "Enduring Impacts: Social and Environmental Aspects of Viking Age Settlement in Iceland and Greenland." *Archaeologica Islandica* 2: 98-136.
- Vondrovec, K. 2008. Numismatic Evidence of the Alchon Huns Reconsidered. *Beiträge zur Ur- und Frühgeschichte Mitteleuropas* 50: 25-56.
- Wang, H. 2004a. *Money on the Silk Road: the evidence from eastern central Asia to c. AD 800, including a catalogue of the coins collected by Sir Aurel Stein*. London: British Museum Press.
- Wang, H. 2004b. How much for a camel? A new understanding of money on the Silk Road before AD 800 in S. Whitfield (ed.) *The Silk Road: Trade, Travel, War and Faith*: 24-33. Chicago: Serindia.
- Wang, H. 2013. Textiles as Money on the Silk Road? *Journal of the Royal Asiatic Society* 23(2): 165-174.
- Waugh, D.C. 2007. "Richthofen's 'Silk Roads': Toward the Archaeology of a Concept." *The Silk Road* 5(1): 1-10.
- Waugh, D.C. 2017. "The 'owl of misfortune' or the 'phoenix of prosperity'? Rethinking the impact of the Mongols." *Journal of Eurasian Studies* 8: 10-21.
- West, A.J. 2019. "Manuscripts and the Medieval Tropics." In *Toward a Global Middle Ages* (Ed. B.C. Keene). Los Angeles: J. Paul Getty Museum.
- Whitfield, S. 2018. *Silk, slaves, and stupas: material culture of the Silk Road*. Berkeley: University of California Press.
- Whitfield, S. (Ed.) 2019. *Silk Roads: peoples, cultures, landscapes*. Berkeley: University of California Press.
- Wilkie, L.A. 2001. "Race, Identity, and Habermas's Lifeworld." In *Race and the Archaeology of Identity* (Ed. C.E. Orser Jr.). Salt Lake City: University of Utah Press, 108- 124.
- Williams, T.D. 2014. *The Silk Roads: an ICOMOS Thematic Study*. Paris: ICOMOS.



- Williams, T.D. 2015. "Mapping the Silk Roads." *The Silk Road: Interwoven History* 1: 1-42.
- Williamson, P. 2010. *Medieval Ivory Carvings: Early Christian to Romanesque*. London: Victoria & Albert Museum.
- Williamson, P. 2014. *Medieval Ivory Carvings, 1200-1500*. London: Victoria & Albert Museum.
- Wilson, D.A. and P. Ayerst. 1976. *White Gold: the story of African ivory*. Taplinger Publishing Co.
- Winter, T. 2016. "One Belt, One Road, One Heritage: Cultural Diplomacy and the Silk Road." *The Diplomat*. Accessible via: <http://thediplomat.com/2016/03/one-belt-one-road-one-heritage-cultural-diplomacy-and-the-silk-road/>. Accessed 18 August 2020.
- Witmore, C. 2014. "Archaeology and the New Materialisms." *Journal of Contemporary Archaeology*. 1(2): 203- 246.
- Wärmländer, S.K.T.S., L. Wähländer, R. Saage, K. Rezakhani, S.A. Hamid Hassan, and M. Neiß. 2015. Analysis and Interpretation of a Unique Arabic Finger Ring from the Viking Age Town of Birka, Sweden. *Scanning* 37: 131-37.
- Yao, A. 2012. "Sarmatian Mirrors and Han Ingots (100 BC – AD 100). How the Foreign became Local and Vice Versa." *Cambridge Archaeological Journal* 2: 57-70.
- Ying, L. 2005. Solidi in China and monetary cultural along the Silk Road. *The Silk Road* 3(2): 16-20.
- Yusoff, K., E. Grosz, N. Clark, A. Saldanha, and C. Nash. 2012. Geopower: a panel on Elizabeth Grosz's *Chaos, Territory, Art: Deleuze and the Framing of the Earth*. *Environment and Planning D: Society and Space* 30: 971-988.
- Zeldovich, M. 2007. "The Traders of Inner Eurasia: Volga Bulgaria in Eurasian Trade, 9<sup>th</sup>- 14<sup>th</sup> centuries." In *Traders and Trade Routes of Central and Inner Asia: The 'Silk Road' Then and Now: Papers Presented at the Central and Inner Asia Seminar, University of Toronto 13-14 May 2005* (Eds. M. Gervers, U.E. Bulag, and G. Long). Toronto: Asian Institute, University of Toronto, 57- 76.
- Zimonyi, I. 2017. "Ortaçağ Avrupa Tarihinde Göçebe Unsuru." *Türk Tarihi Araştırmaları Dergisi/ Journal of Turkish History Researches* 3(1): 154-166.
- Zimonyi, I. 2018. "A vaskengyel elterjedése a Selyemút mentén." In *Kultúrák Találkozása És Kölcsönhatása A Selyemút Mentén: Ecsedy Ildikó születésének 80. évfordulójára* (Ed. E. Dallos and G. Kósa). Budapest: ELTE BTK Kínai Tanszék, 315-334.
- Östborn, P., and H. Gerding. 2014. "Network Analysis of Archaeological Data: A Systematic Approach." *Journal of Archaeological Science* 46: 75–88.

Östborn, P., and H. Gerding. 2015. "The Diffusion of Fired Bricks in Hellenistic Europe: A Similarity Network Analysis." *Journal of Archaeological Method and Theory* 22 (1), 306–44.