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Trade and Rock Art Traditions: Prehistoric Paths Between Italy and Northern Europe in Bronze Age

Supervisor:
Prof. Paolo Rondini

Co-Supervisor:
Prof. Jens-Bjørn Riis Andresen

Student:
Zubeyda Malikli

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Abstract

This thesis establishes rock art as a potential sign of interregional communication and involvement by examining the cultural and economic exchanges between Scandinavia and the Italian Alps during the Bronze Age. Between 1500 and 1100 BCE, copper imports from South Tyrol and the trade of valuable goods like metal and amber demonstrate a well-established network linking Scandinavia and the Italian Alps. Numerous resources are highlighted by research on copper sources, demonstrating the wide distribution pathways that delivered metal to Scandinavia and promoted standard material practices throughout these areas. Through rock art, this research investigates how standard practices and cultural connections were expressed in both regions' iconographic expressions. This thesis provides a nuanced understanding of cross-regional exchange dynamics by placing this analysis within theoretical frameworks, such as Kaul's idea of xenia, or guest-friendship, promoting inland trade, and Kristiansen's view of the Italian Terramare culture as a Mediterranean trade connection. The findings reveal how centuries of trade and interpersonal relationships fostered a cultural koiné, observable in rock art motifs from Valcamonica, Italy, and Scandinavia, which reflect sustained interactions and shared cultural expressions from the third to the first millennium BCE.

Keywords: Trade, rock art, Bronze Age, Terramare, xenia, metal, Valcamonica, Scandinavia, amber

Acknowledgment

Table of Contents

1.Introduction

This thesis aims to investigate the complex economic relationships between the Italian Alps and Scandinavia across two crucial periods—1500–1100 BCE and 1000–700 BCE. The former is defined by the importation of copper from South Tyrol, which was accompanied by a reciprocal trade in luxury goods, mainly amber and metals of different kinds. However, distinguishing similarities in burial customs may be interpreted as proof of direct cultural connections or a shared cultural koine (Peroni,1997). Recent developments in the provenance investigation of copper have significantly increased our knowledge of the metallurgical networks that made it easier to obtain copper and tin throughout the Nordic Bronze Age (NBA). Numerous investigations have shown that copper was carried to Scandinavia from several different ore sources, revealing a complicated network of trading relations (Ling et al., 2013; 2014; Melheim et al., 2018a; Vandkilde, 2017; Nørgaard et al., 2019). This study explores that rock art was a key indicator of cultural contact and interaction between Scandinavia and the Italian Alps around the second millennium BCE. Similarities in the exchange of luxury commodities also contributed to emphasizing these ties. Although earlier research has identified material cultural similarities between Scandinavia and Italy, especially in the areas of metalwork and ceramics (Montelius, 1917, p. 29; Kristiansen, 1998, 2016), more focus has frequently been placed on cultural ties with Central and Eastern Europe, particularly given the Carpathian Basin's significance as a crucial intersection of temperate Europe, the Eurasian steppes, and the Aegean world. (Vandkilde,2014) However, new scientific data demonstrating that Scandinavian bronzes were made using non-local copper and tin, mostly of Mediterranean and northern Alpine origins, is an essential component (Ling et al. 2013, 2014). Around 1600 BC, southern Scandinavia's supply of copper and tin rose dramatically (Vandkilde, 1996, 2014). Following this period, rock art themes representing metals and equipment indicating personal status and non-domestic cosmopolitan elements started to appear.

Weapons, chariots, oxhide ingots, and sun figures were first used, followed by armor and mirrors (Kaul, 1998; Coles, 2005; Ling, 2008). Across most of Europe, these figurative elements expressed unique "social codes" or "core values" (cf. Kaul, 1998; Fredell, 2003; Harrison, 2004; Coles, 2005; Kristiansen & Larsson,2005).

This thesis's main goal is to examine the social processes that appear in similar material manifestations in these various geographical locations. According to Kristiansen (2016), the Italian Terramare culture was an important economic center that connected Central European and Nordic communities with Mediterranean trading networks. The main goal of this thesis is to examine the social processes that appear in similar material manifestations in these various geographical locations. According to Kristiansen (2016), the Italian Terramare culture was an important economic center that connected Central European and Nordic communities with Mediterranean trading networks. However, Kaul (2018) explains the idea of xenia, which is based on the ancient Greek idea of hospitality and guest-friendship, stressing the value of interior routes and human connections in commercial transactions. The distinction between trade and gift-giving was blurred by the constant interaction of these two activities. Beginning approximately 1000 BCE, centuries of contact and commerce manifested deep cultural affinities. Previously unconsidered information, including links between rock art aggregation locations, seasonal exchange patterns, and nomadic traders' activity, further supports this claim.

In order to explore possible routes by trade and find similarities between these two significant areas, this thesis will mostly concentrate on rock art to look at possible cultural ties between Italy and Scandinavia. This study will begin in the later part of the third millennium BCE, when mysterious rock art depictions of trade contacts were common, and end in the first millennium BCE, when various motifs were common in the interior of Val Camonica, Italy. We understand that rock

art motifs possess symbolic and cultural meaning, but will they help us find a connection between the countries?

2. The European Bronze Age as a Network

2.1 The Emergence of Mediterranean/European Trade Connections

> "The Bronze Age was the first long period in human history when widespread trade networks connected Europe and the wider Eurasian continent, defining a pre-modern era of globalization, or 'bronzization'
>
> Vandkilde 2016, 2017b

After the Paleolithic, the Bronze Age was the first substantial European civilization that covered the whole continent with the same fundamental technical and intellectual development. The beginning of the Bronze Age appears to have simply built on what was previously established in earlier eras. Numerous cultural complexes with strong ties to one another developed; they are seen to have developed during the Middle and Late Bronze Ages, right before they changed during the Final Bronze Age. Northern Europe was still in the so-called Final Neolithic, which was a mixed Chalcolithic phase with aspects from the ancient Atlantic megalithic when a consistent and homogeneous culture emerged in the region between southern Scandinavia and the Alps (Aunjetitzian and southern German groups), and this also affected a significant portion of the Italian peninsula (Polada culture, Protoappennian culture). Immediately after, around the 17th and 16th centuries BCE, a new phase of solid development (Tumuli culture, pre-Lausatian culture) involving Scandinavia (early Nordic Bronze Age) started and led to two outstanding cultures in Italy, Terramare in the Po Valley and Appenninica in central-southern Italy).

The typology of jewelry and weapons, which reached a high level of homogeneity throughout the continent, (Schwenzer, 2004; Krause,2004), shows meaningful interactions and developments that influenced the Late Bronze Age European metallurgical koine (Peroni, 1997). After all, this phenomenon suggests a shared stylistic pattern and a cultural and intellectual identity. Swedish rock art, for example, shares many features with Alpine rock art (with a particularly strong focus on discs, chariots, and weapons). By this time, the early Scandinavian Bronze Age and northern Italy's EB2-MB1 were probably heavily influenced by outside sources. Examples of the expanding interactions, however, mediated are the opening of the 'Amber route' (Nava, 2011) and the reverse growth of glass, faience, and glass-faience beads up to northern Germany and Jutland (Bellintani, 2011). As a result, Scandinavian rock art developed during the height of the Bronze Age, during the 18th and 16th centuries BCE, when the continent was most culturally consistent, establishing the foundation for the later worldview. Around the same time, the Mycenaean culture (of the Indo-European matrix) began to impact the central Mediterranean region, creating new maritime routes from Greece to southern Italy, which grew closer to it. The remainder of the continent, meanwhile, continued to be less interested.

Therefore, in the northern parts of Europe, it is possible to see how the Bronze Age spread through Scandinavia and the Baltic area, reaching hunter cultures (likely of shamanic traditions) and developing a very dynamic process, as evidenced by the first iron items made in Norway and southern Sweden from the fourteenth to thirteenth centuries BCE. However, the Mycenaean (beginning in the 17th century BC) and Eastern influences led to a robust cultural impulse on the Mediterranean coast (Giumlia-Mair, 2011). The Pit graves culture from the Dniester to the Caspian Sea and Urals, the Afenasslévo culture on the Yenisei, Altai west, and the complex of central Asian tombs, including Andronovo in the late third millennium BCE and its projection towards Iran and Indus, right

at the middle of the second millennium, all attest to the expansion that occurred in the east towards the Aegean Sea, Anatolia, and Central Asia at the same time. The fact that rock art exists in this isolated region and is very comparable to that in Europe is exciting (Sansoni, 2013).

The next crucial moment occurred at the start of the 12th century BCE when the continents of Europe and the Mediterranean experienced a sudden restructuring: the Mycenaeans fell under the weight of the new Hellenes from the Balkans; the Terramare culture in northern Italy collapsed; the Hittite empire fell and the Sea Peoples attacked the eastern coasts; the Urnield-Lausatian culture complex quickly developed in a large area of central Europe, while proto-italic peoples (proto-Venetians, proto-Villanovans, and Apennines) migrated to the periphery. Last, the late Nordic Bronze Age (from era IV) began collaborating southward (Luneburger–Elbe–Havel Groups) (Sansoni, 2018).

Taking into consideration the cited evidence for eastern Mediterranean colonization and the organization of trade and exchange in the region, it seems justified to ask whether Mycenaean items and settlements found in Sicily and southern Italy, and now also northern Italy, are indications of similar mercantile activity (see discussion by Blake, 2008; Cazzella & Recchia,2009; Vianello, 2009 versus Jung, 2005). Mycenaean influence on the region grew in opportunity during the 13th and 12th centuries BC, when Aegean pottery and Aegean (as well as Cypriot) types of metalwork were being produced in the central Mediterranean (Jones & Vagnetti, 1991). The Thapsos settlement is where the Mycenaean presence is most noticeable, having started as early as the 16th century BC (Militello, 2004). Examples of cultural diversity comparable to the port-of-trade of Ugarit include the archaeological finds from Scoglio del Tonno in southern Italy and Frattesina in the Po Valley, which are mixtures of local and Mycenaean pottery and figurines as well as Aegean, Italian, and Central European metal forms (such as violin-bow fibulae, Peschiera daggers, and winged axes).

These locations were emporia crucial to the extensive chain of trade and frequented by Mycenaean craftsmen and merchants.

Furthermore, the presence of nomadic craftspeople is thought to be indicated by the casting mold of a so-called "winged axe," a kind that is prevalent in temperate Europe and was discovered in the House of the Oil Merchant at Mycenae (Bietti Sestieri, 1988). Although its exact function is debatable, Sardinia was probably another critical point in this western Mediterranean exchange network. Recent findings from lead isotope examinations of Nordic bronzes from Period II and III (1500–1150 BC) indicate that Sardinia and the Iberian Peninsula supplied most of the copper used during this time (Ling et al., 2014). Because Mediterranean trade was diverse and well-organized, manufacturers and distributors could meet various customer demands. Additionally, it was standardized at the level of an economic transaction, like the trade in olive oil, wine, and ceramics. Large amounts of metal were transported in a unique Mediterranean oxhide ingot (cf. Sabatini in press). These ingots' extensive movement from the Mediterranean coast to the Black Sea and Central Europe clearly shows how closely connected Bronze Age cultures were. Given that four pieces of oxhide ingots made of Cypriot copper and dating to the 14th or 13th century BC were discovered in Oberwilflingen, Baden-Wüttenberg, Germany, it is plausible that temperate Europe was also directly connected to this global network of trade and exchange (Primas & Pernicka, 1998). According to recent research, Scandinavian rock art (Ling & Stos-Gale, 2015) and European metalwork symbolically depict different kinds of oxhide ingots. Baltic amber, traded from Jutland and the Baltic to southern Germany and the Aegean in complex necklace forms, served as the linking value. As a result, every region in this interregional network had something that the others required or desired. Tin, required to make bronze, was discovered in Wessex and southern England, one of the few places in Europe where it is found. Amber, often known as the tears of the gods, was found

in South Scandinavia and was highly valued by the Mycenaeans for its heavenly qualities. However, we also find it in Egypt and Syria. Mycenaean traders brought blue glass from Egypt and Mesopotamia back to Denmark from these places (Walton et al., 2009; Varberg et al., 2015). Although copper was discovered in some locations, it is typical for large-scale mining to occur in only a handful of these locations at any particular time (O'Brien, 2015). Sardinia, Cyprus, and the Alps all had plenty of resources. Perhaps the primary source of copper to Northern Europe at this time was Sardinia/the Iberian Peninsula, which also explains why traders traveled directly to southern Germany and then north to Denmark after 1500 BC when southern England and Wessex lost some of their significance. After 200 years, it was replaced by a route across eastern Central Europe and the Balkans. Thus, the entire European continent was included in a complete Bronze Age economy during the Middle Bronze Age, which lasted from the 16th to the 13th century BC. Thus, I will examine the structure of these European trade networks and their functions.

2.2 The Development of New Technologies and Institutions for Trade

Expanding on the groundwork laid in the introduction, The Bronze Age was a mobile world for the straightforward economic reason that copper and tin, or bronze in finished or semi-finished form, had to be distributed to all societies throughout the known world from a few sources' areas. Copper and tin (Shennan, 1993; Bartelheim & Stäuble, 2009; Bell, 2011), woolen textiles, and surprisingly also salt (Kern et al., 2009; Harding, 2011; Kowarik et al., in press) were among the commodities that made up the core of Bronze Age economy. The economic significance of controlling and trading in these mines was comparable to controlling and trading in oil and gas resources today. Such trade was framed in political relationships throughout the Bronze Age, and luxurious goods were key for establishing links.

Following this, the rapid establishment of new maritime technologies in the late 3rd and early 2nd millennium BC was crucial for this economic and political system, built on an exchange between wealth and staple finance (Earle, 2002). These technologies allowed safe sea journeys over longer distances for the first time and provided larger ships that carried bulk cargoes across open waters (Rowlands & Ling, 2013). Technological advancements during the Bronze Age gradually improved the ability to move and interact across large distances. New regions can connect at any moment by combining land-based and sea-based mobility. Furthermore, the ability to compete was promoted by a variety of routes.

Additionally, it increased the need for experts to handle travel-related tasks like building ships, navigating at sea, making wagons, and training horses for land transportation. With a new institutional structure to support them, new specialized social groups or classes were established. Knowledge about distant locations could be consistently gathered since Bronze Age cultures were regularly connected. The new experts who connected distant places and their products were traders who offered organizational expertise and information. (Kristiansen, 2015). As evidenced by writings and stelae, particularly in Egypt, soldiers were also in high demand as mercenaries throughout the eastern Mediterranean during the Late Bronze Age starting in the 15th century (Morkot, 2007). It describes how new varieties of swords would quickly spread from the Mediterranean to Scandinavia in a few years. Thus, traveling warrior groups with their associated experts and the commerce in metal and potentially in weapons produced a linked, "globalized" civilization that had never been seen before. The world's social and political complexity ranged from chiefdoms of various levels of complexity in the western Mediterranean and Europe to city-states and palace economies in the eastern Mediterranean.(Papadimitriou and Kriga, 2012)

Despite this, metal could move across these civilizations due to notable parallels in social structure. Then, there are questions such as what social processes made this movement of metal and products possible? For what purposes and in which social categories were individuals able to travel? Which organizations made their travels possible? Furthermore, what technological advancements made such land and maritime travel possible? In this chapter, I explore these questions in-depth to identify potential answers.

Based on archaeological and written sources, it can be assumed that the main categories of people who traveled during the Bronze Age were traders/merchants, smiths/craftsmen, warriors/mercenaries, migrants, and diplomats (Fig.1). Due to their ability to offer linked civilizations access to non-local resources and talents, traders, smiths, and warriors, in particular, were at the center of the economic system. Knowledge, skills, and technologies (including shipbuilding, architecture, and metallurgy) spread (and locally modified) throughout Europe and the eastern Mediterranean due to these long-distance travels and deeply interconnected cultures. From state-sponsored trading expeditions to private actions carried out by stateless middlemen and wealthy merchants like the Sinaranu tankard of Ugarit, ancient texts from the eastern Mediterranean depict a highly complex system of trade and exchange in the area (Astour, 1972; Heltzer, 1988).

The shipwrecks at Uluburun and Cape Gelidonya are classic examples of Bronze Age maritime technology that enabled bulk trade and transported mercenaries and soldiers to distant courts while protecting the cargo. On the other hand, the sea peoples exemplified migrations and colonization during the twelfth century BC, which were later followed by directed migrations during the eleventh century BC (Sandars, 1978). However, Kristiansen's view provides that only when there are ports, roads, and establishments that help and protect travelers can agents—whether traders, mercenaries, or merchants—travel.

Political alliances associated with treaties, contracts, colonies, emporia, and guest-friendship regulations for merchants were the institutions or social processes that made these moves possible.

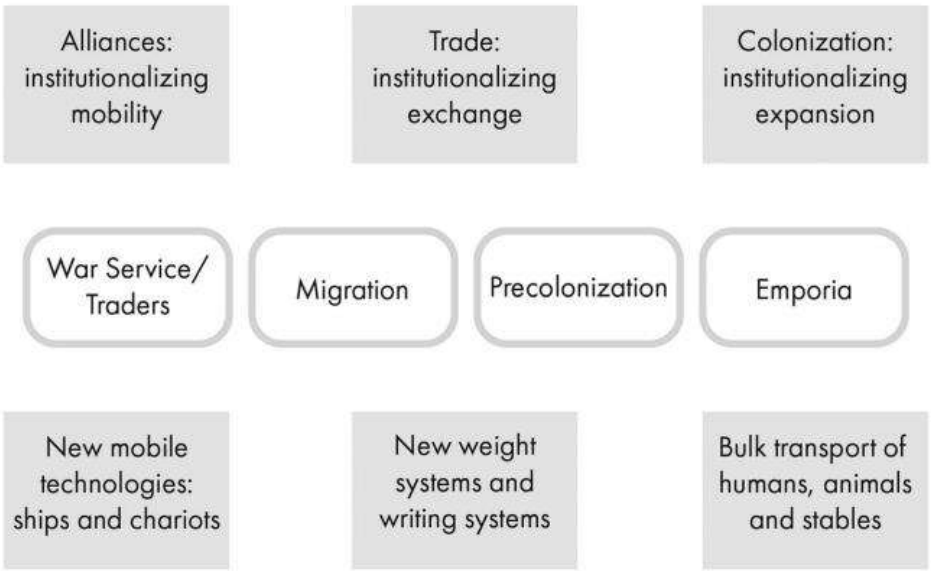

Figure 1 The representations of the most common mobility agents and their organizations in the Bronze Age. Illustration: Richard Potter.

3. Echoes across Regions; Nordic-Mediterranean relations

3.1 Trade and Exchange Patterns

"The investigations of the last few decades have incontrovertibly proved that the culture of the inhabitants of Northern Europe, long before the beginning of our era, was uncommonly high. The explanation of this remarkable phenomenon is to be sought in trade, a trade which, even in the remote periods with which we are concerned, was of a far greater significance than has hitherto been recognized"

Oskar Montelius,1910.

An important cultural and commercial interchange network may be seen in the Bronze Age trading links between the Mediterranean and European areas. The creation of extensive trade routes connected many communities and allowed the movement of goods, concepts, and technology. Firstly, as discussed above it was shown that in the second millennium BC, the Euro-Mediterranean zone was an arena for a complex system of variously sized networks aiming to supply, among other things, a generally large demand for metals, but also of other raw materials such as textiles, glass, amber, and ready-made artifacts. Secondly, I want to draw attention to a growing agreement that the contribution of continental Europe to the economic growth of the Euro-Mediterranean region as a whole has to be given more weight. It is evident from the case studies that continental societies were mobile, active, and influential actors who simultaneously used land communication and maritime networks. Finally, it was also made clear that the various networks and communication channels were, to a certain extent, complementary and competing with each other.

The Mediterranean area developed into a central hub for these connections, mainly because of its maritime links. The importance of long-distance commerce for these northern societies was highlighted by the fact that tin importation was necessary for manufacturing bronze, which was needed for tools and weapons (Kragh, 2020; Kristiansen, 2016).

The outstanding finds from, for example, the Uluburun shipwreck (Pulak, 2008) archaeologically demonstrate the impressive quantity and quality of goods that were circulating in the Mediterranean during the Late Bronze Age. Meanwhile, Scandinavia was included in more extensive European trade networks, especially during the Nordic Bronze Age (c. 1700–500 BCE).

The development of extensive trade networks relies heavily on the geographic separation between metal producers and consumers. Long-distance trade networks were facilitated by the emergence of a new maritime industry in the Nordic region (Ling et al., 2018). According to some academics, Bronze Age traders and warriors were essential to this new economy because competition between various European regions—or even local communities—must have developed to regulate the movement of people and goods (Earle et al., 2015; Vandkilde, 2016; Kristiansen, 2018). Two related occurrences emerged throughout the Scandinavian coasts during the early Nordic Bronze Age: starting approximately 1500 BC, thousands of cairns were constructed along the coast and in the rocky islands, primarily visible from the water (Kristiansen, 1987). Thousands of engraved ships were carved into the rock simultaneously, frequently at safe, suitable landing spots (Ling, 2008). A new social group of sailors and shipbuilders responsible for regular seaborne maritime transports that connected the thousands of kilometers of Scandinavian coastline and transported metal, goods, and people, particularly warriors, are represented by these two phenomena, which are the ritualized materialization of that group (Kristiansen, 2004). The foundation for sustaining and growing a common Nordic culture, which initially emerged during the Bronze Age, was also

established by this new maritime network. The new institution employed the hardness of stone as their ritual landmark, whether as engravings in the rock or as stone-built, sometimes elaborate, cairns. It stands in sharp contrast to the wet and dangerous conditions in which they worked every day while rowing the big seagoing canoes. Additionally, it directly opposes the landholding wealthy individuals who reportedly monopolized and controlled the majority of the metal trade and constructed barrows of grass turfs from their land. The fully developed plank-built boat of the Hjortspring type, which dominated sailing for over a thousand years, dates from the early Bronze Age, around 1700–1500 BC. The rowers are shown on the Rørby sword in pairs, forming an extensive crew of thirty-two, including a helmsperson. In order to maintain the boat on course, the ships are built with a keel extension and a stern. In a methodical investigation of crew sizes for western Sweden, Ling (Ling, 2012) showed that the most typical range was six to twelve, which persisted throughout the Bronze Age. There are also larger ships, like Rørby, with thirty to sixty crew strokes. These are mostly the boats used for ceremonies and exhibits. A small community may be represented by a six- to twelve-boat crew, with one paddler or warrior per household. It implies that Middle Bronze Age communities were socially regular.

During the Late Bronze Age, boats generally got smaller; in this case, they followed the pattern of building houses. As is apparent from northwest Jutland from Montelius period III, it could point to a widespread lack of wood. Certain areas with a strong sailing heritage and a wealth of timber, such as Tanum in western Sweden, developed into specialized maritime chiefdoms that served other areas and possibly boats. In addition to requiring complex ceremonies, the ability to navigate long journeys must have required a critical mass of boats and sailors that not all coastal communities could claim. (Kristiansen,2016) Thus, areas that occupied such a place in the more extensive metal commerce and communication system are where we discover rock art concentrations.

Nevertheless, Stuart Needham's word "maritories" (2009) describes the many maritime locations that the new maritime industry was able to connect and integrate. It explains why certain phenomena, such as the V- notched and U-notched shields spread from the east Mediterranean to Iberia and further on to the British Isles and Scandinavia (Uckelmann 2008 , fi g. 4).Or arguably, it started in Ireland, where the first leather and wooden shields have been discovered. This dates back to the early to mid-2nd millennium BC (Molloy, 2009; Uckelmann, 2011), which coincided with the widespread use of "modern" Bronze Age weapons like swords and lances. (Fig.2)

This new globalized Bronze Age world can be illustrated by the Uluburun shipwreck off the coast of south Anatolia, which included raw materials along with finished goods from the majority of the known Bronze Age world, including the Baltic, Italy, the Black Sea/Bulgaria, the Aegean, Cyprus, the Levant, and Africa (Pulak, 1998).

Amber is one of the items that would have been traded in from the Baltic. The Uluburun shipwreck itself offers proof of all the most essential components for conducting international commercial trade, including diptych for writing, seals for identification, weights, units of measurement, and marks on ingots (Tas & Özbirecikli, 2009).

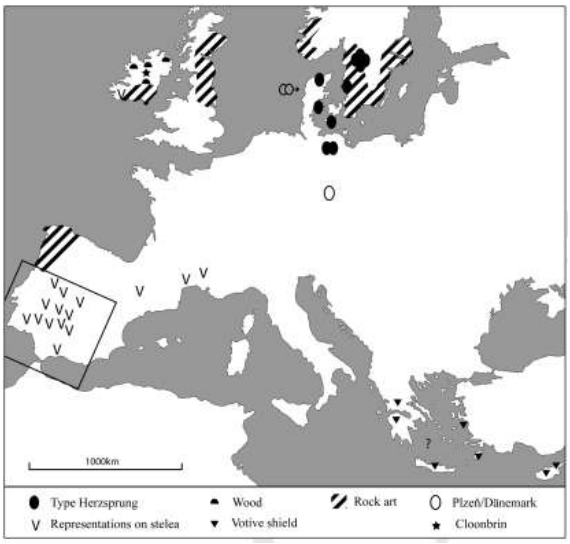

Figure 2 A globalized Bronze Age marine world and rock art as a corresponding maritime ritual (hatched regions) are demonstrated by the spread of V- and U-notch shields (Uckelman, 2008). Artwork: Richard Potter.

Additionally, standardized ingot shapes for convenient transportation are seen, such as the oxhide ingots for copper (Stos-Gale, 2011). At the same period, the shipwrecks at Cape Gelidonya and Uluburun appear to contain evidence of two distinct kinds of cargoes. The more local east Mediterranean trade in copper and tin is exemplified by Cape Gelidonya, where tin and oxhide ingots were used as raw materials and combined with essential agrarian finished goods like many picks and hoes for sale or remelting, broken pieces, casting waste, and blanks, all of which attest to the work of smiths and tinkers (Bass, 1991). Weights imply that trade and tinkering were carried out simultaneously.

In contrast, the Uluburun wreck's much more oversized and more exclusive cargo indicates global elite-based trade with a broader range of prestige goods (such as African ivory, Egyptian glass, and Baltic amber) and warriors to defend the ship from the Aegean and Italy (Pulak, 1998; Stos, 2009). There is the next question is how much of these logistics were used in the less developed

parts of Bronze Age Europe, which supplied the Mediterranean city-states with necessities like tin, amber, later mercenaries, and maybe even enslaved people.

Around 1300 BC, an Italian warrior with a sword and a flange was inside the Uluburun ship. More accurately, they carried an Italian-type flange-hilted sword, whose owner most likely possessed the exact provenance because swordsmanship is intimately associated with certain sword types and is not frequently adopted. To how far does this globalization of traveling warriors date back in time?

3.2 Trade, network and traveling individuals, warriors

Travelers: During the Near Eastern Bronze Age, merchants were frequently associated with wealthy foreign families who were encouraged to settle and import the products that the local elites required. The Old Assyrian Karum trade is a prime example (Larsen, 1976); however, later on, we see that ethnic "foreign" groups possessing trading skills were able to provide local elites with products that they otherwise could not obtain through their long-distance family networks. However, because of their business knowledge, the merchants would frequently acquire or establish trading monopolies in more essential goods once they were established.

As a result, there appears to be a historical pattern that originated in the Bronze Age. It is possible that previous traders were classified as ethnic "foreigners," which gave them a neutral status that allowed them some rights and limited their operations in other ways. The Near East has the most significant documentation of this (for a current summary of the subject, see Monroe, 2009, ch. 6; Aubet, 2013).

Central meeting points, the Terramare culture in the Po valley, and the major fortified colony at Bernstorf in south Germany, facilitated this commerce. Rather than obtaining amber from the

source through Wessex or the Carpathian tell cultures, as was previously the case, they represent establishing a direct trade route to south Scandinavia.

The beginning of a most amazing Nordic Bronze Age cultural growth, which suddenly became extraordinarily wealthy in copper, tin, and even gold, is marked by this economic shortcut directly to the source. More complex bronzes were created and left in tombs and hoards in south Scandinavia throughout the subsequent centuries than in any other part of Europe. Additionally, Baltic amber was found in Mycenaean tombs (Czebreszuk, 2011), as well as wealthy cemeteries in south-central Europe and Italy. It is simpler to see the financial benefit that South Scandinavia will receive from controlling this trade if we take into account the exchange rate between amber, gold, and copper. As a result, it is quite likely that large quantities of amber were sent south each year. Even after calculating fees for the several mediators along the route, this explains the astonishing richness of gold and bronze in south Scandinavia about 1500 BC. According to lead isotope studies, copper brought to South Scandinavia originated in the west Mediterranean (Ling et al., 2013) and was mainly of a single dominant copper type (Liversage & Northover, 1998). It involves a commercial monopoly of some kind, or at the very least, the domination of one or a small number of mining regions. As a result, we deal with high-value trading in amber, tin, and gold and commodity commerce in copper.

Therefore, it is not unexpected that throughout the 15th and 14th centuries BC, Europe and the Aegeans shared the usage of practical warrior swords of the flange-hilted kind, along with certain aspects of their everyday lifestyle, including campstools. Body care products like tweezers and razors are also related to this (Kaul, 2013). This would barely have been possible without intensive preparation and communication by mercenaries or traveling warriors.

Various types of swords have distinct strategies for warfare (Kristiansen, 2002; Molloy, 2011). Because they are a component of a system of warfare and talents that need extensive training, they are difficult to adapt. To maintain the new role of soldiers, they also call for adjustments to how society is organized. Therefore, it would appear probable that warriors were both traders simultaneously or that they accompanied traders to keep them safe. Therefore, it is reasonable to assume that the common sword types used in Scandinavia, central Europe, and the Aegean during this time would also result in comparable social structures associated with warriors. This appears to be the case: the Nordic realm, which also most closely imitated Mycenaean material culture, replicates the dual organization of leadership between a Wanax and a Lawagetas in the Mycenaean realm (Kristiansen and Larsson, 2005, chp. 5.4 and 6.5). However, we should also consider that this dual organization was a part of a common Indo-European Bronze Age heritage (Kristiansen, 2011).

During the Nordic Bronze Age, military commanders like the "Lawagetas" type and ritual leaders like the "Wanax" type acquired distinct roles. Scholars suggest that the material culture and symbolic actions associated with these positions can be used to identify them (Kaul, 2013; Kristiansen, 1984). Ritual chiefs identify themselves with figurative objects like campstools and drinking containers decorated with sun representations to visually link mead's drinking with the sun's rising. Researchers say this strengthens a shared cosmic identity between the Aegean and Scandinavian civilizations. This group exclusively used spiral decoration alongside other items symbolizing Nordic sun worship and identity (Kristiansen, 1984; Kaul, 2013). Due to their limited wear and lack of sharpness, these chiefs' full-hilted swords were mainly used for ceremonial display rather than combat (Kristiansen, 1984).

On the other hand, warrior leaders carried practical flange-hilted swords that were sharp and well-worn from use, indicating a purpose focused on real warfare. The central European provenance of

these swords connected these fighters to broader geopolitical alliances through an international distribution network that stretched from the Aegean to Scandinavia (Kristiansen, 1984; Wahl & Price, 2013). Warrior chiefs often lacked the ritualized objects held by their ritual counterparts, suggesting restricted access to ceremonial roles within their communities. Both groups shared a similar burial tradition, with oak coffins under barrows, and wore distinct garments like capes and round caps indicative of free, high-status individuals (Kristiansen, 2006; Kristiansen & Larsson, 2005). Another group, characterized by South German-made octagonal-hilted swords, probably consisted of traders and craftsmen, maybe immigrants with unique casting techniques not seen in Nordic customs. Researchers suggest these individuals may have linked trade networks crucial for exchanging goods such as Baltic amber (Kristiansen & Larsson, 2005). In line with Hodder's (1982) concept of meaningfully constituted material culture, these burial assemblages highlight the integration of symbolic, functional, and social meanings in Bronze Age weaponry (Kristiansen, 1984; Kristiansen & Larsson, 2005) (Fig.3).

The roles of ritual chiefs and warrior chiefs were, as scholars point out, fundamentally distinct. Ritual chiefs maintained societal order within the culturally defined boundaries of the Nordic Bronze Age, enacting rituals based on an enduring symbolic system rooted in a cosmological origin shared among Nordic communities. These symbolic forms—such as the spiral style—also reflect influences from Mycenaean high culture that were not as prominent among central European Bronze Age societies (Kristiansen & Larsson, 2005; Jones, 1997).

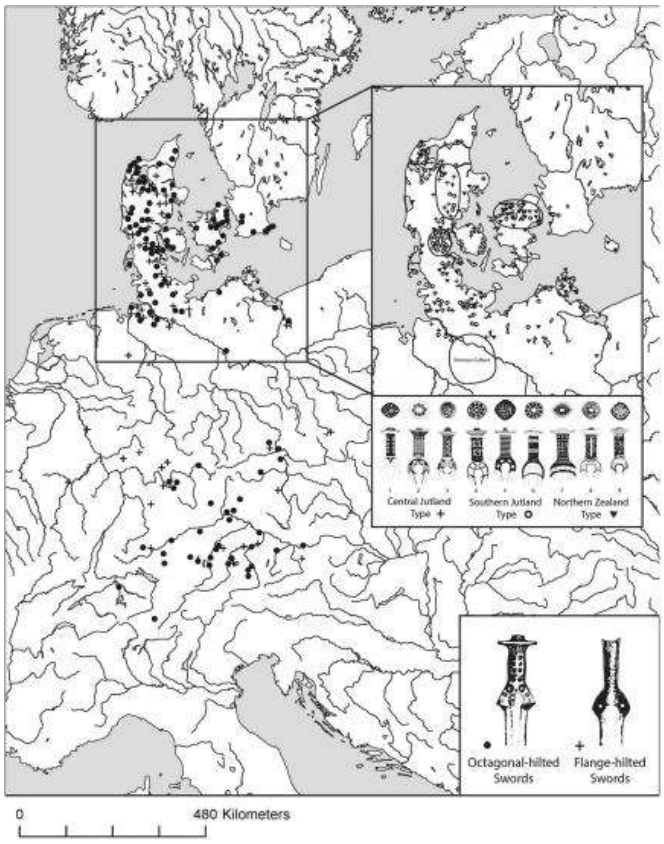

Figure 3 Distribution of foreign swords, flange-hilted and octagonal-hilted, connecting southern Germany and Denmark, versus the distribution of Nordic full-hilted swords. Digital drawing by Richard Potter.

In contrast, warrior chiefs, considered culturally "foreign," facilitated political and economic relationships across broader European networks. Strontium isotope analyses of the warrior burials at Neckarsulm, south Germany, show a notable proportion of non-local individuals who adopted local customs, suggesting chiefdoms may have employed foreign warriors (Wahl & Price, 2013).

Another significant way is, women helped maintain these networks was through dynastic marriages, which maintained social cohesion and increased political links across geographic borders (Kristiansen & Larsson, 2005). Despite irregular conflicts, this interregional exchange system remained stable because trade and political routes through areas such as south Germany offered

traveling traders and warriors safe passage and logistical support (Kristiansen & Larsson, 2005; Mordant et al., 2007).

Finally, scholars point to the extensive evidence of Mycenaean-inspired artifacts in the Nordic region, such as amber and certain decorative styles,(Fig.4), indicating sustained indirect trade links and cultural influence extending from the Mediterranean to Scandinavia during the Bronze Age (Czebreszuk, 2011; Maran, 2004b). Solid and interconnected networks that shaped the social and political landscapes of the Nordic Bronze Age are highlighted by the chiefdoms' stable political alliances, which are demonstrated by the discovery of swords and pottery connecting northern Italy and Scandinavia in archaeological excavations.

According to Kristiansen, symbolic fields in the Bronze Age-matched organizations with various functions and locations. It discusses very complex cultures that can preserve several coexisting identities, some connected to a more ethnic and ritualistic world of "national" identity and others to a broader "foreign" political and economic world. Similar to how the Near Eastern commercial system of specialized families of foreign traders and a parallel, if less complicated, system in central and northern Europe share structural similarities, the Bronze Age is not much different from what we know from somewhat later times in this regard. It describes the efficient commerce of metal and amber between the Nordic realm and the east Mediterranean. In the process, new forms of weaponry, conflict, and maybe warriors and their social organizations were transferred, along with foreign prestige products.

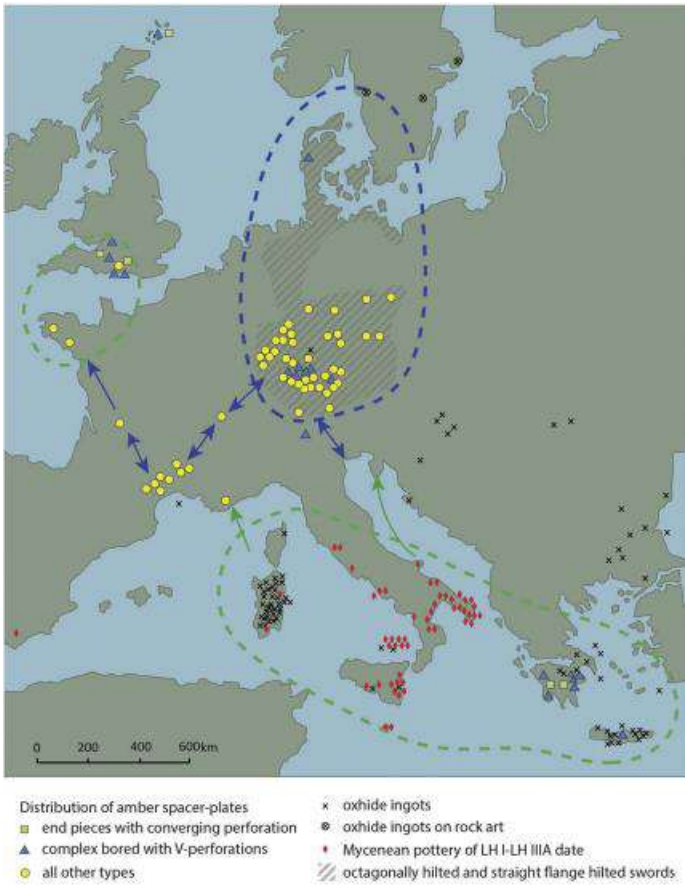

Figure 4 Trade networks existed between the 16th and 14th centuries BC when a Nordic/Tumulus Culture network was connected to a Mycenean/ western Mediterranean network. Amber was the most valuable trade item from the Nordic zone. Mycenaean pottery is present in northern Italy in the Terramare settlements from LH IIIB onwards. Digital drawing by Richard Potter.

3.3 Metal sources, networks

The archaeosciences may provide difficulties for the archaeological community, as evidenced by recent Scandinavian studies at the forefront of the new study and according to a series of lead isotope investigations conducted on Swedish metal artifacts, copper from distant sources, including Spain, Sardinia, and Cyprus, likely made its way to northern Europe in the second millennium BC (Ling et al., 2012, 2014). The same survey found that suppliers were changing over time. The availability of raw materials appears to have depended on technological, political, and economic changes that either made certain ores and trade routes more or less convenient at particular times

(Earle et al., 2015; O'Brien, 2015: 279–302; Pernicka et al., 2016; Rowlands & Ling,2013).In addition to the eastern Alpine and Iberian ore sources, this analysis highlights the Italian Alps and the British Isles as significant supply locations, adding details and subtleties to the picture presented by the seminal work by Ling, Serena Sabatini, and Lene Melheim (2012, 2014). However, Scandinavia received its metal supply from ore sources in the eastern Alps, particularly during the early and late Bronze Age. According to the impression, there must have been an enormous need for metal, and it came to Scandinavia from a wide range of sources, including most likely the eastern Mediterranean (Ling et al., 2014). This suggests that communication via land and rivers was equally significant (Earle et al., 2015), and could reach distant sources.

In a recent provenance study of c. 100 Danish copper-alloy objects dated to 2000–500 BCE, 40% of the analyzed artifacts were attributed to ore sources in the Italian eastern Alps and South Tyrol (Melheim et al., 2018a). Although this area has not been considered a possible metal supply for Scandinavia, it shows that it was a major source of copper for northerners for almost 500 years, from around 1500 to 900 BCE. After around 1300 BCE, the Italian Alps emerged as the primary source of metal for swords in all three areas, independent of style, according to a comparative analysis of Middle Bronze Age swords from Scandinavia, Germany, and Italy (Ling et al., 2019). Italian copper was identified in swords found from Agder and Rogaland in the south of Norway to Trøndelag in the northwest (Ling et al., 2019). The exploitation of copper ores in the Italian eastern Alps in prehistory is documented through numerous smelting sites. Two main peaks of activity have been identified: one in the Late Chalcolithic (2500–2200 BCE) and into the Early Bronze Age (2200–1650/1600 BCE) and another during the Italian Recent and Final Bronze Age (1350/1300–950 BCE) (Angelini et al., 2013; Artioli et al., 2016; Canovaro et al., 2019).

A dynamic mining and trading system appeared already during the Chalcolithic, when copper trade networks had been established between central Italy and the Alps, connecting the early Copper Age cultures in the area (Artioli et al., 2017; Dolfini et al., 2020). While the distance may at first seem daunting, exchange between northern Italy and Scandinavia is indicated as early as c. 4300–3800 BCE by the presence of imported jadeite axes in the western Baltic area (Klassen, 2004, pp. 83–89, 106–108). However, the scale of exchange indicated by the provenance studies of copper is unprecedented and indicative of the 'globalised' economy of Eurasia in the 2nd millennium BCE, with different yet interacting economic systems (e.g. Sherratt & Sherratt, 1991; Hall et al., 2011; Sherratt, 1993; Wilkinson, Sherratt, & Bennet, 2011). While the chiefdoms of the Nordic sphere can be classified as ranked systems of exchange (Kristiansen, 2012), the Mediterranean world was characterized by urban centers with full-fledged commerce, proto-currencies, and mass-production of goods (Wengrow, 2011). In order to understand metal exchange and its cultural re-verberations, we must allow for the coexistence of several different systems of exchange working simultaneously, and mechanisms for transformation of value between these system. It appears that a process of increased commodification started in the Nordic realm around 1600 BCE when ar-chaeologists observed a sharp rise in the amount of metal in circulation and that locally-made metal objects outnumbered imported ones, even though gift exchange remained a significant political and social phenomenon (Vandkilde, 1996, p. 243). Since then, items and raw materials acquired through long-distance trade have been viewed increasingly as commercial goods. Understanding this process of commodification may be supported by two phenomena emerging in the North: a robust local metal industry that produces metalwork with a distinctive Nordic style and local value denominators/weight units connected to a more extensive, pan-European system.

Specialized metal workshops emerged at coastal locations between 1500 and 1300 BCE when the large-scale importation of copper from the Italian Alps began. These workshops may have functioned as "ports of trade," landing and marketplaces, and sites for converting value between various value systems (Melheim, 2018). Metal was perfect for maintaining boundaries between systems while traveling between them since it was a convertible store of value that could be converted indefinitely. Given the sites' maritime orientation, it is likely that sea travel was crucial to these interactions. In discussing the distinctions between gift exchange and commerce systems about social responsibilities, archaeologists have followed the conventional anthropological separation between gifts and commodities. Many scholars argue here that, like in the following periods,(e.g., Kilger, 2008; Skre, 2011; Oka & Kusimba, 2008) trade and gift-giving coexisted and were frequently connected during the Bronze Age.

According to Renfrew (1975), exchange in its broadest definition encompasses a cross-cultural flow of knowledge as well as the interchange of materials. Renfrew discussed the strategies used to prevent conflict between various economic systems. The exchange of cultural knowledge between two regions might be an indicator of the type of interaction that took place if we accept Renfrew's premise. Compared to multi-line trade,(Melheim et al., 2018b), direct long-distance trade could include more cultural integration. Similarly, Barth (1969) contended that a continuous flow of products across cultural barriers is necessary, among other reasons. It's interesting to note that Kneisel (2016) contended that the commerce in salt and amber, among other things, contributed to the spread of the face urn burial custom throughout Northern Europe in the Nordic Bronze Age. From c. 1000 BCE with the spread of house or hut urns, notable similarities occur in burial customs and funerary pottery between Nordic and Italian groups, a phenomenon described by Sabatini (2007) as a material koiné – a cultural space of shared values. In line with these previous

studies, we consider trade, gift exchange, and other forms of cultural exchange mutually influential in shaping relations between Scandinavia and Italy during the Bronze Age.

4. Archaeological Concepts for studying and understanding trade networks

4.1 Terramare culture and Guest-friendship Xenia?

The study of European Bronze Age trade networks in archaeology refers to a detailed examination of trade systems, social and cultural transmission, and the complicated structure of long-distance links through territorial bounds. Archaeologists may examine the connections between material culture, social structures, and technical developments in prehistoric cultures by using several related ideas that help explain how these networks emerge and function. The origins and movements of goods like metals, stones, and ceramics are essential for determining trade relationships. Bronze Age metallurgy was essential, and their sources have been traced through advanced techniques, including lead isotope analysis, neutron activation, and X-ray fluorescence (Ling et al., 2013).

According to studies, copper ores from the Alps, Carpathians, and the British Isles migrated freely throughout Europe, forming a large and diverse network (Pare, 2000; Kristiansen & Larsson, 2005). Because it provides information about trading practices and illustrates how communities may obtain resources from far-off places, this material circulation encourages economic links and technology distribution.

Ancient European trade frequently operated within a gift economy rather than limited to market trades. This type of exchange highlights the social responsibilities and partnerships created by gift-giving customs and is based on Marcel Mauss's idea of reciprocity (Mauss, 1925). Prestige items, like jewelry or weaponry, were likely given out to indicate alliances or a standard social status

across groups, signifying more than simply material wealth (Helms, 1988; Bradley, 2007). Varieties of the gift-giving culture were seen in the relationships between Bronze Age societies across Europe, from the Nordic region to the Mediterranean, allowing for networking built on personal relationships and material trades.

The global systems theory, which was first created to explain contemporary capitalist economies, has been modified by archaeologists to examine prehistoric cultures. According to this paradigm, Europe is frequently separated into "core" and "peripheral" regions, with the former serving as centers of cultural and technical advancement and the latter as suppliers of resources (Sherratt, 1993). Examples of core regions include the Mediterranean's Mycenaean or Minoan civilizations. Using this idea, the movement of luxury goods in the other direction and the flow of products like amber from Northern Europe to the Mediterranean may be better understood. Early types of economic specialization and reliance were established due to these interactions, which influenced the regional dynamics of Bronze Age Europe.

The social structures underlying these commerce networks may be quantitatively studied according to network analysis. Researchers can see the density and scope of trade routes by charting the relationships between archaeological sites while tracking the movement of objects. Network analysis also illuminates the social dimensions of commerce by emphasizing important nodes that function as hubs within the more extensive trading system, such as fortified towns or ceremonial places (Knappett, 2011; Brughmans, 2013). By using this approach, archaeologists may analyze archaeological material beyond straightforward exchange dealings and propose a system of socially embedded commerce that includes common identities, customs, and beliefs. But were there any concepts to understand these networks? I will try to identify it with the help of two concepts: the great Terramare culture and Guest-friendship xenia.

Between 1700 and 1150 BCE, the Terramare civilization developed in Northern Italy's Po Valley, influencing cultural contacts across Bronze Age Europe. This civilization was defined by its specific urban design, included enclosed settlements, water management systems, and a grid layout demonstrating solid social organization and territorial control (Cardarelli, 2009). Because of its advantageous position, the Terramare was able to play a crucial part in the trade networks that linked Northern and Central Europe with the Mediterranean. Archaeological evidence, including common metallurgical skills and pottery forms found throughout Italy, Central Europe, and Northern areas, highlights the Terramare's importance as a commercial hub (Bietti Sestieri, 2010). This exchange of goods, such as Mediterranean metalwork and Baltic amber, shows the reciprocal flow of visible and symbolic components required to form common cultural identities throughout Bronze Age Europe. Terramare's significance in these exchanges is underscored by its proximity to many economic routes, including overland connections to Northern Europe and maritime ties to the Mediterranean (Renfrew, 1975).

Italian Terramare culture was explored and studied by many scholars such as Kristiansen and Kaul. Firstly, Kristiansen argues that the Terramare culture served as the center in a broader network that connected Northern Europe and the Mediterranean, allowing the exchange of ideas, technologies, and cultural practices that helped shape the European Bronze Age in addition to goods (Kristiansen, 2016). Because of their strategic position in the Po Valley, the Terramare villages could dominate riverine and overland routes essential to Bronze Age trade networks (Kristiansen & Larsson, 2005). Furthermore, according to Kristiansen, the Terramare culture served as a bridge between cultures and a hub for commercial interchange. This allowed a "cultural koiné"—a shared domain of social, religious, and stylistic practices—to expand throughout Europe. The spread of a cultural

identity that cuts across geographical borders is demonstrated by archaeological evidence of overlapping burial customs, metallurgical techniques, and symbolic motifs in the Terramare settlements and other parts of Europe, mainly Northern Europe (Kristiansen, 2016). Consistent commerce and interaction between the elites of various areas enabled this spread. Over time, the mutual impact across cultures was strengthened as trade and gift-giving became entwined with regional religious and social norms (Ling et al., 2018).

Secondly, The Greek idea of xenia, or guest-friendship, emphasizes hospitality across cultures and was an essential social tool for supporting commercial relationships. Despite its Mediterranean roots, this concept assisted Terramare in connecting with different cultures by creating hospitality and trust connections, which are necessary for sustaining secure trading channels . According to Kristiansen (2016), this dual mechanism of trade and xenia produced a structured system that allowed cultural practices and goods, including religious customs and technological advancements, to spread throughout Europe, encouraging a "cultural koiné" or shared cultural environment.

Kristiansen sees xenia as crucial in developing networks of relationships necessary for maintaining open trade routes across culturally varied regions such as Scandinavia and the Mediterranean. Kaul, on the other hand, emphasizes the transmission of religious and symbolic conceptions across geographical boundaries via what he refers to as a guest friendship system or xenia. Using this idea, he investigates how interpersonal and symbolic exchange facilitated long-lasting relationships between geographically different communities. This procedure frequently included ceremonial gift-giving and hospitality customs, reinforcing the elite relations between Mediterranean and European civilizations (Kaul, 2013).

This concept, derived from Greek epic poetry and sometimes referred to as "guest-friendship," may indicate on the social arrangements that enabled prehistoric migration. Around 1200 BCE, the

age in issue, travelers were forced to rely on the compassion of others. By invoking the xenia code and recognizing that the roles may be reversed one day, hosts and guests must respect one another. Because of its diplomatic significance, a xenia connection takes priority over all other responsibilities. At the same time, a xenia exchange has long-term expectations; outside of the context of a guest-friendship exchange, it is more immediate and self-contained. Xenia can be directly articulated through gift-giving or the bestowing of an item - a Xenos - which formalizes the guest-friendship and provides witness of protection (Herman, 2002, p. 80). It is, therefore, comparable to how foreign items might be interpreted as evidence of ceremonial friendship or exchange partnerships (Kristiansen, 1998, p. 93). Kaul (2018, p. 25) contends that guest-friendship enabled travelers to travel securely across areas throughout the Bronze Age. Such relationships helped keep trade routes open and products flowing even during periods of hostility and strife.

Carrying an item produced through xenia exchange might serve as a "passport." In light of this idea, Kaul (2018, pp. 26–27) sees Nordic octagonal-hilted swords and local imitations in southern Germany and the Alpine area as the product of xenia weapon exchange. He proposes that a given sword might be passed down through generations as a symbol of a good relationship created between one's ancestors. A recent provenance investigation reveals that the copper used to construct octagonal-hilted swords came from many distinct ore areas, including the Italian Alps (Ling et al., 2019). Interestingly, the copper identified as Italian in the Scandinavian data set derives primarily from south Alpine ore deposits (Artioli et al., 2014, 2016), which are located near present-day Trento and south of the Brenner crossing and the historic Roman route Via Claudia Augusta. Travelers utilized both for thousands of years before the Romans established the Alpine passes (Hyde, 1935). One of the southernmost findings of an octagonal-hilted sword (Kaul, 2018, fig. 17) comes

from the area near Trento, barely 60 kilometers east of Valcamonica and 48 kilometers from Via Claudia Augusta, which is also less than 60 kilometers south of the Brenner route.

Another exciting piece is the Naue II sword, which first appeared in Italy about 1300 BCE and is thought by Kristiansen and Suchowska-Ducke (2015) to symbolize a pan-European social group of warriors and traders. Several recently examined Naue II swords discovered in Greece appear to be constructed of Trentino copper, indicating that Italian copper moved throughout the eastern Mediterranean during this period (Jung & Mehofer, 2009; Mehofer & Jung; Pernicka,2011). A Naue II sword is isotopically compatible with slags from the Italian eastern Alps near Trento and may also be found in the Danish dataset (Melheim et al., 2018a). These discoveries, which show that local and foreign sword shapes discovered in the Alps were manufactured of local copper, highlight the complex connection between trading and cultural transmission. Following that, the spread of raw materials, products, and material-culture notions between Scandinavia and the Mediterranean must have been based on active trading relationships maintained by visitors over centuries.

Kaul's perspective on trade relations is noteworthy because it gets to the heart of the social dimensions of travel and commerce. As a result, it has the ability to blend two previously distinct components of exchange: personal and commercial. In the following parts, I will try to argue that the concept of xenia may be transferable to rock art.

5. Metal Circulation and Cultural Trade

5.1 Trade Routes Defined by Amber

Europe contains several amber deposits, especially in the Baltic area, where large amber fragments are frequently unearthed along the coast. Succinite, a typical form of Baltic amber, has been prioritized since ancient times. Recent research (du Gardin, 1998) suggests that, despite Middle Neolithic succinite workshops in Latvia, the diffusion region did not extend far from the amber supply zone at that time. In Italy, only two documented Eneolithic findings have been identified as amber in literature: a discoidal bead from the Laterza (Puglia) necropolis examined by Beck (1971) and a discoidal bead fragment from La Vela Valbusa (Trentino), one of the samples studied here.

Amber artifacts in northern and southern Italy date to the Early Bronze Age (2100–1700/1650 BC) and only become widespread across the Italian peninsula during the Middle Bronze Age (1700/1650–1300 BC), eventually reaching Sardinia in the Final Bronze Age (1200–1000/950 BC) (Angelini et al., 2005). Amber, mostly succinite, saw increasing distribution during the Final Bronze Age and Iron Age. However, it is debated whether local small amber deposits were used during the Eneolithic and Bronze Age instead of imported Baltic amber.

Analyses of the two Italian Eneolithic finds reveal one to be non-Baltic amber, likely simetite (Beck, 1971), and the other as lignite rather than amber (Angelini et al., 2005). IR analyses of Italian Bronze Age objects remain limited, with studies reported from six previously examined BA sites (Guerreschi, 1970, 1975) and additional studies from four BA sites (Angelini et al., 2005), showing that most investigated ambers are succinite. Notable exceptions include a few samples

from Lombardia (Peschiera–Imboccatura del Mincio; Guerreschi, 1970) and Puglia (Coppa Nevigata; Angelini et al., 2005), which are certainly not Baltic ambers.

Amber was a highly valued luxury item in the prehistoric and, more specifically, Bronze Age trade, with established "amber routes" facilitating its exchange across continents. During the Bronze Age, the amber trade between Northern Europe and the Mediterranean, especially Italy, became significant. Amber was highly valued for decorative and cultural purposes, and structured trading networks enabled its spread. Trade relations are essential in prehistoric archaeology because they frequently focus on the material parts of culture. Amber was a distinctive yet perishable Northern European material traded in large quantities despite other potential raw materials for trade with the South. Amber specimens, particularly succinite from the North or sometimes Sicily, vary significantly in color and are influenced by soil interactions. Classical writers questioned amber's origins, with evidence pointing to the Baltic area as the primary succinite source, reaching the Mediterranean and other parts of Europe.

The availability of amber items in Italy shows an active trade connection (Goldhahn, 2014). This trade was intended to be based on marine networks, which are considered more efficient than land networks. A maritime route connecting the British Isles, the Iberian Peninsula, and Northern Europe suggests that amber could have traveled across the North Sea and down the western coast of Europe to the Mediterranean (Kristiansen, 2014; Montelius, n.d.). The idea that these specimens came from the North rather than local sources is supported by chemical tests of amber artifacts from Southern Europe as discussed before, which shows that they frequently contain high levels of succinic acid, another characteristic of amber from Northern Europe (Pli, n.d.). The process highlights the cultural and economic contacts between Northern Europe and the Mediterranean populations. As we can see from the discoveries, the use of amber in burial practices and as a status

symbol highlights its importance in the Bronze Age community, which increases its value (Dakanis, 1984). The trade of amber at this period demonstrates the complicated economic networks that facilitated cultural exchange between Italy and Northern Europe.

In the following analyses, which are defined by routes of amber, I will examine the unique features and effects of the central, eastern, and western amber trade routes from the Early to Late Bronze Age, highlighting how these routes created the exchange of cultural practices and ideas in addition to the transportation of goods. Amber transported along the Central and Western routes originated from Jutland, while the Eastern route sourced its amber from East Baltic deposits. This analysis will begin with the Central routes, considered the earliest by scholars, followed by the Western routes; the Eastern routes, which only opened up in the Early Iron Age (Fig. 5), will not be explored.

Figure 5 Continental trade routes indicate Central, Western and Eastern Routes.

5.2.1 Central Routes

During the Neolithic Period, Denmark and the neighboring region were rich in amber objects, but during the Bronze Age, there was a marked fall off. Montelius and other important archaeologists from Scandinavia and Germany have attributed this decline to the emergence of the transcontinental trade between Northern Europe and the Mediterranean region. When the inhabitants of Denmark realized the purchasing power of this material, which lay so close to hand, they naturally exported all they could to the South, acquiring in exchange for it metals and another mine they could only obtain by importation.

During the Bronze Age, objects of Italian manufacture were represented in South Sweden, Denmark, Schleswig-Holstein, and Mecklenburg, but their occurrence was far rarer in pre-war Eastern Germany. This and other reasons have led archaeologists to believe it was the Jutland, not the East Baltic. According to an article on prehistoric trade, these deposits first furnished Southern Europe with its amber supplies (Prähistorische Zeitschrift, 1910). Montelius, essentially based his evidence on the distribution of Italian bronzes found in Northern and Central Europe, traces a route rig across the continent, from South Sweden and Denmark to Italy.

Montelius (n.d.) states that a trade route that started in Jutland crossed the Elbe River, came to the point where it reached the Saale, and then divided. While the western branch climbed the Saale and crossed the Thuringer Wald, eventually arriving at the Danube, the eastern branch proceeded up the Elbe into Bohemia and joined the Danube close to Linz. Both branches converged at Passau, proceeding up the Inn River before crossing the Alps via the Brenner Pass into Italy. Montelius suggested that the western branch may have reached the Danube at Kehlheim rather than Passau, indicating that the Central Route exhibited further extensions into Wurtemberg and Upper Austria.

More research is necessary to determine whether northern amber traveled over these paths to reach Italy during the Bronze Age.

According to the opposite theory by researchers, amber from Sicily or the Apennines was sent north. To assess this, the investigation starts in Northern Bohemia, where the Aunjetitz culture flourished throughout the Early and Middle Bronze Ages. This civilization, distinguished by inhumation burials with skeletons buried in a contracted posture, produced abundant metal objects, notably those composed of "metal blanc," with tin values as high as 25%. Its abundant tin mines probably encouraged Bohemia's significance in commerce, especially as tin was necessary for manufacturing bronze.

A flat centerpiece with vertical drilling is one of the additional findings in the Upper Inn Valley (Tyrol), demonstrating the distribution of amber goods despite not being on the major trade route to Italy. This suggests that amber from Northern Europe arrived in Tyrol as soon as the Middle Bronze Age began. In addition to this find, similar amber objects discovered at Dieskau and Waud Flur show a wide range of cross-regional trade links. It is also found like a "terramare dagger" in the Miihltal tunnel, demonstrating how significant Italian imports were to Northern European trade in the Early Bronze Age. Despite the rarity of amber finds in Italy, evidence such as bronze pins from Peschiera with amber beads and fibulas from South Tyrol and Servirola indicates that Northern amber was indeed reaching Italy during this period (Navarro,1925).

5.2.2 The Western Routes

In exploring the Western Routes of amber trade between Italy and Northern Europe, Schumacher (1901) references an "amber route" extending southwest over the Elbe and Weser regions, connecting to the Middle Rhine and eventually leading into Switzerland and Italy.

According to Schumacher's distribution map of Bronze Age hoards, the locations of hoards and amber finds are significantly correlated. This suggested that the amber route ran from Jutland along the Elbe, veered up the Saale River, then shifted westward towards Meiningen and Fulda before arriving at the Rhine near Hanau. This route then bifurcated at Mannheim, with one branch continuing along the Rhine and the other ascending the Neckar River into Württemberg. Interestingly, many amber beads discovered in prehistoric burials in Württemberg had high amber acid percentages, suggesting that they originated in the North and were especially common during the Middle Bronze Age.

Further research by Reutter (n.d.) revealed that amber beads from Switzerland's Hallstatt and La Tène Periods were predominantly of Southern origin, casting doubt on Northern amber's reach into Switzerland and, by extension, Italy. However, Northern amber may have reached Switzerland and maybe Italy in the Bronze Age, as evidenced by the finding of Northern-origin items with amber at the lake-dwelling site of Corselettes. The Aare River may facilitate Trade routes into Italy, which would connect Switzerland with the Rhine.

6. Rock art as a potential indicator of cultural contact and connections

6.1 The Importance of Rock Carvings

"Rock art is a paramount source for the historic reconstruction of the human past. It reveals the elementary aesthetic and conceptual values of humankind."

Anati, E. 2012

Using typologies from the southern regions (Krause 2011; Ling and Rowlands 2013), Scandinavia's importation of copper from the Carpathian Mountains, Sardinia, the Alps, and the Iberian Peninsula suggests that a consistent level of cultural exchanges occurred along the same routes: not only minerals and objects but also ideas and even cultural trends were transported with the help of art, especially Rock Art. The phenomenon we call rock art today is much more than just the figures and how they relate to one another. Rock art is a combination of many things, operating on several scales, including the complex interplay between the figures and natural features of the surface (Chippindale & Nash, 2004; Wrigglesworth, 2011: 176). Location is not just about physical, visible placement; it is also about invisible, intangible aspects.

7. Alpine Rock Images and Its Unity and Diversity

Alpine rock art provides a fascinating look into ancient cultures and represents regional diversity and unity. Rock faces are carved and painted using this art form, demonstrating a fantastic fusion of cultural symbols and techniques unique to many Alpine villages as it covers several periods. There is a common visual language and thematic resonance throughout the Alps despite regional variations in style and concept.

According to scholars, this cohesiveness probably resulted from extensive communication networks and cultural values that cut across regional boundaries (Fossati, 2013). At the same time, various Alpine rock art expressions, from geometric patterns to animal representations, demonstrate how adaptable these societies were in incorporating regional influences, climate, and landscape elements into the works of art (Anati, 1994).

With the perspective of researchers, the differences in representation styles among valleys and areas suggest a complex network of influences unique to local traditions, even while the common themes may represent shared religious or mythical components (Bahn, 2001). Therefore, Alpine rock art is testimony to the connectivity of prehistoric European communities and a record of the diverse identities developed inside the Alpine range. (Fig.6). The World Heritage Site of Valcamonica in Italy is prominent within this broader framework and is recognized as one of Europe's most distinguished and extensively studied rock art traditions (de Marinis & Fossati, 2012; Sansoni, 2012). This introduction serves to establish Valcamonica as a focal point for subsequent analysis.

Alpine rock art has been examined using various methods and is divided across three nations: France, Italy, and Switzerland. The Alpine rock art of southern France, Italy, and Switzerland offers a fascinating example of how ancient iconography may be diverse and connected. Mont Bego in France is a significant prehistoric site known for its extensive rock engravings, though it remains largely unexcavated. Nevertheless, stratified data have been acquired through archaeological excavations at other essential sites, such as Aosta, Sion, and Valcamonica.

These sites' rock art, especially that of Mont Bego and Valcamonica, exhibits meticulous attention to detail with aims for interpretation that reach into Eurasian mythical frameworks (de Lumley, 1995; Anati, 1976) (Fig.7).

However, superimpositions within these pictures are a crucial topic of investigation, and the debate around their chronology is one particular problem in studying these petroglyphs. Superimposition—a technique of layering that implies chronological overlap—has been critical for scholars attempting to discern sequential patterns in Alpine petroglyphs (de Saulieu, 2004; Cassini & Fossati, 2013).

Interestingly, the Alpine rock art at Valcamonica, Mont Bego, and other regions exists in dialogue with regional and broader Mediterranean artistic traditions. Alpine rock images do not appear in isolation; instead, they connect with statue menhirs—upright stones with carved human or symbolic images—often adorn natural outcrops (Mezzena, 1998; Poggiani Keller, 2018). Although part of a larger Western Mediterranean tradition, these menhirs hardly ever directly cross paths with petroglyphs, indicating that the various kinds of rock art are intentionally complementary in the area (Robb, 2009). With unique art forms serving particular purposes in social or religious rites, this distributional pattern implies that Alpine communities were culturally particular.

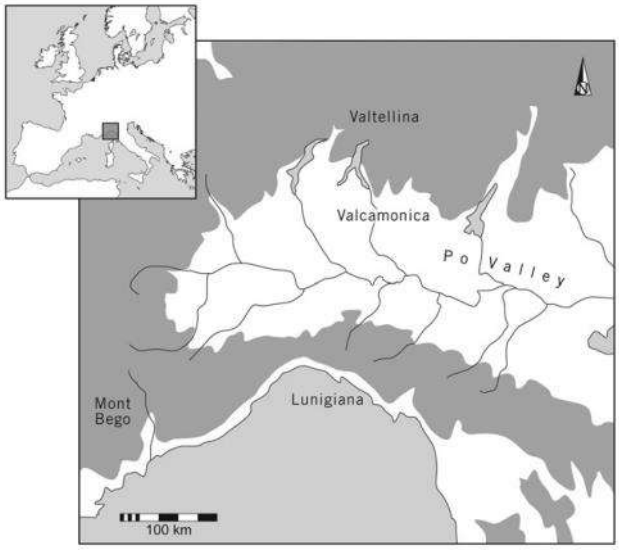

Figure 6 The main rock art areas are in northern Italy and the Alps. Reported by de Saulieu (2004). Illustration: Aaron Watson.

Similar symbolic elements across various regions further emphasize a shared prehistoric visual language. This unity within diversity is reinforced by including Alpine rock art discussions in major academic works on European prehistory, such as *The Oxford Handbook of the Neolithic* and *The Oxford Handbook of the Bronze Age* (Fossati, 2015; de Saulieu, 2013). This representation demonstrates rock art's significant value as it provides information about the various yet connected cultural landscapes of Alpine cultures. The integration of several creative traditions into a common framework of expression indicates a complex cultural unity that highlights the complex, multi-layered identities of Alpine communities in prehistory.

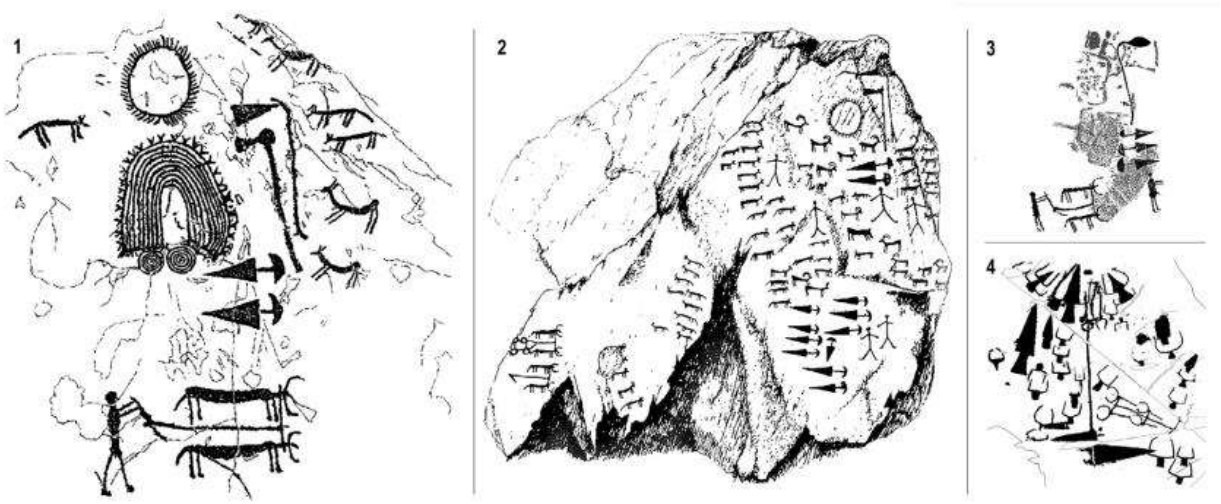

Figure 7 Rock art images Italian Alps; 1 Bagnolo 2 stela in Val Camonica, 2 Cemmo boulder in Val Camonica, 3 Borno 1B rock in Val Camonica, and 4 rock 19C in Mont Bego's valley of Marvels (reworked after Fossati, 2015a, fig. 45.2; Bianchi, 2010, fig. 4).

Rock art panels may be seen in a variety of environments. The most outstanding complexes were in the Alpes Maritimes and the Central Alps valleys. However, Valcamonica and Valtellina are still settled and part of a domestic landscape. Similar pictures have also been found in Apennine rock art (Ceremonies & Tosatti 2017). For most of the year, Mont Bego, a highland meadow, is covered with snow (de Lumley, 1995). Those at Lunigiana were only around 30 kilometers from early copper mines in northern Italy, and the significant groupings of statue stelae at Aosta and Sion are

linked to roads that pass across the Alps (Mezzena, 1998; Gallay, 2011). Since copper is found in some of the exact locations as rock art and standing stones, evidence of metal extraction may probably be discovered in these sites (O'Brien 2015: Chapter 5).

In contrast, the Late Bronze and Iron Ages experienced the greatest extent of Valcamonica (Marretta, 2013). Whether rock art was created continually during this time is unclear. Furthermore, it is unclear when the original images emerged (Marretta, 2014). While the metalwork depicted in petroglyphs and on menhirs has been compared with well-documented examples in tombs whose date has been thoroughly examined, the earliest art has been dated to the Upper Palaeolithic. The required proof may be found at the Remedello cemetery, which is situated on the southern edge of the Po Valley (de Marinis, 2013). There are differing opinions on the exact characteristics and period of early copper production (Dolfini, 2013). The environment is said to be shown in the Central Alps' oldest petroglyphs, which date from 3500 to 3000 BC. From 2900 to 2000 BC, stelae representing metal items were created (de Saulieu, 2004). Images at Valcamonica even later had human beings holding out their arms (oranges). Additionally, they have Etruscan script inscriptions, hunters on horseback, depictions of diagnostic Iron Age objects, and spears rather than halberds (Marretta, 2013).

7.2 The Variety and Context of Images

If correctly interpreted, superimpositions reveal that the earlier rock art panels likely contain abstract designs, often called "topographic representations" (Arcà, 2000; Fossati, 2002; Arcà, 2013; Maretta, 2018). These geometric forms have been likened to megalithic art. They are believed to represent some of the oldest rock carvings in the region, potentially dating back to the latter half of the fourth millennium BCE (Casini & Fossati, 2013). According to scholars (Fossati, 2015, p.

850), these abstract patterns may represent an early symbolic system in Alpine societies, connecting their original practices to more widespread ancient innovations in Europe.

Further, stelae—stone pillars often engraved with similar imagery—play a significant role within the Alpine rock art tradition, with carvings frequently depicting weapons, personal ornaments, agricultural activities, animal figures, and solar motifs (Casini, de Marinis, & Pedrotti, 1995; Keates, 2000; de Saulieu, 2004) (Fig.8). These representations show the iconographic elements throughout the larger Central Mediterranean, including notable examples in Italy and the surrounding regions.

Unlike in other areas, where personal ornaments and weapons on stelae typically align with depictions of human figures, Alpine petroglyphs, particularly at Valcamonica, seem less concerned with embodying these items as part of a human form and more as isolated symbols, almost akin to trophy displays or iconographic statements within the rock art repertoire. There are apparent differences between Valcamonica and Mont Bego, which emphasize the variety of Alpine rock art. Site-specific theme patterns are suggested by the noticeable lack in Mont Bego textiles, commonly seen on Mediterranean menhirs.

Additionally, there are differences in how animals are shown: although wild animals are more commonly portrayed at Valcamonica, domesticated animals are more commonly seen at Mont Bego, suggesting regional differences in artistic choice or symbolic significance (de Saulieu, 2004). Furthermore, although Valcamonica holds most of the Chalcolithic solar symbols, few Early Bronze Age symbols were found near Mont Bego. This implies that these Alpine sites' symbolic patterns are unified and vary across regions.

Figure 8 Cemmo boulder.

There are two critical relationships in Alpine rock art and stelae, as well as between depictions of artifacts and actual finds in graves and hoards. In northern Italy, the main concentrations of petroglyphs tend to be situated away from formal cemeteries, with single burials to the east and collective burials to the west (Barfield, 1986, 2007: 453–7). Menhirs, typically found in areas lacking single inhumations, evoke the appearance of a body in a grave and are associated with disarticulated bones that appear to have been treated as relics (Poggiani Keller, 2018). Valcamonica showcases both rock art traditions, although the distribution of daggers and halberds does not coincide with their depicted locations on natural surfaces (Bianco Peroni, 1994).

There are significant associations between menhirs and megalithic structures at Sion and Aosta (Mezzena, 1998; Gallay, 2011), and excavations at Valcamonica have provided additional insights (Fedele, 2008, 2013; Fedele & Fossati, 2012; Poggiani Keller, 2018).

The rock art repertoire varies both chronologically and regionally. In Valcamonica and Mont Bego, early non-figurative designs preceded later figurative representations, such as horned figures (presumably cattle) and identifiable metalwork (Arcà, 2013; Huet, 2017). The earliest concentrations of identifiable weapons are found at Valcamonica and Mont Bego. At the same time, fewer images from the Bell Beaker phase and Early Bronze Age indicate a reduction in findspots along routes through the Alps (de Saulieu, 2004).

The settings of Alpine rock art show considerable variation and can be categorized into those within settled landscapes and isolated locations. The Iron Age images at Valcamonica exemplify the former (Marretta, 2013), whereas Mont Bego suggests seasonal settlement, as evidenced by the scarcity of artifacts (Huet, 2017). Rock art in isolated locations often aligns with valley routes, incorporating stelae, low stone platforms, cairns, and tombs (Fedele, 2008; Gallay, 2011; Poggiani Keller, 2018). Lines of anthropomorphic sculptures have also been identified at Lunigiana, south of the Alps.

The use of pecked surfaces has evolved, with rock art categorized as discreet art (subtle, blending into the landscape) or monumental art (prominent, bold) (de Saulieu, 2004). Despite holding commanding places, monumental art contrasts with art discretely, which is sometimes more challenging to identify because of its consumption with the surroundings. People displaying weapons and decorations are prominently featured, frequently accompanying wild animals and hunting scenes. These images were subject to modification or destruction through superimposition by later designs. In contrast, art discreetly often displayed weapons, with newer panels created beside older ones, which remained intact. Domesticated animals were also in the same panels, and both art forms featured images of the sun.

The representation of rock art has fluctuated significantly over time. Monumental art emerged in the Neolithic, continuing into the Chalcolithic and Bell Beaker phases (de Saulieu, 2004; Huet, 2018). Art discret was prevalent in the early periods and again during the Bronze Age, particularly at Valcamonica and Mont Bego. While monumental art was not prominent at Mont Bego, it was well represented at Valcamonica and along the routes crossing the Alps. Similarly, decorated stelae at Lunigiana were positioned along rivers, allowing for links from Italy's west coast through the Apennines to the Po Valley.

Excavations highlight the orderly arrangement of decorated stelae, and its link to gifts and burial remains. Unusual deposits, such as human teeth scattered across a cultivated plot at Aosta, alongside stone settings and cairns, indicate complex ritual practices (Mezzena, 1998). The alignment of stelae was often subject to reworking, with older images being damaged or rearranged (Gallay,2011). Older images were frequently obliterated and replaced by newer ones, particularly during the Bell Beaker phase. The triangular platforms or cairns at these sites may mirror the shape of carved daggers, with similar structures excavated at Arana in northern Italy, dating back to the Chalcolithic (de Marinis & Valzolgher, 2013, pp. 53–8).

7.3 Images in Wider Context

The evolution and regional differentiation of Alpine rock art indicate that, despite shared stylistic features, these artworks were created in distinct contexts without a unified purpose. The earliest depictions, often referred to as "topographic representations," emerged and were later enriched around 2900 BCE with images of cattle and scenes of cultivation (Arcà, 2013). Diagnostic metalwork images continued until roughly 2000 BCE, suggesting a shift in rock art themes. This "concern to claim, and even to sacralize, the landscape" might reflect efforts to symbolically connect the art to the land, especially as settlement spread. Images from faraway home settlements may

have been portrayed in the carvings at Mont Bego, which may have had a ceremonial or seasonal significance. The repeated depictions of plough teams and sun symbols may indicate a ceremonial link to the solar system and agricultural life. This activity aligns with a transitional period in the Neolithic when axe production at the nearby Mont Viso ceased, suggesting the mountains had taken on particular cultural importance (Pétrequin et al., 2012; Pétrequin, Pétrequin & Gauthier, 2017). The periodic excursions into these alpine areas suggest that this new emphasis on Mont Bego encouraged pathways between highlands and lowlands. At Valcamonica, where crops were produced, the scenery matched the rock art's agricultural motifs, but Mont Bego's isolated setting implies that the carvings did not directly help agricultural goals. This contrast shows how various places have different meanings and purposes.

In the Alps, copper is widespread, and rock art may indicate its significance (O'Brien 2015: 68–75 and 117–23). Crucial locations along valley roads that pass through the mountains appear to be closely related to copper supplies located north and south of the highland. Here, its movement may have been regulated at what Earle and his co-authors refer to as "bottlenecks" (Earle et al., 2015). At these locations, stelae were built, some of which were connected to drawings of weapons. This was true for the roads from the Po Valley that went north and northwest. The Lunigiana complex, which crosses strategic roads across the Apennines, may be interpreted in the same way. According to recent research, there is a shared metal pool that spans the Alps from south to north (Peruchetti et al., 2017). An increasing emphasis on personal status was evident in the Copper Age and Early Bronze Age, when rock art changed from early non-figurative patterns to representations of weapons and adornments. Both petroglyphs and statue stelae have these motifs, which imply that metal objects developed into social hierarchy symbols that may have been utilized to demonstrate prestige within societies.

Chronology has always been problematic in the study of Alpine rock art. There have been two primary challenges. The first was the subjective assessments used by early researchers. Therefore, because they were consistent with "a Neolithic conception of society," human figures with their arms outstretched, supposedly in prayer, had been attributed to an early period of activity at Valcamonica; nevertheless, it now appears that they are from the Late Bronze Age (Fossati, 2015, p. 858) (Fig.9).

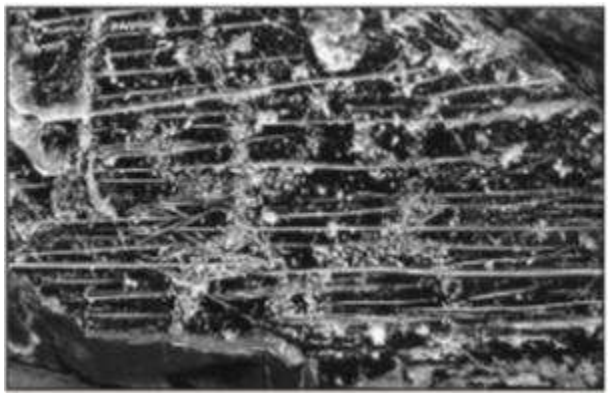

Figure 9 Female prayer figures overlapped by and overlapping spearheads of Bronze Age. Paspardo, Dos Costapeda, Rock 1. Photo: Fossati 2015.

Since there is little evidence to support this view and a few rock art patterns frequently cover images of recognizable metal goods, the idea that certain motifs in rock art symbolize specific cultural or religious values has long been contested. Another inaccurate presumption is that themes discovered together must have come from the same period; this was formerly the case at Mont Bego, but it lacks supporting evidence (Huet, 2017). Frequently displaying diagnostic aspects enables more accurate historical sequencing using reliable dating techniques such as analyzing superimposed motifs. This technique has obtained consistent results at locations like Mont Bego, Valcamonica, and Valtellina (Arcà, 2013; Huet, 2017). While excavations at Valcamonica revealed pieces of decorated stones, primarily from broken stelae, indicating that topographic motifs predate images of diagnostic metal artifacts, the use of superimposition at Valcamonica made it clear that

Iron Age human figures were later than Bronze Age artifacts (Poggiani Keller, 2018). This chronology is further supported by analogies between the decorations and weaponry in Alpine rock art and those in datable hoards and cemeteries. These studies suggest that the earliest panels, likely dating to the Neolithic period, were followed by images of daggers and halberds around 2900 BCE, alongside pairs of oxen. (Fig.10). This art postdates the initial spread of metallurgy in the region (c. mid-fourth millennium BCE). It implies that daggers and halberds held symbolic, rather than practical, functions in warfare, as use-wear studies show limited combat application (Dolfini, 2011, 2013). The Mont Bego site's art production ended around 1200 BCE, while Valcamonica saw a surge of activity with the Iron Age introduction of new motifs—warriors, horse riders, hunters, and structures—which parallel designs on bronze situlae vessels and affirm the Iron Age chronology.

Anthropomorphic statue development continued from the Neolithic to the Iron Age and extended from Eastern Europe to the Atlantic (Robb, 2009). These stelae or statue menhirs varied greatly from basic, rough shapes that suggested shoulders and heads, common in Brittany, to intricate representations with faces, clothing, jewelry, and weapons. While Alpine specimens often displayed just basic outlines, incorporating face characteristics or distinguishing clothes, similar figures were occasionally included in passage burials in places like western France and Iberia (Harris, 2003). These representations may have been based on real-life events since some statues have striking similarities to the clothing of the "Iceman" from the late fourth century BCE (Robb, 2009, pp. 177-178). Anthropomorphic statues and open-air rock art with comparable components were produced in the Central Mediterranean, particularly in the Chalcolithic and Early Bronze

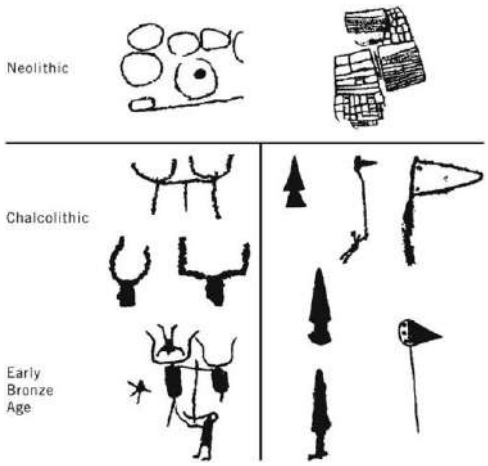

Figure 10 The series of pecked motifs on France's Mont Bego. Source: Arcà (2013). Drawing: Aaron Watson.

Ages. Here, statues frequently depicted solitary weapons, including halberds, daggers, or axes; occasionally, these objects were shown in more significant numbers, mimicking hoards (Bradley, 2017, ch. 5). The Bell Beaker era saw the placement of stelae in front of a megalithic grave at the Petit Chasseur site. These stelae were later destroyed and repurposed as monumental cists (Mezzena, 1998; Gallay, 2011). Similar decapitations or overturnings occurred to several Alpine sculptures (Gallay, 2011; Poggiani Keller, 2018). These stelae were sometimes pecked into unshaped boulders, particularly evident in Valcamonica, where overlapping distributions of rock art and statues highlight the continuity between these traditions (Casini & de Marinis, 2009; Casini & Fossati, 2013). At sites like Sion, Aosta, and Lunigiana, these statues were arranged in linear formations, resembling a "wall of ancestors," and associated with stone platforms, megalithic tombs, and scattered human remains (Harrison & Heyd, 2007, p. 163; Gallay, 2011;Poggiani Keller, 2018) (Fig.11). Artifacts found with these statues resemble typical grave goods (Poggiani Keller, 2018), and some statues, such as those at Aosta and Sion, were repurposed in Copper Age construction.

Valcamonica's statues remained focal points in the Iron Age and Roman periods, after which they were destroyed (Fedele, 2013, 2015; Poggiani Keller, 2018). Statue sanctuaries often lined valley

routes through the Alps and Apennines, mirroring paths used for metal trade, as indicated by frequent dagger motifs. The statues in Lunigiana, near Italy's west coast, display a distinctive style: male and female figures feature half-moon-shaped heads and diagonally sloping arms meeting at the waist. Strikingly, their shape resembles a dagger, with the pommel echoing the head's form and the blade the arm configuration, suggesting that either people were symbolically equated with daggers or daggers were imbued with life-like qualities (Fig.12). This relationship aligns with their location along key metal trade routes. In the following chapters, I will conduct an in-depth examination of the rock art traditions at Valcamonica.

Figure 11 The Stele Statues in Lunigiana. Photo: The Museum of Lunigianese Stele Statues.

Figure 12 Different groups of Stele Statues in Lunigiana. From left to right: Group A: Sorano VII ; B : Taponecco; C: Filetto II (Calco da toccare). Photo: The Museum of Lunigianese Stele Statues.

8. The Rock Art Tradition of Valcamonica

The 75-kilometer Valcamonica (Camonica Valley) in the Italian Alps is home to more than 300,000 rock carvings dating back 10,000 years, from the Epi-Palaeolithic to the Middle Ages. The Valley is where people and ideas pass through the Alps, which separate Italy from Central Europe.

The mapped distribution of rock art sites in Valcamonica and Valtellina highlights significant concentrations of petroglyphs across various periods, underscoring the cultural importance of these valleys as historical crossroads. (Fig.13). Because this field has been continuously researched for fifty years, academics can identify stylistic and thematic changes throughout time. These developments reflect the evolution of the economy, social structure, and thought processes during the early stages of modern civilization. In order to provide a history of prehistoric times, a novel research methodology related to using rock art as a tool for historical reconstruction was developed and used at this location.

The first rock art site in the world to get this designation is Valcamonica, which was designated UNESCO World Cultural Heritage in 1979. Additionally, it is the first Italian site to be listed as a World Heritage Site. Deciphering the meaning of the messages that rock art was meant to express has led to the creation of new historical entertainment scenes. Various events, customs, and beliefs give a new perspective on more than 10,000 years of European history.

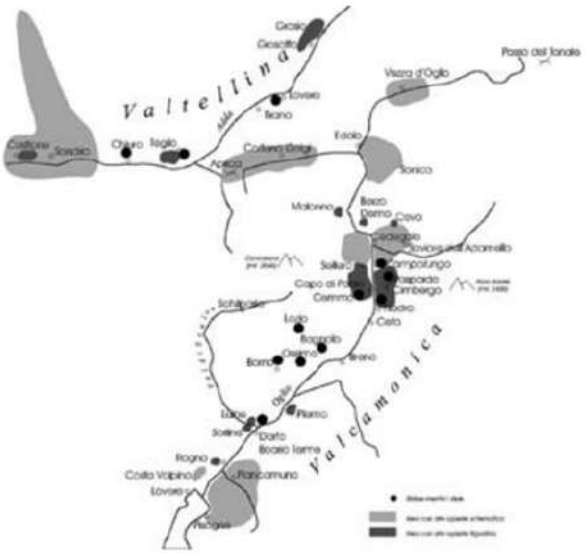

Figure 13 Map of the rock art sites distribution in Valcamonica and Valtellina (Records WARA Documents).

In this area, rock art is currently distributed across four main periods: from the Neolithic to the arrival of the Romans in the valleys (Anati, 1976; De Marinis, 1988; Fossati, 1991) (Fig.14).

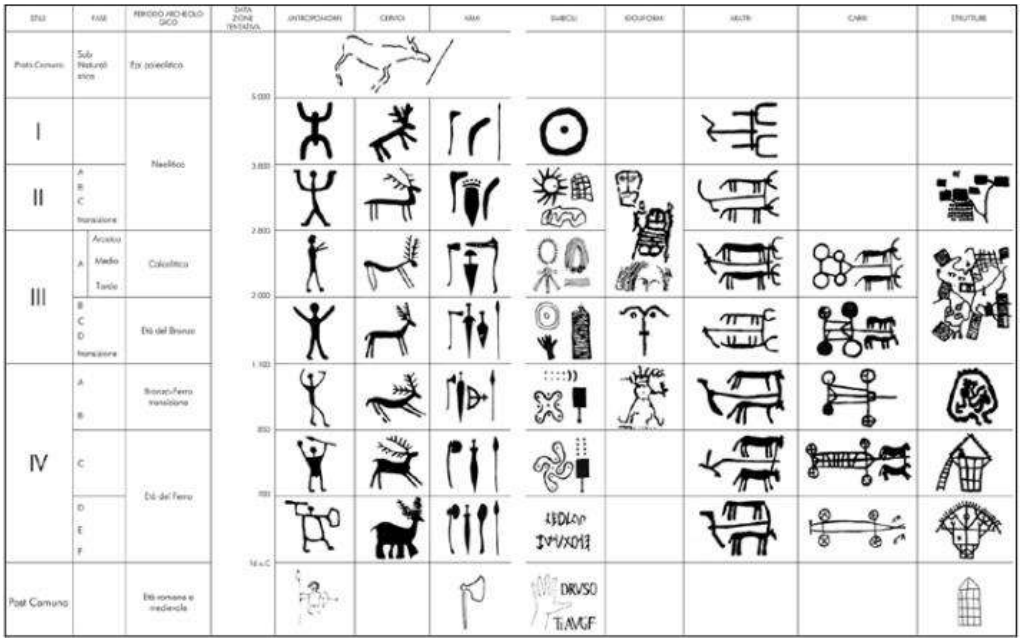

Figure 14 Typology of some of the main represented subjects in rock art of Valcamonica (Records WARA W07744). Illustration: Anati 2008.

The second phase, covering the entire Copper Age (4th–3rd millennium BC), features the 3rd A Camunnian style with stele in the form of slabs, boulders, and menhirs, divided into three sub-phases: 3rd A1, characterized by symbolic figures such as the Remedello dagger (2900–2500 BC); 3rd A2, which introduces anthropomorphic figures and Bell Beaker weapons (2500–2200 BC); and 3rd A3, attributed to the Early Bronze Age (end of the 3rd millennium BC), with anthropomorphic figures in circular compositions (De Marinis, 1994; Casini, 1994).

The third phase, spanning the Bronze Age (2200–900 BC), includes the 3rd B, C, and D styles, reflecting influences from the Early Bronze Age Polada culture, the Middle Bronze Age Terramare-Benacense culture, and the Luco-Meluno group of the Final Bronze Age. This period shows increasingly diverse weapon engravings—axes, daggers, halberds, and swords—suggesting ongoing cultural connections across the Alps (Casini & Fossati, 1994; Casini & Fossati, 2007; De Marinis, 1988).

Period IV (1200–16 BC) encompasses the later phases of the Bronze Age, including the Final Bronze Age, and extends into the Iron Age, comprising five typological phases: the first two phases relate to the later Bronze Age, while the last three phases correspond to the Iron Age. Key rock art sites in Valcamonica include Carpene (Sellero), Cimbergo, Capo di Ponte, Nadro (Ceto), and Luine (Darfo-Boario Terme), with significant settlements such as Dos dell'Arca, Dos Pitigla, Lovere, Rocca d'Iseo, Luine di Darfo, and Necropoli di Breno. The iconography during this period becomes increasingly realistic and narrative, depicting scenes of daily life, magic, and mythology alongside technological innovations such as ironworking and writing using the Northern Etruscan alphabet.

My summary will be limited to the second phase of Period III and the first phase of Period IV, offering a detailed analysis of these specific intervals. The subsequent section will focus on a comprehensive analysis of these phases.

During the Camunian Period III-A (3300–2500 BC), Valcamonica experienced significant cultural changes characterized by the emergence of metallurgy and new ideological movements, reflecting the influence of external ideologies (Arcà, 2005; Fossati, 1993a; 1994; 2002). Menhir statues and massive compositions with tripartite structures were produced at this time, signifying a cosmological religion and a link to the universe (Fossati, 1994). Important rock art locations, such as Luine and Capitello dei Due Pini, indicate the shift to a more stratified society by showcasing this symbolic imagery and incorporating tools and weapons (Arcà, 2005). This cultural shift from Neolithic farming to pastoral village life marked the start of the Bronze Age (Fossati, 1993a). The emphasis on individual figures in rock art about 2500 BC reflected changes in religious expression and societal organization (Arcà, 2005). In the second part, I will look more closely at these changes.

A crucial period in the development of rock art and social institutions during the Bronze Age in Valcamonica is represented by the Camunian Periods III-B-C-D (2500–1200 B.C.). These periods show an important change in social dynamics and community organization, moving away from the structured and stereotyped compositions that typified Period III-A and toward a more flexible and diverse iconography (Fossati, 1993a; 1994).

The Early Bronze Age corresponds to Period III-B. Furthermore, whereas Period III-C embraces the end of the Early Bronze Age and the start of the Middle Bronze Age, Period III-D includes the latter phases of the Middle Bronze Age up to around 1200 B.C. (Arcà, 2005).

Important rock art locations such as Naquane, Bedolina, and Luine showed development in creative subjects and methods throughout this period. The representations became less structured, moving away from canonical images to include more varied depictions, such as topographic maps illustrating fields and landscapes, alongside weapons like sub-triangular daggers, battle axes, and shields (Fossati, 1993a) (Fig.15). The later introduction of the horse indicates changes in agricultural methods and trade, as seen by the increased prevalence of domesticated animals such as dogs, goats, and pigs (Fossati, 1994).

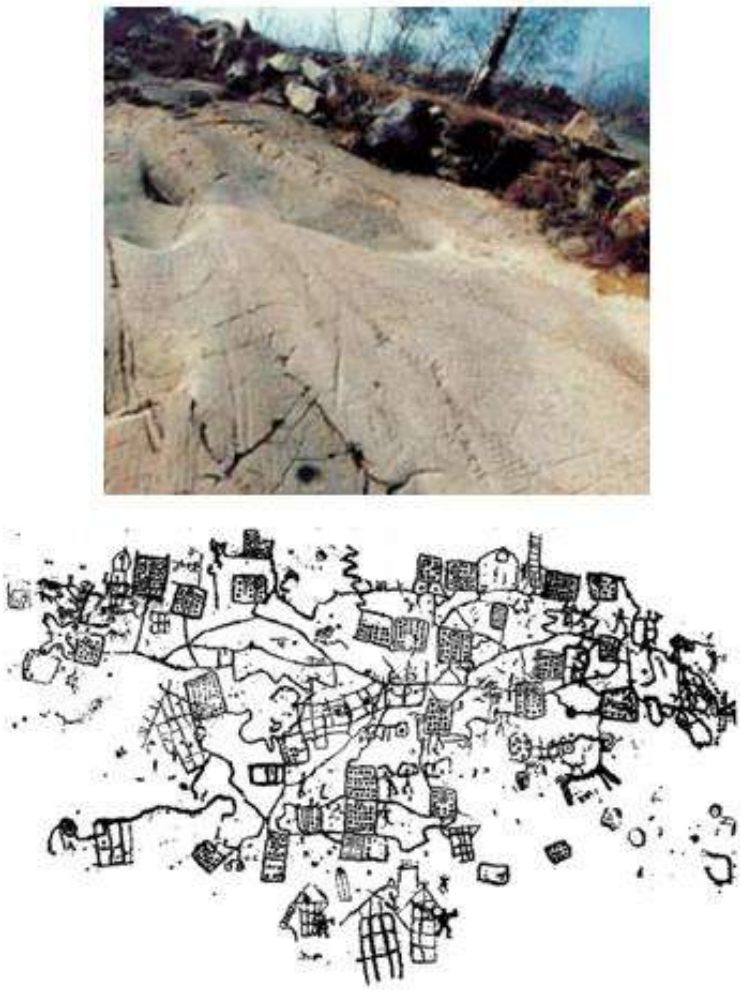

Figure 15 Part of the site "Mappa di Bedolina" Capo di Ponte,(Picture E. Anati; WARA W07614); Topographic composition from Bronze Age, completed during Iron Age by the addition of a fem cabins. The first topographic representations are aged from the Neolithic period. The subject is still represented until Recent Bronze Age. Tracing CCSP; WARA W00645)

Significant scientific and cultural advancements, such as those in metalworking, weaving, and organized trade, are also reflected in this era, which helped to produce surplus (Arcà, 2005). A tribal system with less centralized power replaced the more pyramidal sociopolitical order. Religious rituals also transformed with the emergence of a pantheistic cosmological belief system and evidence of the cult of spirits and weapons (Fossati, 1994).

Furthermore, there are striking similarities between the rock art of this age and modern forms seen in places like the Iberian Peninsula, Southern Scandinavia, and Mount Bego in France, indicating a broader relationship of cultures throughout Europe (Arcà, 2005). As dynamic city-states developed in the Mediterranean and Indo-European invasions shaped the political landscape, the Alpine tribes began to engage in trade networks that utilized transalpine routes, reflecting a shift toward increased interaction with neighboring cultures (Fossati, 1993a). The social, religious, and economic developments that characterized the Late Bronze Age and prepared the way for further advancements that led to the Iron Age are critically documented by the art of that period (Fig.16).

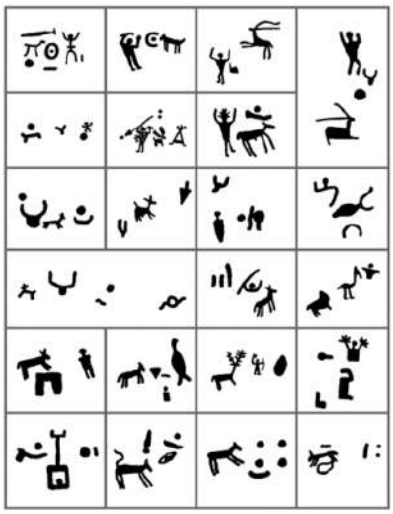

Figure 16 Some symbolical composition from the "Great Rock" of Naquane. Ideograms and pictograms form a visual language. This kind of association can be considered as a sort of proto-writing at Recent Bronze Age and beginning of Iron Age. (WARA Documents)

The Camunian Period IV (1,200 – 16 B.C.) coincides with the later phases of the Bronze Age, the Final Bronze Age, and the Iron Age. Five main typological phases are recognized in Period IV; the first two are related to the Bronze Age, and the three others to the Iron Age. The climatic stage is the end of the Sub-Boreal and the Sub-Atlantic. The typical rock art localities in Valcamonica are Carpene (Sellero), Cimbergo, Capo di Ponte, Nadro (Ceto), and Luine (Darfo-Boario Terme). The main settlements are Dos dell'Arca, Dos Pitigla, Lovere, Rocca d'Iseo, Luine di Darfo, and Necropoli di Breno. Various facies of the final Bronze Age and the Iron Age show similarities with corresponding sites in Tyrol Alto Adige. The character of the iconographic style is a realistic narrative with descriptive and anecdotal scenes of daily life, magic, and mythological nature. Weapons and tools represented include shields, helmets, swords, lances, and axes, held mainly by people. Figures of isolated tools and weapons are typical of the Bronze Age and tend to become rare in the Iron Age. Many agricultural instruments, such as plows, hoes, sickles, small sickles, and picks are represented. Numerous figures of structures, huts, barns, shrines, and temples exist. There are representations of handicraft activities, such as metalwork and the construction of wheels. Domesticated animals are dogs, oxen, horses, donkeys, goats, ducks, chickens, and geese. The breeding of rabbits appears at later stages. The animal farm is more diversified than in the Bronze Age. Among the iconography's technological and cultural innovations is the iron industry. Writing begins with a local language using the Northern Etruscan alphabet during this period. The Camunians learn how to write. Essential economic activities are trading, mineral extraction, metalwork, animal breeding, agriculture, and hunting. The categories of professional warriors and priests emerge. In the initial phases, the socio-political structure is based on the lordships of the hill-forts (castellieri). In the evolved phases, during the periods of Etruscan and Celtic influences, the depictions of

groups of warriors and the growing number of fighting scenes present the image of the establishment of a broader social organization and political entity, in which it might be possible to identify an initial ethnonational character. Beliefs and religion drastically changed toward the end of the Bronze Age. They include the cult of spirits and heroes. Polytheism emerges with classes of heavenly and infernal divinities. When compared to previous periods, conceptual innovations are considerable. Rock figures often represent pieces of epical and heroic events similar to those of Germanic mythology.

In the transition period (final Bronze Age) thematic and stylistic analogies with the Urnfield and Proto-Villanovian cultures are evident; in the middle phase, strong Villanovian and Etruscan influences exist. In the more evolved phases, Celtic, Raethian, and Venetian influences alternate each other in less than three centuries. International relations and cultural influences appear to move on faster dynamics. During this period, the Assyrian Empire emerged in Mesopotamia, and the Hebrew Kingdoms in Palestine had their ups and downs; in Egypt, the civilization of Pharaohs was in decline. The Phoenicians spread trades and their alphabet along the shores of the Mediterranean. Cartago is growing. City-states thrive in Greece. In Europe, the number of first nations has risen and declined. Rome emerged, and her domination spread throughout Europe. The latest pictures preceding the arrival, in the year 16 B.C., of the Roman legions led by Publius Silo, display a style which reflects Roman influence. The Camunians were conquered by the Roman culture even before the arrival of the Romans.

9. Scandinavian Rock Carvings: Facing Two Ways

9.1 A Very Short Introduction to Scandinavian Rock Art

The oldest rock art in this part of the world belongs to a mosaic of Mesolithic groups engaged in hunting, fishing, and gathering. Not surprisingly, big game and migrating animals are the most common motifs: elk, reindeer, bear, beluga, halibut, roe deer, killer whale, geese, and so forth. Moreover, humans are depicted in specific ritual contexts and sometimes with ritual paraphernalia. The oldest, Early Mesolithic rock art (ca.9,000 – 7,000 cal BC; see Hesjedal,1994; Lindqvist, 1994; Gjerde, 2010) consists of large polished images in northern Norway (Gjessing 1932; Hallström,1938). The depictions of animals in this period are naturalistic. During the Late Mesolithic period (from about 5,500 to 4,500 cal BC), graphic depictions on rock surfaces expanded to other areas of northern Europe: west and north Norway, Finland, and northwest Russia, the middle and southwest Sweden, and the southeast of Norway (Fig.17). Although grinding, chiseling, drilling, and carving processes have also been described, pecking or painting was typically utilized to create the pictures in these traditions, in contrast to the earliest period of polished rock art.

Figure 17 Rock art traditions in northern Europe: light gray area = northern hunter - fisher - gatherer rock art traditions; mid - gray areas = southern Bronze Age traditions; dark gray area = blended.

A closer look reveals significant differences in the material culture, burial practices, settlement patterns, and subsistence methods of the hunter-gatherer civilizations that lived in northern Europe. These distinctions are most apparent in rock art, which depicts many cosmologies. In Finland, rock art is linked to the Comb Ware Culture, consisting exclusively of paintings dating to the Early Metal Period in the late second millennium BCE (Lahelma, 2008). In northwest Russia, engravings dominated, attributed to the same period (Gurina, 2005; Gjerde, 2010). Central Sweden and Trøndelag, Norway, saw semi-sedentary hunter-gatherers producing both paintings and engravings, alongside creating intricate slate tools, though ceramics were absent (Tilley, 1991; Sognnes, 2002). This rock art tradition concluded around the late second-millennium cal BCE. Alta in northern Norway also utilized engraving techniques for rock art, spanning five phases from 5,200 to 200 cal BCE, based onshore displacement evidence (Gjerde, 2010). In southern Norway and Bohuslän, southwest Sweden, engravings and paintings associated with Late Mesolithic Nøstvet/Lihult groups were prominent until around 3,800 cal BCE, after which there is minimal evidence of hunter-gatherer rock art—possibly due to the rise of agriculture (Davidson, Chapter 4). In western Norway, engravings from the Late Mesolithic and Neolithic are prevalent. The Vingen rock art, once considered purely Neolithic, has been traced to the Mesolithic through radiocarbon dating (Bakka, 1973; Lødøen & Mandt, 2010). Ausevik, nearby, also has rock art dating to the Late Mesolithic, but primary production likely occurred during the Neolithic (Lødøen, 2001, 2003; Lødøen & Mandt, 2010). In southern Scandinavia, figurative rock art was sparse among Early and Middle Neolithic farming communities (Burenhult, 1999). Cup marks were part of burial practices by the third-millennium cal BCE, particularly within the Battle Axe Culture and Middle Neolithic B (2,800–2,350 cal BCE). This tradition extended into the Late Neolithic and Early Bronze Age (2,350–1,700 cal BCE), leading to a figurative emphasis in rock engravings from the Middle and

Late Bronze Age (1,700–500 cal BCE). Coastal open-air sites, where rock art is concentrated, mark significant intersections of inland and coastal transport routes (Fig.18). More than half of these figurative engravings feature boats, highlighting their cultural and economic significance.

Furthermore, rock art was discovered on movable slabs near barrows and was integrated into burial structures, where boat motifs were still common (Goldhahn, 2007). Boat images may be found in around 800 bronze objects in Denmark, which are helpful dating tools (Kaul, 1998). Northern Bohuslän and Østfold host over 10,000 documented boat engravings alongside motifs of people, animals, footprints, and abstract symbols (Coles, 2005; Ling, 2008), underscoring their role as cultural markers in Bronze Age northern Europe.

In contrast to other parts of Europe, rock art has existed in Northern Europe for thousands of years during the Mesolithic, Neolithic, Bronze, and Iron Ages. The earliest rock art may have been created around 400 AD (Skjelsvik & Straume, 1958; Mandt, 1991), while the oldest is thought to have been created about 6000 BC. The presence of earlier art in the landscape from long ago might have been known and influenced societies in different ways (Ling & Rowlands, 2010) in terms of collective memory and perception of deep time.

Since the beginning of the 20th Century, Scandinavian prehistoric art has been categorized into two groups: produced by either hunter / fisher-gatherer societies or agrarian societies. Until the work of the late Kalle Sognnes (1945-2019), formerly Emeritus Professor at The Norwegian University of Science and Technology, Trondheim, these were always referred to as "hunters' art" and "farmers' art." Sognnes, following the compilation of a catalog of rock art in Central Norway, identified flaws within the terms, namely that they are based upon outdated chronologies that are

neither geographically nor temporally separate from one another. (Sognnes, 2001, pp. 13-14). Consequently, more neutral terms, such as Northern and Southern Tradition, were suggested. Northern Tradition describes "hunter's art" art. Southern Tradition describes the pictorial repertoire of "farmer's art." Their distributions differ, with Northern style variations found in Finland, Russia, and Scandinavia. North Germany even represents the Southern style (Capelle, 2008). According to contemporary national borders and languages, both groups are still researched in particular ways (Nimura, 2016).

Area	*Cup marks*	*Boats*	*Humans*	*Animals*	*Feet*	*Sun/circle*	*Other*
Bornholm	3523	78	3	–	20	26	13
Southeast Scania	2762	167	51	35	233	60	96
Tjust	7925	691	10	45	215	114	194
Östergötland	5619	1558	275	544	334	204	394
Västergötland	2060	73	7	6	281	51	7
Uppland	19000	1665	190	185	309	128	612
Northern Bohuslän	27338	7721	3556	1522	533	610	1795
Sogn og Fjordane	2484	165	5	4	2	13	21
Trøndelag	2475	517	57	254	561	316	94
Σ (99806)	73186	12635	4154	2595	2488	1522	3226
= %	73.5	12.5	4	2.5	2.5	1.5	3.0

Figure 18 Some Bronze Age rock art areas showing the relationship between different types of rock art imagery. Source: after Goldhahn et al. (2010)

9.1.1 Northern Style

Many Northern Tradition, rock art sites, have a connection to the water of some kind (Gjerde, 2010b, p. 49), with many situated on prehistoric shorelines, which have since retreated due to the effect of an isostatic rebound following the end of the last ice age. The figures include carvings and paintings of animals (especially cervids of various kinds, including deer, reindeer, elk, as well as bear, fish, and whales), boats, anthropomorphic artifacts (locally common, in particular figures of staffs), and abstract figures of various kinds. The kinds of figures and their appearance can vary widely. In some cases, this can be explained by chronology, while other patterns seem to have a specific geographical distribution. (Fig.19)

The chronology of Northern Tradition rock art is a subject of debate and subject to varying degrees of uncertainty (Ramstad, 2000; Gjerde 2010a: 44-49, 59; Lindgaard, 2013). Confusingly, two chronological systems are in operation between North and South Scandinavia. Depending on the area, a certain amount of spatial and temporal overlap is evident between Northern and Southern Tradition rock art (Nyland, 2011, pp. 89-91; Sognnes, 2014; Helskog & Challman, 2014).

With no means of directly dating the carvings, researchers rely on shoreline dating, where the figures' elevation and location provide *a terminus post-quem* date range for when the rock surface would not be underwater and available for carving. Historically, this information is supplemented by a typological development from a naturalistic to a more abstract style, which is still used despite its shortcomings being acknowledged (Gjerde, 2010a, pp. 44-55).

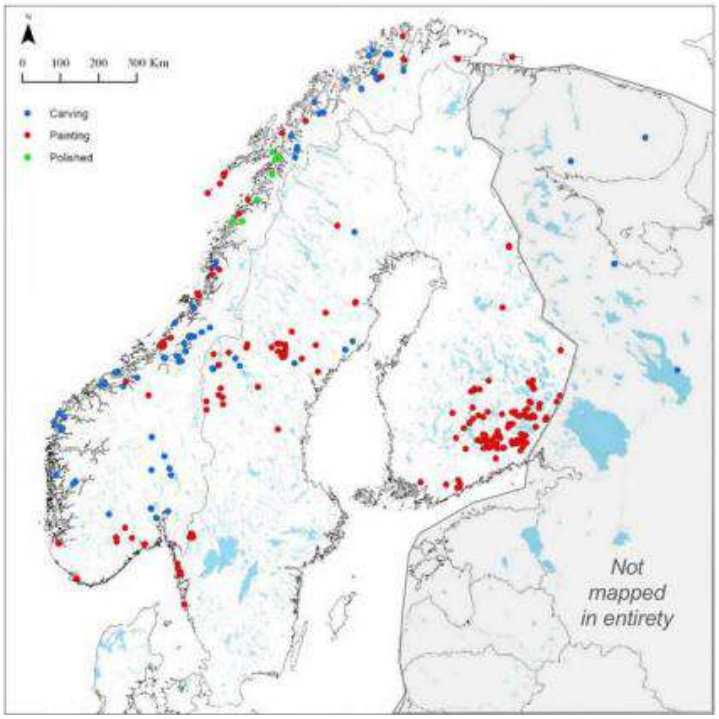

Figure 19 Northern Tradition rock art localities, as of 2010. Distribution in Northern Germany, the Baltic States and Russia not mapped (Gjerde 2010a: Figure 52, with modifications.

The pictures have some degree of three-dimensional reality despite these "mythological" components. Gjerde (2010) and Helskog (2014) have both recognized "micro-landscapes" in Russia and Norway. What mattered most was the rock's character. Quartz veins, stream channels, lakes, and glacial striations were some of its most remarkable characteristics. Images were taken next to cataracts in Northern Scandinavia, where the loud noise may have had psychotropic effects (Goldhahn, 2002). However, anthropomorphic outcrops and natural gateways were preferred in Finland, where handprints highlighted in red pigment indicate that it was crucial for people to touch the rock (Lahelma, 2008).

The shoreline, riverbanks, waterfalls, and little islands were given special consideration. (Fig.20). There is evidence of paintings that stretch from the Arctic as far south as Gothenburg. However, most images were pecked (Schultz Paulsson, Isendahl & Frykman Markurth 2019). In an excavated village near the petroglyphs at Nämforsen, a red ochre deposit was discovered (Goldhahn 2010: fig. 8.6). Except for undated cup markings, all of the Finnish rock art was painted (Saksa, Bel'skiy & Mizin 2017). In Norway, homes and other household elements can be found nearby, such as in Vingen and Alta (Lødøen & Mandt, 2012a; Helskog, 2014).

Figure 20 Northern Tradition rock art at the Ole Pedersen locality, in Alta, Finnmark, Northern Norway: 2000-1000BC (Helskog's phase 4). Photos J. Dodd, 2011.

9.1.2 The Southern Tradition

Southern Tradition rock art is predominantly comprised of rock carvings. Only a few isolated instances of paintings are known. (Dodd,2013). This style, considered particularly Scandinavian in contrast to the Northern tradition, has been examined slightly differently in Norway than in Sweden and Denmark. It is frequently contrasted with ideas and imagery from distant regions like Egypt, Mesopotamia, the Mediterranean, and Central Europe. The case is plausible because of occasional long-distance imports of glass beads and metalwork and the export of Baltic amber (Kaul, 2017). Most kinds of figures represented fall under a limited set of general categories: cup-mark, ships, anthropomorphic, animal figures, foot-soles, circle figures, and abstract figures of various kinds (Nordbladh, 1980). Sub-categories under these can also be formed, for example, amongst animals, depending on the criteria for selection. Several other figure categories also exist, but the number of examples is more minor, often with a localized distribution. The appearance of figures belonging to any given category can vary considerably, with it being possible to form several subgroups and variants. Combined figures can also be formed using one or more categories.

Rock art from the Southern tradition is a component of a more extensive history of prehistoric expression, which is typically shown as a comprehensive art tradition that includes rock art, ceramics, organic materials, and metal artifacts. Rock art has been used as the primary source of proof confirming the presence of a comprehensive art style among the many methods on which Southern Tradition art can be found. Most scholars use Southern Tradition rock art when discussing the Bronze Age's pictorial setting (Goldhahn and Ling 2013: 271). However, such a method severely misinterprets the complex and still uncertain chronology of Southern Tradition rock art.

Cup marks predominate in the evidence from the Bjare peninsula in southwest Sweden (Nord, 2009), and life-size footprints are seen in central Norway (Sognnes, 2001, pp. 69–71), and also

they are the most numerous and widespread figure category (Nordbladh, 1980; Nimura, 2015; Dodd, 2021a), and seem to have the longest chronology. (Fig.21). Although an origin within the Neolithic for the creation of cup marks has long been hypothesized (Petersen, 1876: 435, 439; Vedel, 1886: 53; Glob, 1969: 297-299), it was only recently (2016) proved conclusively, with the discovery of two red cup-marked stones in a secondary archaeological context; within fills of 1) the ditch of causewayed enclosure and 2) a timber palisade, both from the latter part of the Funnel Beaker Culture of the Neolithic (Milstreu and Dodd, 2018 pp. 20-21; Dodd, 2021a, p. 81), from the end of the 3rd Millennium BC, at Vasagård, on the island of Bornholm (Iversen et al., 2022).

Figure 21a-b: The most numerous and widely distributed figure found in Southern Tradition rock art is the cup-mark. BMR 2873-2 / 060407-222, Randkløveskov Vest 2, Østermarie, Bornholm is one of several carved surfaced located on a mix of glacial erratics and bedrock within a fossilized field system. Rows of lynchets can be seen in the distance (a). Photos and 3D model J. Dodd, Aarhus University in cooperation with Bornholms Museum, 2017. Orthophoto (b) processed on the Danish eInfrastructure Cooperation (DeiC) High Performance Computer Abacus 2.0.

On the one hand, the chronology of Southern Tradition rock art can be extended in both directions: from the Neolithic to the Iron Age (Lødøen, 2015; Goldhahn, 2018; 2019) and the Migration Period (400–550 AD) in the fourth century (Skjelsvik & Straume, 1958).

In the south, metalwork and rock art share images of the sun, horses, and ships (Kaul, 1998, pp. 265–9). Both as current evidence and for their interpretation, that relationship is beneficial. Therefore, decorated bronzes from the Early to Late Bronze Age are used to restore the images discovered in rock art. The petroglyphs mostly depict humans, animals, hunting, fighting, weapons, tools, and boats (of various kinds, some with improbably enormous crews) (Fig.22,23).

Figure 22 Humans, animals and boats and Rickeby, Sweden. Photo: Nimura C.

Figure 23 Boats with their crews at Hornnes, Norway. Photo: Nimura C.

Depending on whether they wore shoes, wheel crosses can alternatively be seen as plows, footprints, solar images, or foot soles (Fig.24). Although the west coast became more significant throughout the Late Bronze Age and early Iron Age, the earlier iconography still followed the

Atlantic and the Baltic (Coles 2000 and 2005; Ling 2013 and 2014; Nimura, Skoglund & Bradley 2020).

Figure 24 A wheel cross and a possible solar image at Evenstorp, Sweden. Photo: Nimura C.

The daily journey of the sun across the sky, pulled by a horse, is a recurring motif in coastal regions (Fig. 25). It is carried on board a ship and moves underwater at night (Kaul, 1998). In Indo-European poetry and myth, the sun is linked to horses and boats, suggesting that these ideas must have been widely held (West, 2007; Kristiansen, 2012). Since the third millennium BC, solar bark has been a fundamental idea in Egypt; thus, this was not a novel invention.

Often, the distribution of Southern Tradition rock art is only thought of in terms of the present-day boundaries of the Scandinavian countries, where it is a familiar part of the archaeological landscape of Southern Sweden, as well as Central, Southern and Western Norway. Small pockets of one or more sites are also found at various locations in Northern Norway.

However, the spatial distribution of Southern Tradition rock art covers a much wider area, stretching from Northern Germany (Probst, 1996: 217; 311; 318) to almost the North Cape of Norway Simonsen 1970 and into Eastern Europe.

Southern Tradition rock art is known from parts of Poland (Jaeger et al., 2019), Estonia (Tvauri, 1999), Latvia (Urtâns,1987; Cepītis et al., 2022), Lithuania (Vaitkevičius, 1996; Vaitkevičius, 2004), Belarus (Zaikovkiy, 2000, Vaitkevičius, 2004), Russia and Finland (Tvauri 1999: Figure 3).

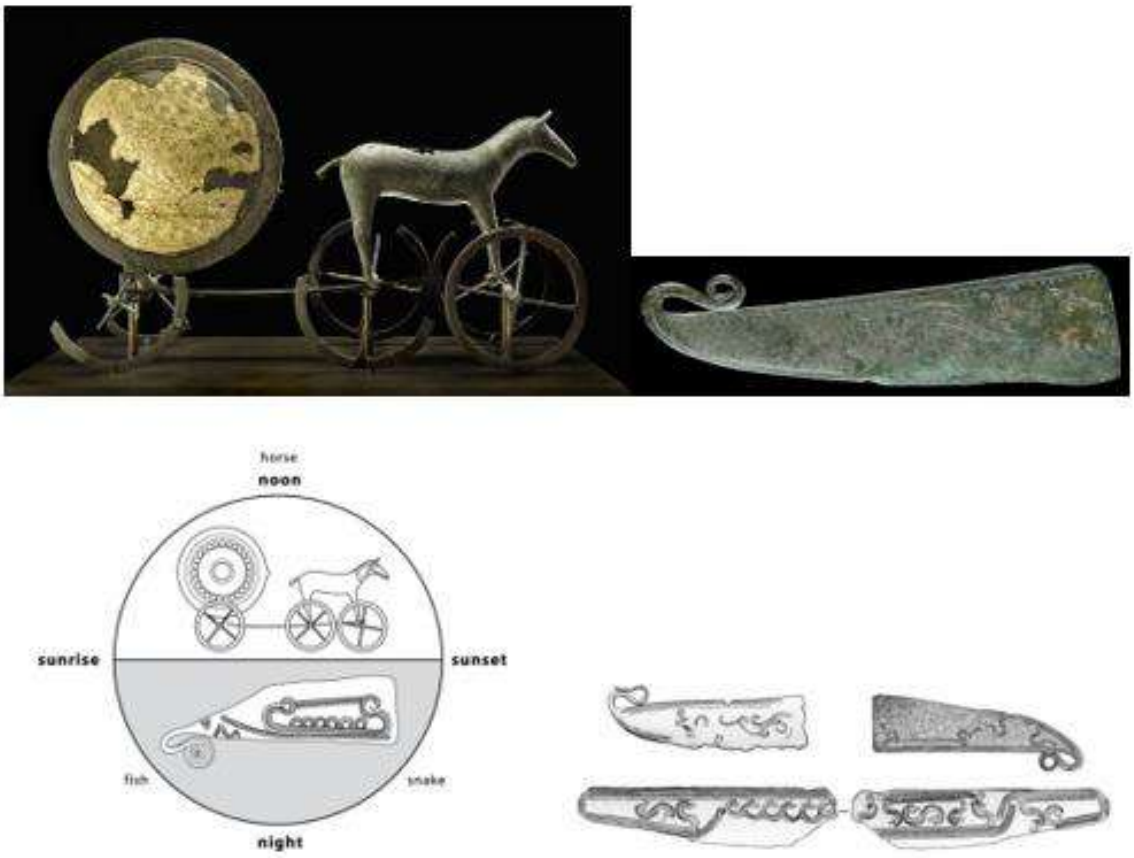

Figure 25 Trundholm Sun Chariot; Late NBA razor with hybrid imagery on the blade. The creature, which appears on the prow and stern of a ship next to an apparent 'sun-horse' seems to be a combination of a horse with horns, a beak, an accentuated eye and a triangular beard Photo John Lee; the outline of the solar cosmology postulated by Kaul (1998), with outline drawings of the Trundholm Sun Chariot and a drawings of decorated bronze razors from Denmark.

9.2 North European Rock Images in Wider Perspective

This region's uniqueness is demonstrated by its uncommon combination of two belief systems during shifting geographic axes. The most significant was the change in rock art from North to South Scandinavia, which would have been brought about by the spread of agriculture and its uptake in new regions. Furs must have always come from the north, but imported metal became comparable in importance during the Bell Beaker era. It originated in Central Europe and even farther away; however, some could have been transported over the Gulf of Bothnia. Amber appears to have moved in the other direction (Kaul, 2017). New accommodation ensued between long-standing beliefs among North and South Scandinavian people who established close relationships with communities in Central and Western Europe (Vandkilde, 2017: Chapter 5). As the contents of the art suggest, travel by sea was all-important. So was access to exotic raw materials, including metalwork from as far away as the Iberian Peninsula. It may have encouraged extended voyages- even periods of warfare- along sections of the coast (Ling, Earle & Kristiansen 2018). This may explain the increasing number of rock art along the west coast of Sweden and Norway. This was particularly true in the first millennium BC, when Northern Europe was at the farthest point of the Atlantic Bronze Age. It should come as no surprise that these processes became less significant throughout the Early Iron Age as the availability of foreign metal declined.

The distinctive characteristics of the Northern and Southern traditions may be seen on the same rock at Bardal in central Norway, where many of the pictures were overlaid (Gjessing, 1935 and 1936; Sognnes, 2008). This is not exceptional, but it is unusual. Although the Northern tradition's pictures are older than the others, both collections of drawings were likely created over extended periods. While the pictures of boats that sit above them began in the early Bronze Age, the paint-ings of wild animals were done in various styles (the most recent examples dating from the Iron

Age). It is unclear why the images were overlapped despite this extended sequence. Did this location have a long-standing importance, in which case its reuse may have been meant to reference the past, or was it an act of iconoclasm (Wrigglesworth, 2006)? Because of its remarkable size, the rock has been compared to the body of a whale, one of the animals shown at the location. The stone's surface could have also drawn notice since it has several eye-like lenticular hollows. Their contours were highlighted by quartz veins, which makes them very remarkable.

Another peculiarity of the rock was that, even after rain, water continued to escape from its surface. This stone could have had extraordinary powers for individuals in the past. Elk were depicted in the initial pictures as outline drawings, some larger than life-size. According to Sognnes (2017), these animals' locations overlap one another in order to depict a herd of animals. The whale's solitary representation is at least 4.6 meters long. The significance of the coastline is shown by the fact that the same series of petroglyphs feature both land mammals and sea-related species. The fact that the first pictures at Bardal were taken close to the river is no coincidence. During the second and first millennia BC, the circumstances shifted as the land rose and the coast decreased, yet South Scandinavian-style paintings were still made on the same surface.

Although the later petroglyphs extend into an area not previously used, the most striking images in both styles are in the exact location. This relationship could not have occurred by accident, as the densest distribution of Bronze Age boats was superimposed on the animal pictures created during earlier phases. A large portion of the Southern tradition's repertory is depicted in the later illustrations. Large seagoing ships and their workers are there, as are smaller boats, some of which appear empty. It is possible that someone aboard one of the biggest boats is playing a lur, a type of bronze trumpet. On dry ground, two further individuals are depicted. Both feature the extended calves characteristic of human figures in Bohuslän, and one appears to be sporting a horned helmet.

There are also broader similarities with the other themes. There are pairs of footprints strewn over the ornamented surface, and curvilinear designs above the boats are thought to depict the sun. They have more widespread themes to the south, but Bardal is on the boundary of their range. Lastly are illustrations of Iron Age-style boats along the panel's corners. Here, they are discovered with representations of horses, which emerged as a prominent element in the most recent era of Scandinavian rock art. Despite the lack of weaponry, Bardal's rock art contains many of the most popular aspects of rock art from North Europe.

The Klinta Stone is a Scandinavian artifact from a burial mound on Öland that shows Bronze Age cosmological concepts through its engravings of horses, ships, and sun figures. The concentric circles on the stone represent the sun, while the horse and ship symbols depict a cycle that symbolizes the sun's daily journey. During the day, horses pull the sun across the sky from east to west, while at night, the sun travels underwater, carried by a ship, before returning to its starting point (Kaul, 1998). The direction of movement in the images is critical: during the day, figures move from left to right, while at night, they travel in the opposite direction (Burenhult, 1973, p. 66). The petroglyphs are arranged into two horizontal layers, with the lower one depicting an empty ship moving left to right while an occupied ship moves right to left above it. Horses cross the panel similarly, suggesting the duality of day and night. In the upper portion, a circular motif—often interpreted as a sun symbol—reinforces the connection to the sun’s cycle, akin to Bronze Age metalwork that represents its continuous journey (Kaul, 1998). This cosmology is also linked to burial practices; the Klinta mound and similar finds at Sagaholm and Kivik possibly compare the sun’s cycle to the human life course (Goldhahn, 2016; Goldhahn, 2013). This interpretation may explain why Bronze Age graves often included stone settings shaped like ships, symbolizing a journey to the afterlife. Numerous cup marks are carved across three sides of the Klinta stone,

echoing the sun motif by their arrangement. Many such decorated stones are located near shorelines where the sun could be seen rising or setting over the water, suggesting a sacred link between the sun's path, the afterlife, and the symbolic journey across the sea. Because of this, researchers think that the burial of Klinta by the Baltic may represent a journey to the afterlife.

10. Italian and Scandinavian similarities: A shared cultural Framework

Analyzing a larger context may reveal the structures of deeper phenomena, but simple similarities between Alpine and Scandinavian iconography simply reflect a shared history and interactions, along with using typologies from the southern regions (Krause 2011; Ling and Rowlands 2013). Scandinavia's importation of copper from the Carpathian Mountains, Sardinia, Alps, and the Iberian Peninsula implies that a consistent low of cultural exchanges occurred along the same routes: not only were elements and objects transported, but also ideas and even cultural fashions. This is evident, for example, when looking at the variations in the forms of various components of warriors' armor, such as swords, shields, and chariots, as well as ornamental features, such as circular symbols. First, the fact that all of Europe had the same foundation during the Bronze Age demonstrates the homogeneous nature of this era's civilization, with variations resulting from only minor regional adjustments. Second, most Alpine and Scandinavian rock art originated in the dominant culture of middle Europe at the start of the first millennium BC, specifically in the central-eastern region of the continent, through a complex ensemble of influences that began in the third millennium (Sansoni, 2015). The end of the third millennium or the beginning of the second millennium BC is likely to have been the starting point for the post-Mesolithic rock art in southern Scandinavia, while in the Alps, after the dense expression of the late fourth–third millennium BC, the focus on

some representations of single (not wielded) weapons and discs slowly faded away, replaced by close attention to human figures, such as warriors and adorers (the latter being an ‘old’ pattern, having been represented since the Neolithic). Although it is difficult to determine the precise order of Scandinavia's cultural phases (Kaul, 1998; Hygen & Bengtsson, 2000), the primary themes of the rock engravings show a remarkably secure correspondence with the Alpine rock art heritage, lasting up to the end of the Scandinavian Bronze Age.

10.1 Human Figures

This subject was not very prominent in the Central Alps until the Final Bronze Age and became particularly common throughout the Iron Age. There are many horsemen and dueling pairs, and warriors are typically depicted with a shield and sword or axe/spear. They hardly ever wore helmets or held their swords in the sheath. Much focus is placed on arm muscles. Numerous warriors displaying their weapons are seen across Scandinavia. These include axes (standard), spears, and bows; swords are rare, and the weapon is frequently sheathed and attached from the warrior's belt; shields, which frequently protect the bodies, and helmets, which occasionally take on highly stylized forms with paired horns, are unusual, and dueling pairs are rare; in fact, the legs' muscles are noticeable, most likely to demonstrate the warrior's strength by exposing the central body part behind the shield. Warriors are dominating subjects in both genres; when shown alone in a scene, they often hold their weapons high over their heads, are ithyphallic, emphasizing the masculine strength of authority, and, in some situations, are enormous. (Fig.26).

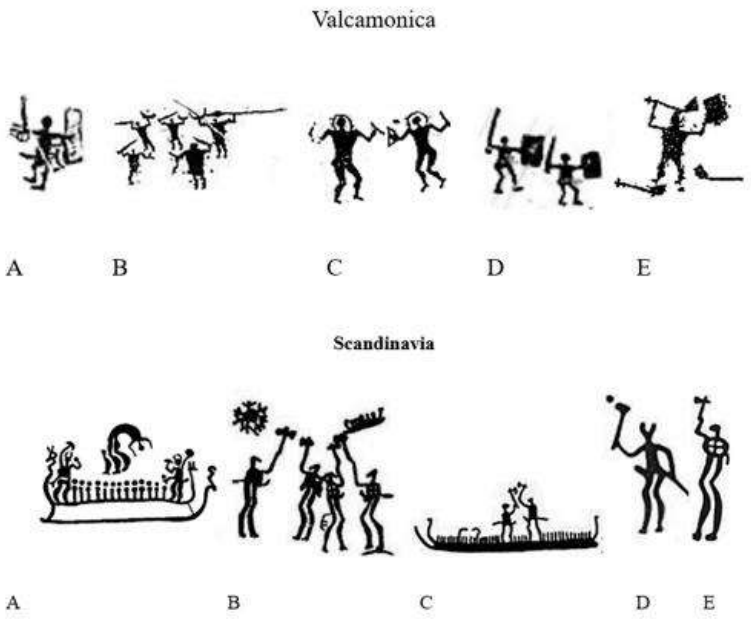

Figure 26 ***Valcamonica****: A: Dos del Pater, Valcamonica, Italy (tracing by Dip. Valcamonica CCSP), B: Campanine, Valcamonica, Italy (Sansoni Gavaldo 2009), C: Zurla, Valcamonica, Italy (tracing by Dip. Valcamonica CCSP), D: Ronchi di Zir, Valcamonica, Italy (tracing by Dip. Valcamonica CCSP), E: Paspardo, Valcamonica, Italy (tracing by Le Orme dell'Uomo);* ***Scandinavia****: A: Sotetorp, Tanum, Bohuslän (Kaul & Milstreu) , B: Aspeberget, Bohuslän, Sweden (Milstreu and Prøhl 1996), C: Fossum, Bohuslän, Sweden (Coles 1990), D : Tanum, Bohuslän, Sweden (Bengtsson and Olsson 2000), E: Aspeberget, Bohuslän, Sweden (Coles 1990).*

10.1.1 Riders and hunters

Typically armed, riders in the central Alps highlight their symbolic importance of wealth and the rise of an aristocracy characterized by using weapons and horse breeding. Of the 735 horses in Valcamonica, 335 horsemen have been recorded thus far. Although fewer examples of horseback riders exist in Scandinavia, their inclusion in both stages is noteworthy. The fact that they are so uncommon in terms of numbers and scene placement attests to the different significance of horses as status symbols in northern cultures.

According to Latin sources, the aristocracy is more egalitarian and distinguished by a warrior's prestige, which is not dependent on ostentatious representation formulas. In both the areas, most of the horsemen are armed with a spear and shield. In Valcamonica, and in Scania and Bohuslän,

there are some very interesting examples of acrobatic riders standing on their horses performing what might be interpreted as an initiation ritual.

In both areas, a small percentage of human figures are hunting. In Valcamonica, most of them, especially riders, are chasing stags in a typical aristocratic manner of the Iron Age; hunting scenes often describe myths or ritual events, where the hunter is equipped with a shield and a helmet, as a warrior. Both in Scandinavia and the Alps, some archers perform hunting. However, in Bohuslän, there are also two prominent examples of archers, such as dueling warriors at Slänge in Tanum and Torp in Kville. These scenes stand in obvious contrast to the well-attested negative conception that in the southern European cultures in the Late Bronze Age, only the most cowardly warriors used the bow and arrow; here, we detect the influence of the heroic conceptions of the Bronze Age. However, a different view of the warrior's use of the bow existed in Scandinavia (Fig.27).

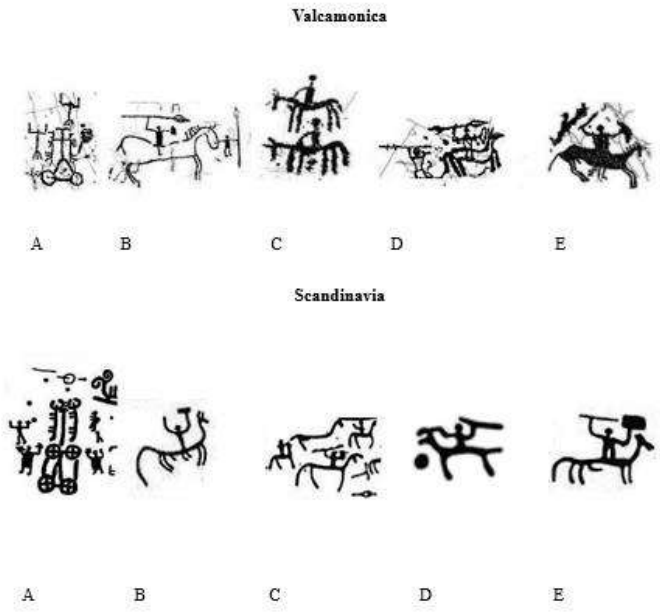

Figure 27 ***Valcamonica:*** *A: Campanine, Valcamonica, Italy (Sansoni and Gavaldo 2009), B: Foppe di Nadro, Valcamonica, Italy (Anati 1982a), C: Campanine, Valcamonica, Italy (Sansoni and Gavaldo 2009), D: Ronchi di Zir, Valcamonica, Italy (tracing by Dip. Valcamonica CCSP), E: Ronchi di Zir, Valcamonica, Italy (tracing by Dip. Valcamonica CCSP);* ***Scandinavia:*** *A: Askum, Bohuslän, Sweden (Bengtsson 2002), B: Tanum, Bohuslän, Sweden (Bengtsson 1995), C: Tegneby, Bohuslän, Sweden (Bengtsson 1995), D: Tegneby, Bohuslän, Sweden (Bengtsson 1995), E: Tanum, Bohuslän, Sweden (Bengtsson 1995).*

10.2 Weapons

Bronze Age weapons from the Italian Alps and Scandinavia indicate technological improvements such as trade connections and growing cultural values associated with warfare, authority, and identity. Weapon patterns are prominent in rock carvings throughout Northern Italy, particularly in Valcamonica, demonstrating an organized succession of weapon types and their symbolic functions. Halberds, daggers, and axes are important in early images dating back to the Chalcolithic and Early Bronze Age periods. However, representations of humans are rare, implying an early emphasis on weapons as symbols of authority.

By the Early Bronze Age, a major development had happened with the introduction of swords, resulting in the creation of the "warrior" archetype, representing the power and social function of armed individuals in Italian society. The Middle to Late Bronze Age brought increasing variety in motifs, including depictions of ritual scenes, chariots, and sun symbols, all integrated with weapon images. These motifs express a complex warrior ideology emphasizing weaponry as central to social structure and ritual significance, with axes, swords, and spears commonly depicted alongside elite symbols (Fokkens & Harding, 2013).

Similarly, Scandinavian rock art highlights weapons in its iconography, typically representing swords, axes, and shields in locations that indicate ceremonial or martial contexts. Scandinavian themes frequently display these weapons with ships, chariots, and human beings in ceremonial poses, emphasizing the role of warrior elites in Bronze Age Scandinavian civilization. A common symbol in Scandinavian rock art, the axe is a tool and a powerful representation of spiritual strength and social status (Fig.28). To highlight the identity and status of warriors, rock art frequently features sword and spear patterns, typically found in wealthy burial sites. These weapon representa-

tions form part of complex compositions that likely depict narratives of warrior journeys, seafaring, and cosmological beliefs, highlighting the deep connection between martial identity and societal values in Scandinavian culture (Ling, 2008).

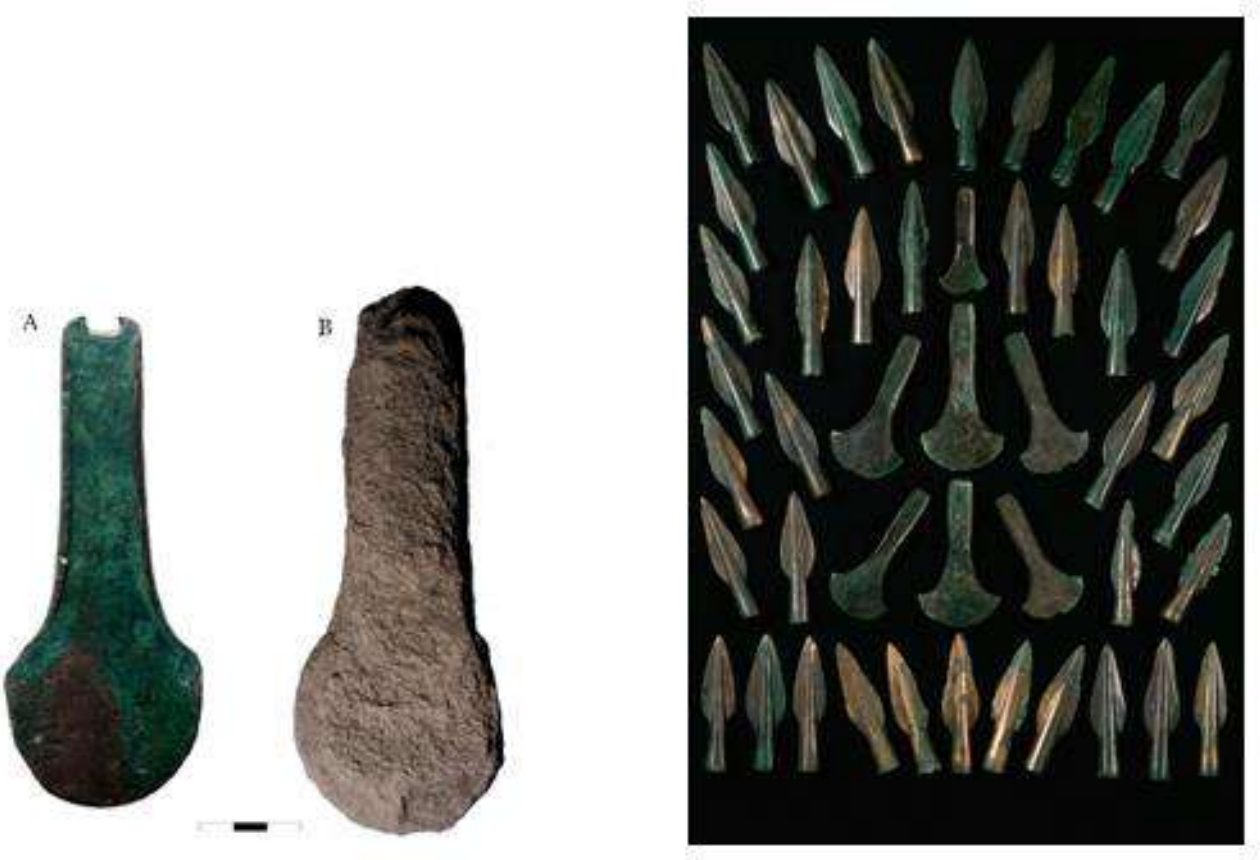

Figure 28 From left to right: Axehead with wide rounded blade, bronze, from Montecchio di Valcamonica (XIX century finding), dated to Early Bronze Age (Polada Culture), with stone simulacrum of the same type of object (found in Paspardo). After: Poggiani Keller R., MUPRE – Museo Nazionale della Preistoria della Valle Camonica – Guida Breve. Litòs edizioni, 2017, p. 143; Flanged axes and spearheads dated to 1700–1600 BC (NBA IA), from the major Bronze Age hoard from Bondesgårde, Torsted, Denmark. Photo by Lennart Larsen. License CC-BY-SA. Source: Danmarks Oldtid, Nationalmuseet.

By 1600 BC, trade between Scandinavia and regions like the Italian Alps and the Mediterranean contributed to a shared Bronze Age symbolic vocabulary in weapon motifs and a material culture sustained by Italian copper (Fig.29).

Italian copper from northern Alpine sources was crucial to Scandinavian bronze production, with isotope analysis showing that a large percentage of Scandinavian weapons, especially swords, were crafted from Italian copper (Vandkilde, 1996, 2014) (Fig.30). The Italian influence is evident in the material and the stylistic features of Scandinavian rock art, where sword motifs closely mirror Italian forms. This exchange of motifs illustrates how weaponry in rock art extended beyond functional representations to serve as symbols of a pan-European warrior ideology, embedding Italian cultural elements into the Nordic Bronze Age worldview (Ling et al., 2013; Kristiansen, 1987).

In Scandinavian rock art, swords and other weaponry motifs appear alongside sun images and chariots, indicating a cosmological symbolism that resonates with Italian Bronze Age iconography. These motifs, common in Scandinavian regions, demonstrate that the representations of swords, axes, and shields went beyond simple warrior representation to signify identity, status, and ideological relations. The Italian-derived sword types incorporated in Scandinavian rock art and burial contexts symbolize a warrior class and a shared cultural framework, with similar imagery reflecting Italy's influence on Scandinavian social and symbolic systems (Kaul, 1998; Coles, 2005).

Between 1300 and 700 BC, Italian and Iberian copper dominated the Scandinavian metal supply, reinforcing the Italian influence on Scandinavian rock art and elite symbolism. Italian-inspired flange-hilted swords, depicted in Scandinavian rock carvings, are markers of status and the interconnectedness of Bronze Age Europe. This imagery underscores the symbolic function of swords within a broader European warrior identity, where motifs of chariots, weaponry, and ritual scenes represented a unified ideology of power and honor (Kristiansen & Larsson, 2005; Harrison, 2004).

A comparative approach to examining the rock art of Italy and Scandinavia reveals both regional distinctions and evidence of cultural exchange, particularly regarding Italy's influence on Scandinavian iconography. In Italian Bronze Age rock art, weapons such as swords and daggers often appear as isolated symbols without accompanying representations of humans, animals, or other figures (Fig.31). These isolated images show that these weapons functioned as independent representations of power or celebration, with the object alone communicating its meaning without any story or background information.

Scandinavian rock art, on the other hand, usually incorporates weaponry into complex layouts. Swords, axes, and other weapon motifs appear alongside symbols such as the sun, chariots, and human figures, often portrayed in postures that imply strength, power, or ceremonial roles (Fig.32). This combination of weapon motifs with more general symbolic imagery highlights the significance of warrior elites in Scandinavian civilization, where weapons have been incorporated into cosmological and cultural narratives and signify individual authority. For example, the depiction of hands grasping weapons reinforces ideas of martial prowess and personal strength, linking warriors to the divine or natural forces represented by the sun and other celestial symbols.

The Italian influence on Scandinavian rock art is apparent in the material trade of copper and stylistic exchanges. Italian metal resources, along with their typological styles, reached Scandinavia through well-established trade routes, and with them came a shift in the cultural and symbolic treatment of weapons. While Italian weapon depictions focused on the objects, Scandinavian interpretations expanded to incorporate these items into complex visual narratives that symbolized warrior status, cosmology, and community identity. The difference demonstrates how Scandinavia followed Italian weaponry and customized them according to its cultural frameworks, blending

native ideas with Italian-inspired weapon types to produce a unique iconographic language of power and authority.

In conclusion, the exchange of Italian copper and weapon motifs in Scandinavia was pivotal in developing Scandinavian rock art and its warrior symbolism. Italian-influenced swords and motifs in Scandinavian art reveal a cultural impact that went beyond trade, embedding Italy's influence within the ritual and social ideologies of the Nordic Bronze Age, where swords and weapon symbols in rock art stood as enduring symbols of a pan-European warrior culture (Ling et al. 2013, 2014; Vandkilde, 1996; Kristiansen, 1987).

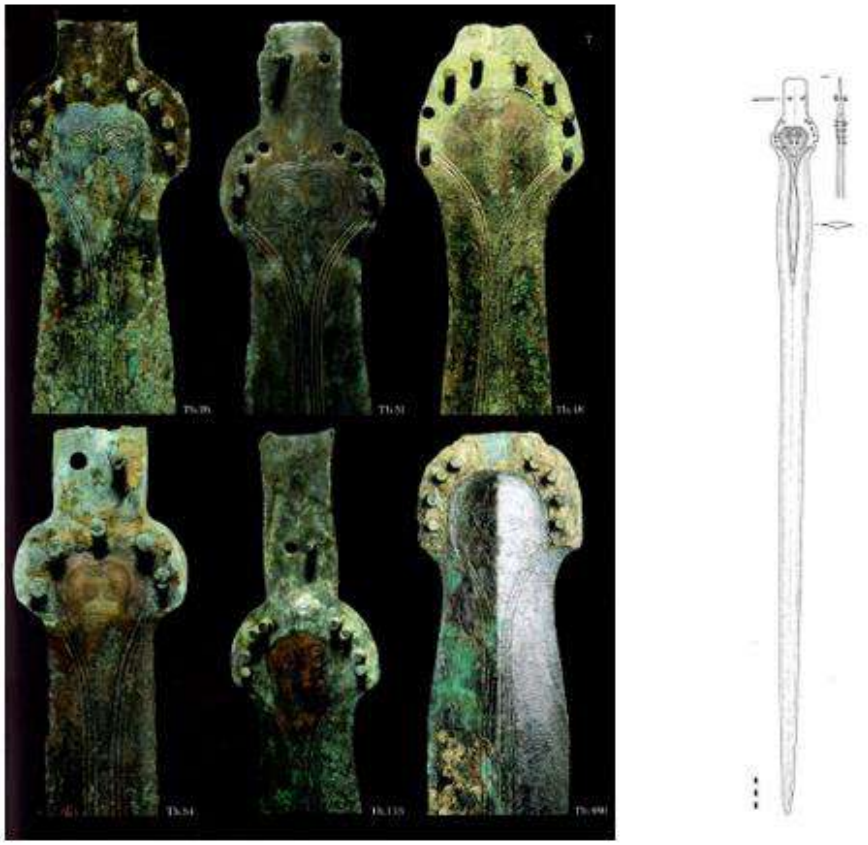

Figure 29 La necropoli dell'età del Bronzo all'Olmo di Nogara, Verona 2005, and its drawing from Cupitò, 2006.

Figure 30 a- Valcamonica: A. bronze tang sword from the Oglio Riverbed, in the municipality of Breno – Valcamonica (Late Bronze Age); B. Rixheim-type bronze sword from Esine - Valcamonica, funerary context unknown (Recent Bronze Age, 13th century BCE, European BzD). C. Bronze sickle from Paline, Borno, Valcamonica, 12th century BCE, Final Bronze Age. After: After: Poggiani Keller R., MUPRE – Museo Nazionale della Preistoria della Valle Camonica – Guida Breve. Litòs edizioni, 2017, p. 127: b- Denmark: sword in two pieces, formerly joined by a modern staple. The straight line across the blade below the hilt indicates the end of the organic hilt. Blunt edges, green bog patina, Late Bronze Age (Period IV) 1100 BC - 900 BC, Found/Acquired: Elsehoved Europe: Scandinavia: Denmark: Fyn (county): Fyn (island): Gudme: Tiselholt: Elsehoved, Baudou type I C2, c-flanged hilt sword, in two pieces but previously soldered; with recent fractures, one side of handle bruised, straight line across blade below hilt with different patina indicating edge of organic hilt, fine green bog patina, Late Bronze Age (Period IV)1100 BC - 900 BC,Found/Acquired: Meskorhuset Europe: Scandinavia: Denmark: Jylland: Nordjylland: Hobro: Meskorhuset, Baudou type I A.

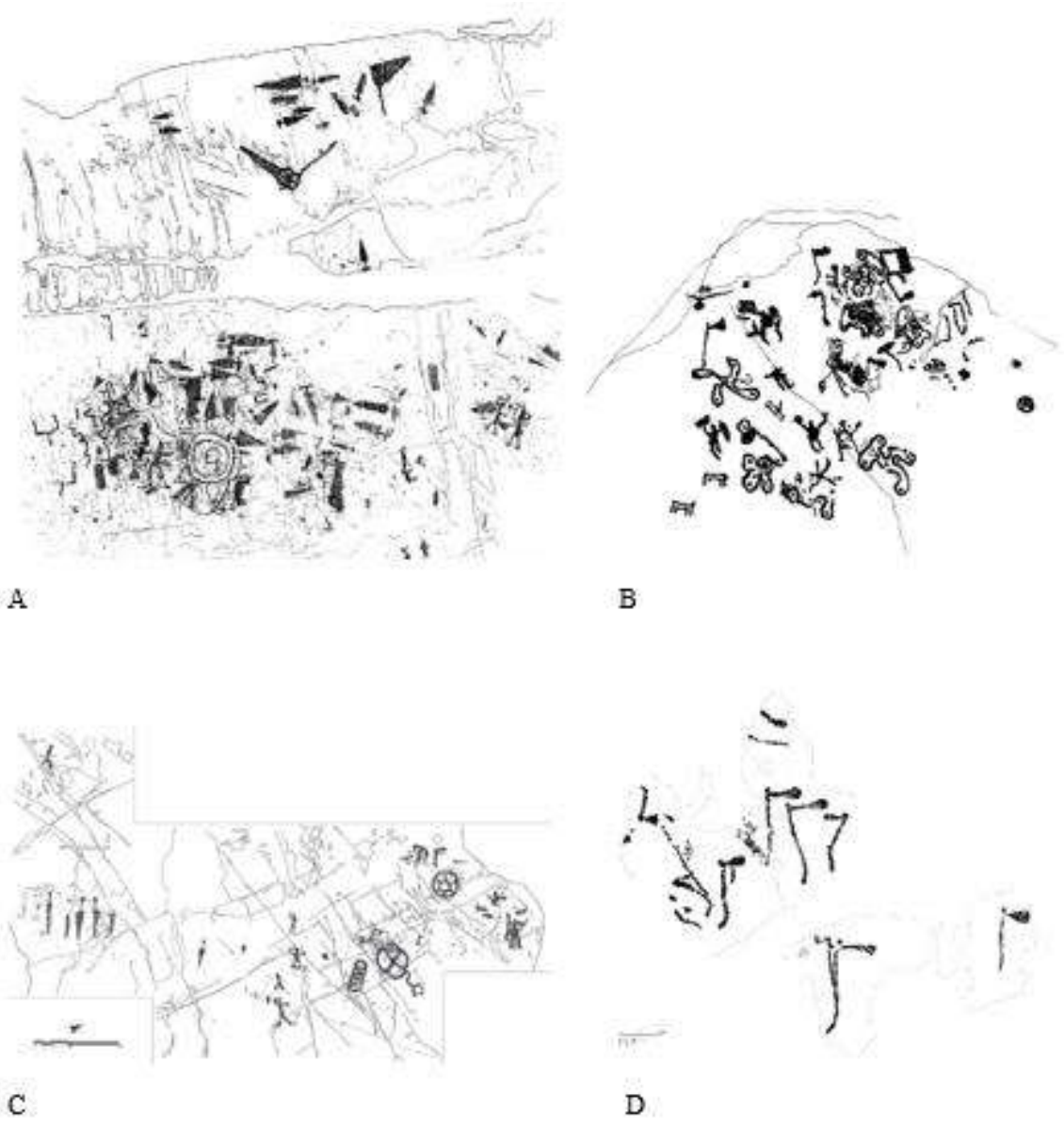

Figure 31 A-B: Detail of the relief showing the large concentration of weapons in Luine, Valcamonica, Anati. E 1982, C: Seradina I R. 29. On the left, an unusual group of daggers that can be dated to the Early Bronze Age. On the right are other possibly associated symbols, such as the two circles/wheels and the ladder symbol (the dotted line marks the limit of the tracing area) from Marretta 2022, D: Details of axes from Luine, Valcamonica, after Anati.E 1982.

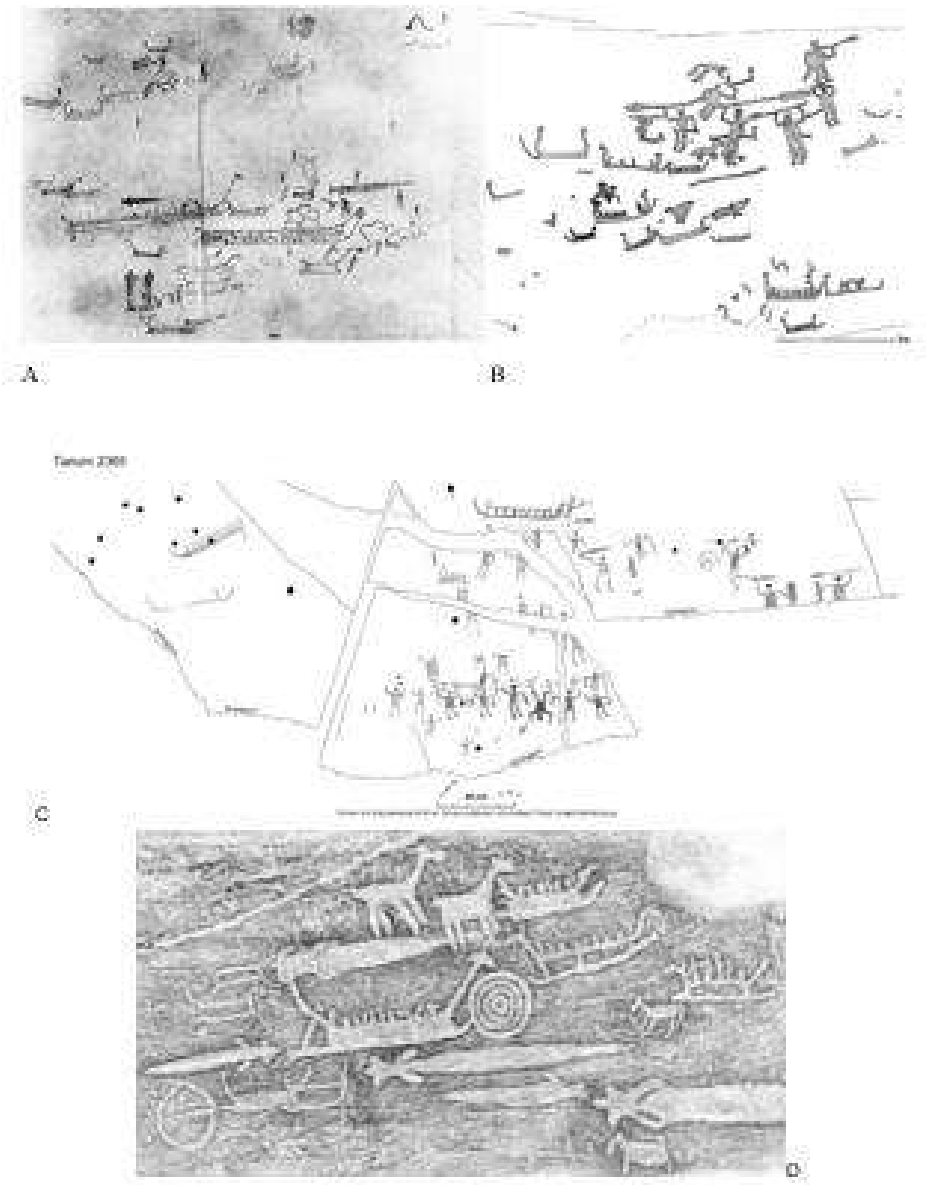

Figure 32 Scandinavia: A:Ekenberg Östergötland, Sweden. Eneby, Nordén, Arthur. (1925). Drawing of L2009:5835, SHFA, B: A drawing of the various horned and non-horned weapon-bearing figures observed at Bro Utmark, documentation from Coles, 2004, C: Tanum 2365, representations of weapons such as swords, shields with the human, and some ship images, Andersson, Tommy and Toreld, Andreas. (2016). Tracing (Plastic) of L1959:2876, SHFA, D: Prominent components of Scandinavian Bronze Age ideology comprising of moving metals, ships, celestial symbols and warrior iconography. Rock art panel from Ekenberg, Östergötland, Sweden. Documentation by Evers, source SHFA.

10.3 Symbols

10.3.1 Discs and circles

Circular signs, whether simple or rayed, such as solar discs or concentric, crossed, or spiral on a feminine stele, appear to have been very important in all central alpine regions since the Chalcolithic and continued to play a significant role until the Early and Middle Bronze Age rock art, where they were closely related to axes.

The symbol, particularly the circle-cross, has a higher and more stable value in Scandinavia. Similar to Valcamonica, there appears to be a relationship between crossed discs and chariot wheels; in certain instances, the disc is carried by boats, carved into the center of a panel with human figures surrounding it, or attached to a horse as a solar disk. In some cases, warriors with axes are strictly associated with single discs or ones that are surrounded by cup marks.

A disk with three or more short rays or birds is an unusual but significant pattern in Scandinavian rock art; in certain instances, such as at Aspeberget near Tanum, it is connected to female figures. It is connected to a horse in certain instances, such as at Balken and Kalleby in Tanum. Notably, two carvings of a kind of "asterisk" with some of the ends formed in a similar "three-finger" pattern (bird's feet?) can be found in Valcamonica (Zurla, Foppe di Nadro). Discs with handles common in the Alps in the middle of the Bronze Age and also known in Scandinavia as material finds, exhibit another similarity (Kaul, 1998b). The discs and circles are symbolic in both regions, particularly in the central European Bronze Age. They may be viewed as either the "lag" of the period or as guiding symbols, mainly if they are concentric or circle a cross (Fig.33).

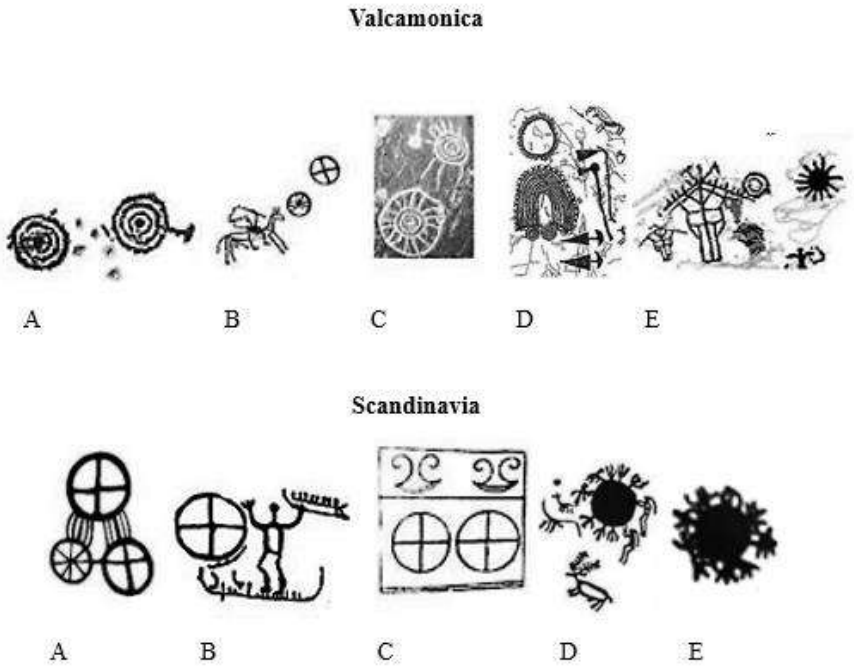

Figure 33 ***Valcamonica:*** *A: Luine, Valcamonica, Italy (Anati 1982b), B: Seradina, Valcamonica, Italy (Anati 1982a), C: Dos del Pater, Valcamonica, Italy (tracing by Dip. Valcamonica CCSP), D: Bagnolo II stelae, Valcamonica, Italy (Casini 1994), E: Zurla, Valcamonica, Italy (tracing by Dip. Valcamonica CCSP) ;* ***Scandinavia:*** *A: Backa Brastad, Bohuslän, Sweden (Bengtsson 2009), B:Egely, Bornholm, Denmark (Kaul 1998), C: Kivik grave, Scania, Sweden (Goldhahn 2005), D: Aspeberget, Bohuslän, Sweden (Milstreu and Prøhl 1996), E: Askum, Bohuslän, Sweden (Bengtsson 2002).*

10.3.2 Footprints

Scandinavia and Valcamonica use this sign extensively; their typologies are pretty similar. One thousand three hundred seventeen footprints have been found in Valcamonica as of now, and they may be divided into nine different typologies based on factors including size, orientation, angle, associations, panel position, and dating. The main shape is the contouring of a foot (57.6% in Valcamonica), sometimes barefoot with toes shown, and other times when the foot is decorated with sandals or shoes (22.7%). The analysis of data shows that footprints have been carved following clear rules: for example, in Valcamonica 95.4% of the examples of this symbol occur on the eastern slopes; among these, 70.6% are carved pointed upwards (towards the sky), with the natural angle of the surface taken into account (to the sky or mountains?), while only 59.5% are

oriented towards the east, which reveals that less importance was given to the orientation than to the angle of the sign (Gavaldo, 2009); the primary association is with other symbols (71.3%), with warriors (63%) and with huts (52%). This sign, frequently positioned in the lowest section of the panel, had engravings to highlight essential figures. Votive gifts have many meanings but always signify the divine presence, according to mythology. In Scandinavia, the sign is frequently shown on panels next to armed soldiers or other vital symbols. On the other hand, many of them are carved with their faces down, which might mean they are pointing toward the Underworld or the sea. (Fig.34).

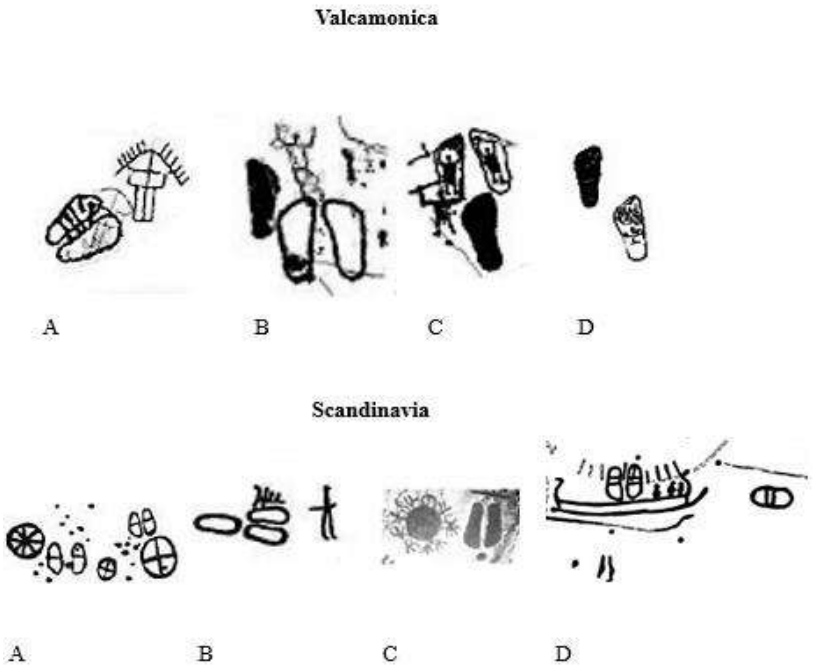

Figure 34 ***Valcamonica:*** *A: Boscatelle, Valcamonica (tracing by Dip Valcamonica CCSP), B: Campanine, Valcamonica (Sansoni and Gavaldo 2009), C-D : Zurla, Valcamonica (tracing by DipValcamonica CCSP);* ***Scandinavia:*** *A: Flyhov, Västergötland, Sweden (Bertilsson 1989), B: Kville, Bohuslän, Sweden, C: Fossum, Tanum, Bohuslän, Sweden (Milstreu and Pröhl 1999), D: Underslös Tanum 271, Sweden (Milstreu and Pröhl)*

10.4 Adorers and Big Hands

In the Alpine rock art, particularly within the central Alps, "praying" or "adoring" human figures are prevalent, dating mainly from the late Neolithic-Copper Age (styles II–III A) through the Middle and Late Bronze Age (styles III B–D). Often depicted with exaggerated "big hands," these figures signify ritual or spiritual power. This pattern is less common in the Iron Age (type IV) when the iconography turns to predominantly masculine characters.

Comparably, Scandinavian rock art also displays "adorers" with large hands, often set within ritual or symbolic contexts, which likely represent priests, deities, or ancestors. These characters are usually shown in social or ceremonial settings, sometimes beside circular symbols or with tools, chariots, houses, or boats. This may be crucial because it ties these figurines to a larger environment, most likely reflecting common beliefs in the Alpine and Scandinavian areas. The "praying" figures with other symbolic motifs suggest that they may represent not only individuals in a worshipful stance but also actors within a mythological or ceremonial framework, indicating that such figures played an essential role in cultural practices at the time (Fig.35).

11. Pan-European Symbolism

European Bronze Age rock art shares similarities across vast distances, and regional idiosyncrasies and superficial similarities cannot be taken for granted as signs of cultural contact. It is commonly known that Scandinavian rock art contains pan-European symbolism and maybe pan-European philosophy (Fredell, 2003; Harrison, 2004). One of the most notable of these is sun symbolism, where several isolated motifs found in Scandinavian rock art have been recognized as both a few more in-depth retellings of the narrative and the materialization of the myth about the sun's voyage (Kristiansen, 2013, p. 73; Melheim, 2013). However, nothing is known regarding the transmission of such ideas and symbols. We shall address this topic in light of long-distance

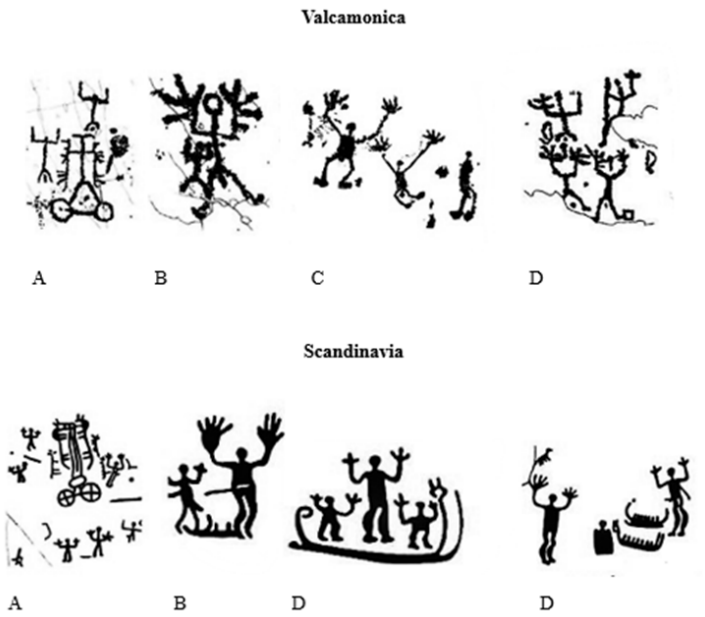

Figure 35 Valcamonica: A:Campanine, Valcamonica, Italy (Sansoni and Gavaldo 2009), B: Campanine, Valcamonica, Italy (Sansoni and Gavaldo 2009), C: Cereto, Valcamonica, Italy (tracing by CCSP), D:Naquane, Valcamonica, Italy (tracing by Dip. Valcamonica CCSP); Scandinavia: A: Askum, Bohuslän, Sweden (Bengtsson 2002), B: Rixö, Brastad, Bohuslän, Sweden (Coles 1990), C: Tanum, Bohuslän, Sweden (Bengtsson and Olsson 2000), D: Tegneby, Bohuslän, Sweden (Bengtsson 1995).

commerce and transit between the Nordic and Alpine spheres by contrasting pan-European goals with rock art practices in these regions.

Val Camonica and Fennoscandia's rock art traditions provide a rich, millennium-old tapestry of cultural expression. According to Fuglestvedt (2018), the rock art tradition in Fennoscandia started approximately 9,500 BCE and saw major advancements in the Late Mesolithic era after 5500 BCE. Ship representations, which were common starting in the second part of the third millennium BCE, signaled a change to the Bronze Age rock art tradition. There is a strong marine culture in Scandinavia, as evidenced by the over 12,000 ship images that have been recorded among 30,000 rock art sites (Goldhahn & Ling, 2013, pp. 270, 279, Table 15.2). This suggests that ships symbolize

more than mere representations; they are reflections of genuine maritime societies (Mandt, 1991; Linge, 2006; Ling, 2008; Almgren, 1927).

The Bronze Age rock art is pivotal for understanding the maritime identity of northern societies (Kaul, 1998). Critical areas for early ship images include Norway's west coast, with notable sites like Åmøy and Krabbestig, where sea-going plank-built vessels are likely represented (Wrigglesworth, 2011, pp. 203–204). Moreover, the integration of rock art within burial contexts, especially in Rogaland, Norway, highlights cultural connections between Scandinavia and the continent, particularly with 37 stelae/slabs from the Nordic Bronze Age II–III linked to sun-ship mythology (Nordenborg Myhre, 2004, p. 158).

On the other hand, Val Camonica exhibits notable changes in subject concentration throughout time, with almost 300,000 carvings spanning from 12,000 BCE to the Roman era (Arcà & Fossati, 2006, pp. 51, 55). As social complexity evolved throughout the third millennium BCE, the emphasis shifted from animals to humans (Anati, 2009, pp. 24–25). Weapon motifs indicate the advent of metallurgy, with the sun symbolizing rising societal hierarchies (Fossati, 2015a, p. 866).

The Mjeltehaugen mound in Norway presents geometric motifs and potential depictions of Remedello-type daggers, emphasizing the connections between Alpine and Nordic rock art (Sand-Eriksen, 2015, 2017). The maritime context at Mjeltehaugen underscores the sea's integral role in communication and power dynamics within these societies (Sand-Eriksen, 2015, 2017; Prescott et al., 2018).

While ship motifs in Val Camonica are rare, they correlate with Iron Age characteristics found in Nordic rock art. These connections underline common cultural representations, such as the way vertical lines are interpreted as oars or crew figures (Fossati, 2015b, pp. 119, 124). Both areas

highlight their cultural ties by showing ships next to natural features like glacial channels (Goldhahn, 2002, p. 70).

Additionally, both locations exhibit relations with sun cults and social hierarchies, which are reflected in the appearance of two- and four-wheeled vehicles in rock art. Chariots and wagons are common in Val Camonica, and they are often seen in Scandinavian art, especially in Bohuslän and Østfold (Vogt, 2012, p. 60).

By around 1000 BCE, increasing evidence of cultural exchange emerged between Val Camonica and Scandinavia, mainly through shared burial practices like the house urn tradition (Sabatini, 2007). While house representations in Val Camonica rock art are more frequent, they are less common in Scandinavian contexts. The association between face urns and rock art themes, however, points to a common story that mostly features wagons and ships (Kneisel, 2012). The intricate social dynamics and cross-cultural interactions that influenced Alpine and Scandinavian communities throughout the Bronze Age are highlighted by this mutual impact.

12. Rock art sites as a place of interest for exchange?

Due to Scandinavian rock art's general maritime setting, some have interpreted the sites as remains of maritime ports or seasonal gathering places (Ling, 2005, p. 434; Goldhahn & Ling, 2013, p. 280). Rock art may be a condition, manifestation, or reflection of social gatherings or an explicit or implicit record of various sorts of interaction (Ling, 2005, p. 453). Ling and Uhnér (2015) revealed that Scandinavian rock art reacts strongly to changes in copper exchange patterns by fusing rock art and metal trading. They highlight the depictions of horned warrior figures, wagons/chariots, and bulls. They also highlight the discovery of Scandinavian rock art oxhide ingots resembling

Late Minoan pillow ingots (cf. Ling & Stos-Gale, 2015; Sabatini, 2016). The ingots are also shown in later stages. According to Ling and Uhnér (2015, p. 30), panels featuring the ingots alongside ships and warriors might symbolize important areas for gathering (about Fredell, 2003, p. 221) and perhaps locations where metal was imported and distributed.

The continuing method of carving rock art may suggest that some similar purposes may be assumed, even if Mesolithic and Bronze Age rock art belonged to geographically and socially distinct societies. For example, Lévi-Strauss and Fuglestvedt (2018) argue that the big game portrayed on the rocks was an analogy of the community's core themes, or motemes, which were essential components of the Mesolithic groups' worldview and sense of self. It is possible that even Bronze Age rock art displayed central themes, showing how the northerners established themselves as marine cultures, given prior beliefs about the worldview of Nordic Bronze Age groups (e.g., Kaul, 1998). Clusters of Nordic Bronze Age rock art at coastal locations and near ship landing sites may be interpreted as aggregation sites that drew people from a larger catchment area to preserve, reproduce, and introduce socio-ritual relations and structures, as well as to exchange goods and raw materials, much like Mesolithic rock art sites served as seasonal aggregation sites (Melheim & Ling, 2017). It is implied that a change in value from one system to another occurred because metal was imported from ore sources beyond the regional sphere of interaction. As previously said, it has been hypothesized that the Nordic region's concentrated metal workshops, frequently located on board ships, functioned as landing and marketplaces (Melheim, 2018). This relies on the idea that a local weight standard—possibly even a proto-currency—was linked to a more extensive monetary system and weight standard that made transactions and value transactions practical. The crucibles at Nordic workshop locations differ in size, which is one indication of an expected weight standard. These consolidated workshop locations are often found in "rock art centers," regions with

a high concentration of rock art. Was it possible to maintain trade networks by establishing congregations at rock art sites close to these marketplaces and landing locations? Could social links have been established through the use of rock art?

12.1 Representations on Rocks; Testimonies of Travel and Exchange

Rock art offers strong evidence for the study of Bronze Age European trade routes and cultural interaction through depictions of ships, metal products, and other symbolic motifs widespread across the continent. The presence of commerce and exchange networks is reflected in these themes, which also serve as a means of intercultural communication that allows ideas and methods to flow across distant regions. Even religious or social customs circulate broadly across Europe. Ling and Uhnér (2015) underscore the role of specific motifs—such as weapons, oxhide ingots, chariots, and sun representations—as potential indicators of a shared, complex set of "social codes" spread over extensive geographic areas, articulating a unique interconnectedness across Bronze Age Europe (Ling & Uhnér, 2015, pp. 23, 30).

Interpretations of these motifs vary. For instance, rock art images of metal objects may be read as proxies for the items themselves or as symbols embodying broader cultural values (Malmer, 1981). These depictions serve as sources of artisan inspiration and even as "skeuomorphs"—imitative forms of objects crafted in different materials that reflect the metalworking techniques and aesthetics of the time (Marretta, 2015). Scandinavian rock art mainly shows a prevalence of weapon motifs. However, it lacks the elaborate stelae and slabs that are more common in Continental Europe, where metal objects like daggers and axes frequently appear on monuments (Goldhahn & Ling, 2013).

With depictions of a dagger, axe, sickle, and maybe precise equipment for metalworking, Norway's Kyrkje-Eide stela, which dates to around 1300 BCE, is an outstanding illustration of such cross-continental contacts and suggests an exchange of metallurgical skills with southern Europe (Engedal, 2010, p. 299). Given its external resemblance to warrior stelae from the Mediterranean and the Iberian Peninsula, this stela raises the possibility of interaction or cultural similarities with those other cultures. The fact that the artifacts from the Kyrkje-Eide stela resemble metalworking tools and items from nearby Skrivarhelleren—a site that was believed to be a metal prospector's camp because of its proximity to copper ore sources—further suggests the region's involvement in early metallurgy (Melheim & Prescott, 2016). The exchange and influence of metalworking techniques between these regions underscore the presence of a "metal route" that linked Norway to the Continental and Mediterranean trade networks.

This interconnectedness extends to social and symbolic levels, as seen with the so-called Egtved Girl and Ølby Woman burials, which contain items from distant origins, such as the Italian Alps and Egypt, mixed with local Scandinavian artifacts (Reiter et al., 2019). The graves of both women demonstrate the integration of outside influences with regional cultural customs, indicating that they may have had a part in acting as intermediaries in these enormous channels of trade. Kristiansen and Larsson (2005) interpret the Egtved Girl's bronze belt plate, thought to symbolize the sun, as a marker of a sun-worshiping cult that possibly facilitated trans-regional alliances, with high-status individuals like her bridging cultural and commercial divides (Kristiansen & Larsson, 2005, pp. 298, 302-303).

The concept of "Xenos" (guest-friendship) from Greek culture is another interpretative lens applied to these exchanges. Xenos represented long-distance alliances maintained by symbols or ritual gifts, and rock art motifs like those on Norway's Mjeltehaugen slab—a rare depiction of a metal

dagger similar to Italian Remedello daggers—may serve as visual testimonials of such alliances. As previously pointed out, Kaul (2018) thinks that the concepts of xenia helped increase security and confidence in various fields, resulting in long-term economic relationships. This cooperation was vital in ensuring long-term supply chains for essential copper and tin components for bronze manufacture.

In addition to the social and ceremonial aspects, images of chariots and ships in rock art are supposed to represent developments that allowed for long trade routes. Ship themes in Scandinavian rock art are commonly found in coastal places, implying that these areas served as marine commerce hubs. The chariot depicted on the Unneset slab in Norway, rendered in profile—a style also found in the Alpine rock art of Val Camonica—illustrates how Scandinavian rock art embraced Continental influences and recontextualized them within a Nordic maritime setting (Lødøen & Mandt, 2009). Val Camonica's aggregation of rock art motifs, including ship imagery resembling the Urnfield tradition of "sun boats," reinforces its role as a central site within a network of seasonal trade and aggregation, where artistic expressions symbolized socio-economic transactions (Marretta, 2015; Fossati, 2015b).

Finally, Bronze Age rock art provides valuable information on the creative and religious importance of prehistory, and it reveals how these carvings represented actual social and economic networks. A complex system of cultural and economic exchange connected areas such as the Italian Alps, Scandinavia, and the Iberian Peninsula were depicted by the spread of metal objects, the symbolic representation of ships and chariots, and the geographic reach of particular artistic motifs. The significant cultural and economic interdependence of Bronze Age cultures and their shared dedication to the flow of people, resources, and ideas throughout the continent are reflected in this enormous linked network, which is shown in rock art.

13. Conclusion

This thesis has shown the complexity and variety of economic and cultural relations between the Mediterranean world and Europe, more precisely, the Italian Alps and Scandinavia throughout the Bronze Age, focusing on a dynamic relationship between 1500-1100 BCE and 1000-700 BCE. The analysis shows that those connections were transactional and profoundly defined in larger social and symbolic contexts. Evidence of material, such as the copper, tin, and amber trade, as well as cultural manifestations in rock art and burial rituals, highlight these regions' broad networks. Such findings show that these places were not isolated but were part of a more extensive system that facilitated the development of symbolic and material communication.

The use of rock art as a fundamental framework has made a fresh viewpoint on the cross-cultural connections between Scandinavia and the Italian Alps possible. Visual evidence of similar themes, values, and maybe even ideological frameworks can be found in rock art from the first ones to the last.

Images in both locations demonstrate the thesis's identification of rock art as a distinct medium for communicating cosmology, social norms, and status. These themes suggest that rock art acted as an agent of cultural transmission, expressing core values throughout a European network, and was more than just adornment. The repeating motifs in Valcamonica and Scandinavian rock art suggest related visual themes, as well as deeper cultural concepts and social systems that may have crossed geographical boundaries.

Furthermore, this study pointed Italy's position as a culture's player in Bronze Age trade by highlighting the significance of the Terramare civilization as a sItaly' sant economic hub within Medi-

terranean-European trade networks. Additionally, the idea of xenia, or guest friendship, which suggests that relationships between individuals, hospitality, were essential to preserving these bonds. This trust paradigm may have strengthened commercial relations by emphasizing the social components of trade and supporting long-term relationships among individuals.

In addition, including current scientific evidence, particularly the provenance study of Scandinavian bronzes containing non-local Mediterranean and northern Alpine copper and tin, makes an argument for extensive long-distance trade and exchange networks. These findings underline the importance of Mediterranean and northern Alpine resources in the Nordic region, which most likely drove raw material demand and increased copper and tin imports into southern Scandinavia roughly 1600 BCE. As these items moved northward, rock art motifs became more cosmopolitan, implying the interdependence of economic, social, and ideological contacts between these two regions.

This research showed the centralized networks that enabled Mediterranean-Scandinavian interaction by extensively investigating trade routes, notably those assisted by amber transportation. The central and western trade routes transported raw resources, cultural items, and ideas to increase social mobility and a shared cultural framework. This system of connections allowed for the transportation of valuable items such as amber, which had economic and symbolic significance in Bronze Age societies. In conclusion, the business connections between Scandinavia and the Italian Alps went beyond arragements, serving as essential centers for cultural interchange that influenced local identities and social structures.

The study, centered on rock art serving as a transnational communication avenue, offers a structure for comprehending how cultures in various regions influence the behaviors, attitudes, and convictions of others.

Bibliography

Almgren, O. (1927). *Hällristningar och kultbruk: Bidrag till belysning av de nordiska bronsåldersristningarnas innebörd*. Stockholm: Wahlström & Widstrand.

Anati, E. (1976). Evolution and style in Camunian rock art. An inquiry into the formation of European civilization (Archivi, 6). Capo di Ponte: Edizioni del Centro.

Anati. E. (1982a). I Camuni. Milano: Jaca Book.

Anati, E. (1982 b). Luine collina Sacra. Capo di Ponte: Edizioni del Centro

Anati, E. (1994). Rock art and the European Neolithic: Cultural, symbolic, and social aspects. *Rock Art Research*, 11(1), pp,29–46.

Anati, E. (2012). Rock art in the European prehistoric context. *Archaeological Review from Cambridge*, 27(1), pp,11–24.

Andersson, J. (2017). *Rock art in the Scandinavian Bronze Age: Contexts and interpretations*.

Angelini, I., & Bellintani, P. (2005). Archaeological ambers from Northern Italy: An FTIRDRIFT study of provenance by comparison with the geological amber database. Archaeometry, 47(2), 441–454. https://doi.org/10.1111/j.1475- 4754.2005.00212.x

Angelini, I., & Bellintani, P. (2017). The use of different amber sources in Italy during the Bronze Age: new archaeometric data. Archaeological and Anthropological Sciences, 9(4), 673–684. https://doi.org/10.1007/s12520-016-0452-7

Angelini, I., Artioli, G., Pedrotti, A., & Tecchiati, U. (2013). La metallurgia dell'età del Rame dell'Italia settentrionale con particolare riferimento al Trentino e all'Alto Adige. Le risose minerarie e i processi di produzione del metallo. In R. C. De Marinis (Ed.), L'età del Rame. La Pianura Padana e le Alpi al tempo di Ötzi (pp. 101–116). Brescia: Massetti Rodella editori.

Angelini, P. E, Grassini, S, Tusa, S. (2013). Corrosion and Conservation of Cultural Heritage Metallic Artefacts, pp. 236-259, Elsevier.

Arcà, A., & Fossati, A. (2006). Rupestrian Archaeology: a Methodological Approach to the rock engravings of Valcamonica. In L. Oosterbeek (Eds.), Europart II. Prehistoric Art Research and Management in Europe (pp. 510–558). Bari: Centro Universitario Europeo.

Artioli, G., Angelini, I., Nimis, P., Addis, A., & Villa, I. M. (2014). Prehistoric copper metallurgy in the Italian Eastern Alps: recent results. Historical metallurgy 47(1), 51–59.

Artioli, G., Angelini, I., Addis, A., Canovaro, C., Chiarantini, L., and Benvenuti, M. (2016). Ceramiche tecniche, scorie, minerali e metalli: Interpretazione del processo metallurgico. In Fedeli, F., and Galiberti, A. (eds.), *Metalli e metallurghi della preistoria: L'insediamento eneolitico di San Carlo-Cava Solvay*, Tagete, Pontedera, pp. 69–81.

Artioli, G., Angelini, I., Nimis, P., & Villa, I. M. (2016). A lead-isotope database of copper ores from the Southeastern Alps: A tool for the investigation of prehistoric copper metallurgy. Journal of Archaeological Science, 75, 27–39. https://doi. org/10.1016/j.jas.2016.09.005

Artioli, G., Angelini, I., Kaufmann, G., Canovaro, C., Dal Sasso, G., & Villa, I. M. (2017). Correction: Long-distance connections in the Copper Age: New evidence from the Alpine Iceman's copper axe. PLoS One, 12(12), e0189561. https://doi. org/10.1371/journal.pone.0189561

Astour, M. C. (1981). Ugarit and the great powers. In: G. D. Young, ed. Ugarit in Retrospect.

Aubet, M. E. (2013). Commerce and Colonization in the Ancient Near East. Cambridge: Cambridge University Press.

Bader, D. (2020). The Bell Beaker phenomenon: New evidence and interpretations. *Archaeological Journal, 177*(2), 169–189.

Bahn, P. (2001). Rock Art: A global perspective. Guilford Press.

Barfield, L. (1986). Stone Age cultures in Northern Europe. Journal of World Prehistory, 1(2), 155-200.

Bartelheim, M. and Stäuble, H. eds. (2009). The Economic Foundations of the European Bronze Age. Forschungen zur Archäometrie und Altertumswissenschaft, Band 4. Rahden/Westfalen: Verlag Marie Leidorf.

Barth, F. (1969). Ethnic Groups and Boundaries. Boston: Little, Brown & Company

Bass, G. F. (1991). Evidence of trade from Bronze Age shipwrecks. In: N. H. Gale, ed. Jonsered: Bronze Age Trade in the Mediterranean Åström. pp. 69-82.

Beck, R. (1971). The development of prehistoric rock art in Europe. Antiquity, 45(177), 228-234.

Bell, C. (2012). The merchants of Ugarit: oligarchs of the Late Bronze Age trade in metals? In: V. Kassianidou and G. Papasavvas, eds. Eastern Mediterranean Metallurgy and Metalwork in the Second Millennium BC. A conference in honour of James D. Muhly, Nicosia, 10th-11th October 2009. Oxford: Oxbow Books. pp. 180-187.

Bellintani, P. (2011). Prima dei Fenici: Perle in faience, glassy faience e vetro in Italia nel II millennio a.C. In F. Marzatico, R. Gebhart, & P. Gleischer (Eds.), *Le grandi vie delle civiltà: Relazioni e scambi fra Mediterraneo e il Centro Europa dalla preistoria alla romanità* (pp. 169–172). Trento: Provincia Autonoma di Trento, Castello del Buonconsiglio.

Bianco Peroni, V. (1994). I pugnali nell' Italia continentale. Stuttgart: Franz Steiner

Bietti Sestieri, A. M. (1988). The economic implications of trade in prehistoric Italy. Papers from the Institute of Archaeology, 17, 57-75.

Bietti Sestieri, A. M. (2010). The role of trade in the formation of social identities. Archaeological Papers of the American Anthropological Association, 20(1), 35-48.

Blake, E. (2008). The Mycenaeans in Italy: a minimalist position. Papers of the British School at Rome, 76, pp. 1–34.

Bradley, R. (2007). The Prehistory of Britain and Ireland. Cambridge : Cambridge University Press

Brughmans, T. (2013). Thinking through networks: A review of formal network methods in archaeology. Journal of Archaeological Method and Theory, 20(4), 623-662.

Burenhult, G. (1973). The rock carvings of Götland, part 2. Lund: Acta Archaeologica Lundensia

Burenhult, G. (1999). Cave art and its implications for understanding prehistoric societies. Journal of Anthropological Archaeology, 18(4), 308-318.

Canovaro, C., Angelini, I., Artioli, G., Nimis, P., Borgna, E. (2019). Metal flow in the late bronze age across the Friuli-Venezia Giulia plain (Italy): New insights on Cervignano and Muscoli hoards by chemical and isotopic investigations. Archaeological and Anthropological Sciences, 11, 4829– 4846. Doi: 10.1007/s12520-019-00827-2.

Capelle, T. (2008). Bildwelden der Bronzezeit: Fesbilder in Norddeuschland und Skandinavien. Mainz: von Zabern

Cardarelli, A. (2009). An archaeological perspective on trade routes in the Bronze Age. Journal of World Prehistory, 22(3), 201-226.

Casini, S. & Fossati, A. (2007). Le figure di armi dell'età del Rame sulla roccia 23 di Foppe di Nadro (Valcamonica), in Le Pietre degli Dei. Statue stele dell'età del Rame in Europa. Lo stato della Ricerca, atti del Convegno di Brescia, in NAB 12, edit by S. Casini and A. Fossati, Bergamo: 313-337.

Casini, S., & Fossati, A. (2013). Immagini di dei, guerrieri e donne. Stele, massi incisi e arte rupestre dell' età del rame in Valcamonica e Valtellina. In R. de Marinis (ed.), L'eta del rame. La pianura padana e le Alpi al tempo di Ötzi. Brescia: Museo Diocesano Brescia, pp. 161–96.

Casini, S., de Marinis, R., & Pedrotti, A. (1995). Statue-stele e massi incisi nell' Europa dell' Età del Rame. Bergamo: Notizie Archeologiche Bergamensi

Cazzella, A. and Recchia, G. (2009). The 'Mycenaeans' in the central Mediterranean: a comparison between the Adriatic and the Tyrrhenian seaways. Pasiphae. Revista di filologia e antichita Egee, III, pp. 27-40.

Ceremonies, L., & Tosatti, G. (2017). The role of ritual in prehistoric trade. Journal of Anthropological Archaeology, 42, 131-143.

Chippindale, C., & Nash, G. (2004). Rock art and the negotiation of identity. Cambridge Archaeological Journal, 14(2), 157-174.

Coles, J. (2000). Patterns in a rocky land: rock carvings in south-west Uppland, Sweden. Uppsala: Uppsala University.

Coles, J. (2005). Shadows of a northern past: rock carvings of Bohuslän and Østfold. Oxford: Oxbow books.

Czebreszuk, J. (2011). Cultural dynamics and trade in the Bronze Age. European Journal of Archaeology, 14(1), 34-54.

Dakanis, E. (1984). Trade routes in the prehistoric Mediterranean. Antiquity, 58(224), 230-242.

Davidson, J. (2000). Trade and technology in prehistoric Europe. European Journal of Archaeology, 3(1), 13-25.

De Lumley, H. (1995). Prehistoric rock art in Southern Europe: A survey. Antiquity, 69(261), 745-759.

De Marinis, R., & Valzolgher, E. (2013). Riti funerari dell' antica età bel Bronzo in area padana. In R. de Marinis (ed.), L'eta del rame. La pianura padana e le Alpi al tempo di Ötzi. Brescia: Museo Diocesano Brescia, pp. 545–5

De Navarro, J. M. (1925). Prehistoric Routes between Northern Europe and Italy Defined by the Amber Trade. The Geographical Journal, 66(6), 481–503. https://doi.org/10.2307/1783003

De Saulieu, G. (2004). Art rupestre et statues-menhirs dans les Alpes: des pierres et des pouvoirs 3000 – 2000 av. J.-C. Paris: Errance

Dodd, J. (2011). Rock Art: Earth, Sky and Water - A landscape study in Western Norway, Unpublished Master's Thesis. University of Durham: Department of Archaeology.

Dolfini, A. (2011). The function of Chalcolithic metalwork in Italy: an assessment based on use-wear analysis. Journal of Archaeological Science 38, 1037–49

Dolfini, A. (2013). The emergence of metallurgy in the Central Mediterranean a new model. European Journal of Archaeology 16, 21–62

Dolfini, A., Angelini, I., & Artioli, G. (2020). Copper to Tuscany - Coals to Newcastle? The dynamics of metalwork exchange in early Italy. PLoS One, 15(1), e0227259. https://doi.org/10.1371/journal.pone.0227259

Du Gardin, C. (1998). "Le Campaniforme et l'ambre: mythe ou realite?" Bulletin de la Societe Prehistorique Francaise 95, 3: 343-350.

Earle, T. (2002). Bronze Age Economics. The Beginnings of Political Economies. Boulder, CO and Oxford: Westview Press.

Earle, T., Ling, J., Uhnér, C., Stos-Gale, Z., & Melheim, L. (2015). The political economy and metal trade in Bronze Age Europe: Understanding regional variability in terms of comparative advantages and articulations. European Journal of Archaeology, 18(4), 633–657. https://doi.org/10.1179/1461957115Y.0000000008

Engedal, Ø. (2010). The Bronze Age of Northwestern Scandinavia. Dr. Philos. Thesis dissertation. Bergen: University of Bergen.

Fedele, F. (2008). Statue-menhirs, human remains and mana at the Ossimo 'Anvoia' ceremonial site, Val Camonica. Journal of Mediterranean Archaeology 21, 57–79

Fedele, F. (2013). Il sito ceremoniale di Anvoia (Valcamonica). In R. de Marinis (ed.) 2013. L'eta del rame. La pianura padana e le Alpi al tempo di Ötzi. Brescia: Museo Diocesano Brescia, pp. 197–207

Fedele, F. (2015). Life and death of Copper Age monoliths at Ossimo Anvoia (Val Camonica, Central Alps) 3000 BC – AD 1950. In M. Díaz-Guardamino, L. García Sanjuan & D. Wheatley (eds.), The lives of prehistoric monuments in Iron Age, Roman and Medieval Europe. Oxford: Oxford University Press, pp. 225–48

Fossati, A. E. (2007). The rock art tradition of Valcamonica – Valtellina, Northern Italy: A World Heritage View. Landscape Enquiries. The proceedings of The Clifton Antiquarian Club, 8, 139–155.

Fossati, A. E. (2015a). The Rock Art Tradition of Valcamonica – Valtellina during the Neolithic Period. In C. Fowler, J. Harding, & D. Hoffmann (Eds.), The Oxford Handbook of Neolithic Europe (pp. 857–870). Oxford: Oxford University Press.

Fossati, A. E. (2015b). The motifs of the boat in Valcamonica rock art: Problems of chronology and interpretation. In H. Stebegløkken, R. Berg, E. Lindgaard, & H. Vangen Stuedal (Eds.), Ritual Landscapes and Borders Within Rock Art Research: Papers in Honour of Professor Kalle Sognnes (pp. 119–139). Oxford: Archaeopress

Fredell, Å. (2003). Bildbroar. Figurativ bildkommunikation av ideologi och kosmologi under sydskandinavisk bronsålder och förromersk järnålder. Gothenburg: Gothenburg University.

Galimberti, A. (2013). Rock art as a reflection of social structure in prehistoric communities. Journal of Social Archaeology, 13(1), 51-70.

Galimberti, A., & De Marinis, F. (2016). Interpreting the meaning of rock art in cultural exchanges. European Journal of Archaeology, 19(2), 145-162.

Gallay, A. (2011). Autour de Petit-Chasseur. Paris: Errance

Giumlia-Mair, A. (2011). Le vie dei metalli dal Medio Oriente al Nord Europa: Rame, stagno, oro, argento e ferro. In F. Marzatico, R. Gebhart, & P. Gleischer (Eds.), *Le grandi vie delle civiltà: Relazioni e scambi fra Mediterraneo e il Centro Europa dalla preistoria alla romanità* (pp. 103–110). Trento: Provincia Autonoma di Trento, Castello del Buonconsiglio.

Gjerde, J. M. (2010a). "Cracking" Landscapes. New documentation – new knowledge? In J. Goldhahn, I. Fuglestvedt, & A. Jones (Eds.), Changing pictures - rock art traditions and visions in northernmost Europe. Oxford: Oxbowbooks.

Gjessing, G. (1932). Arktiske helleristninger i Nord-Norge. Instituttet for sammenlignende kulturforskning, Serie B 21. Oslo: Aschehoug.

Gjessing, G. (1935). Von naturalismus zur schematisierung: Neuere untersuchrungen der felsbilder in Trøndelag und Nord-Norwegen. Jahrbuch für prähistorische und ethnographische Kunst, 1, 5–19.

Gjessing, G. (1936). Nordenfjelske ristninger og malinger av den arktiske gruppe. Instituttet for sammenlignende kulturforskning, Serie B 30. Oslo: Aschehoug

Goldhahn, J. (2002). Hällarnas dån: Ett audiovisuellt perspektiv på kustbunden hällkonst i norra Sverige. In J. Goldhahn (Ed.), *Bilder av bronsålder: Ett seminarium om förhistorisk kommunikation: Rapport från ett seminarium på Vitlycke museum 19–22 oktober 2000* (Acta Archaeologica Lundensia. Series in 8°; Vol. 37, pp. 53–90). Almqvist & Wiksell International.

Goldhahn, J. (2007). Dödens hand – en essä om brons- och hällsmed. Gotarc Serie C. Arkeologiska Skrifter 65. Gothenburg.

Goldhahn, J. (2014). Engraved biographies: rock art and the life-histories of Bronze Age objects. Current Swedish Archaeology 22, 97–136

Goldhahn, J. (2016). Sagaholm: North European rock art and burial ritual. Oxford: Archaeopress.
Goldhahn, J. (2018). North European rock art: a long-term perspective. In B. David & I. McNiven (eds.), The Oxford handbook of the archaeology and anthropology of rock art. Oxford: Oxford University Press, pp. 51–72

Goldhahn, J. (2019a). On unfolding present and past (rock art) worldlings. Time and Mind 12, 63–77

Goldhahn, J. (2019b). Birds in the Bronze Age: a North European perspective. Cambridge: Cambridge University Press

Goldhahn, J., & Ling, J. (2013). Bronze Age Rock Art in Northern Europe: Contexts and interpretations. In A. Harding & H. Fokkens (Eds.), The Oxford Handbook of the European Bronze Age (pp. 270–290). Oxford: Oxford University Press.

Guerreschi, G. (1970). Esame tecnico di reperti in ambra rinvenuti nell'area tra Adige e Mincio, in Memorie del Museo Civico di Storia Naturale di Verona, XVIII, 235–57.

Guerreschi, G. (1975). Relazione tecnica circa l'attività' di ricerca svolta nel settore analisi Spettrofotometriche in IR di ambre provenienti da scavi archeologici, in 'Studi e ricerche sulla problematica dell'ambra', Atti della cooperazione interdisciplinare italo-polacca, I, 321–7.

Gurina, N.N. (2005). The Petroglyphs at Čalmn-Varrė on the Kola Peninsula. Trondheim. 94 p.

Hall, T. D., Kardulias, P. N. and Chase-Dunn, C. (2011). World-systems analysis and archaeology: continuing the dialogue. Journal of Archaeological Research, 19, pp. 233-279

Harding, A. (2011). Evidence for salt production rediscovered in the Hungarian Central Mining Museum. The Antiquaries Journal 91: 27-49.

Harrison, R. (2004). Symbols and warriors. Images of the European Bronze Age. Bristol: Western Academic Press

Harrison, R., & Heyd, V. (2007). The transformation of Europe in the third millennium BC: the example of 'Le Petit Chasseur I + III (Sion, Valais, Switzerland). Praehistorische Zeitschrift 82, 129–214.

Helms, M. (1988). *Ulysses' sail: An ethnographic odyssey of power, knowledge, and geographical distance*. Princeton University Press.

Helms, M. (1993). Craft and the cultural politics of trade. American Anthropologist, 95(4), 952-966.

Helskog, K. (2014). Communicating with a world of beings: the World Heritage rock art sites at Alta, Arctic Norway. Oxford: Oxbow

Heltzer, M. (1988). Sinaranu, son of Siginu, and the trade relations between Ugarit and Crete. Minos, 23, pp. 7-13

Herman, G. (2002). Ritualized Friendship and the Greek City. Cambridge

Higham, T., & Hinton, A. (2004). The significance of trade in the development of complex societies. Journal of World Prehistory, 18(2), 97-119.

Hogg, A. (1998). Understanding the cultural implications of trade networks. World Archaeology, 30(1), 27-39.

Horn, C., & Potter, R. (2018). Transforming the Rocks – Time and Rock Art in Bohuslän, Sweden. European Journal of Archaeology, 21(3), 361–384.

Hygen, A., & Bengtsson, L. (2000). *Rock carvings in the borderlands: Bohuslän and Østfold*. Gothenburg: Warne Förlag.

Iversen, R., Thorsen, M. S., & Andresen, J-BR. (2022). Neolithic cup marks from Vasagård on Bornholm, Denmark: Dating the rock art tradition in Southern Scandinavia. *European Journal of Archaeology*, 25(2), pp. 155–175. https://doi.org/10.1017/eaa.2021.49

Jones, R.E. & Vagnetti, L. (1991) Traders and craftsmen in the central Mediterranean: archaeological evidence and archaeometric research. In: *Bronze Age Trade in the Mediterranean.* Series: Studies in Mediterranean archaeology (90). P. Åströms: Jonsered, pp. 127-147. ISBN 9789170810039

Jung. R, (2005). Aspekte des mykenischen Handels und Produktenaustauschs. In: B. Horejs / R. Jung / E. Kaiser / B. Teržan (eds), Interpretationsraum Bronzezeit. Bernhard Hänsel von sei nen Schülern gewidmet. Universitätsforschungen zur Prähistorischen Archäologie 121, pp,45-70.

Jung. R, Mehofer, (2009). A Sword of Naue II Type from Ugarit and the Historical Significance of Italian-type Weaponry in the Eastern Mediterranean. Aegean Archaeology 8, 2005-2006 (2009), pp, 111-135.

Jung. R, Mehofer, Pernicka, (2011) Metal Exchange in Italy from the Middle to the Final Bronze Age (14th-11th century B.C.E.). In: P. P. Betan court / S. C. Fer rence (eds), Metallurgy: Understanding How, Learning Why. Studies in Honor of James D. Muhly. Prehistory Monographs 29 (Philadelphia 2011) pp, 231-248.

Kaul, F. (1998). *Ships on bronzes: A study in Bronze Age religion and iconography* Publications from the National Museum, Studies in Archaeology & History, 3, 2. Copenhagen: National Museum.

Kaul, F. (2013). Bronze Age cosmology: The sun, moon, and stars as divine powers in Europe. In P. Suchowska-Ducke & P. Vandkilde (Eds.), *Bronze Age connections: Cultural contact in prehistoric Europe* (pp. 57–71). Oxbow Books.

Kaul F. (2017). Bronze Age archaeology and cosmology: dialogues at the crossroads. Acta Archaeologica 88, 35–56

Kaul, F. (2018). Gennem europæiske landskaber. Bronzealderens vidtstrakte forbindelser – og hvordan var de mulige? In S. Boddum, & N. Terkildsen (Eds.), Status og samfundsstruktur i yngre bronzealders lokale kulturlandskab. Rapport fra seminaret "Status og samfundsstruktur i yngre bronzealders lokale kulturlandskab"afholdt i Viborg, marts 2016 (Yngre bronzealders Kulturlandskap, 6, pp. 9–35). Viborg, Holsterbro: Viborg Museum & Holstebro Museum.

Kaul, F., & Kristiansen, K. (2005). *The rise of Bronze Age society: Travels, transmissions, and transformations*. Cambridge University Press.

Kern, A., Kowarik, K., Rausch, A.W. and Reschreiter, H. eds. (2009). Kingdom of Salt. 7000 Years of Hallstatt. Vienna: Natural History Museum

Kilger, C. (2008). Wholeness and holiness: counting, weighing and valuing silver at Kaupang in the early Viking period. In D. Skre (Eds.), Means of Exchange: dealing with silver in the Viking Age (pp. 253–325). Århus: Aarhus University Press.

Klassen, L. (2004). Jade und Kupfer. Untersuchungen zum Neolithisierungsprozess im westlichen Ostseeraum unter besonderer Berücksichtigung der Kulturenentwicklung Europas 5500-3500 BC (Jysk Arkæologisk Selskabs Skrifter, 47). Århus: Aarhus universitetsforlag.

Knappett, C. (2011). An Archaeology of Interaction: Network Perspectives on Material Culture and Society. Oxford: Oxford University Press.

Kneisel, J. (2012). Antropomorphe Gefäβe in Nord- und Mitteleuropa während der Bronze- und Eisenzeit. Studien zu den Gesichtsurnen – Kontaktzonen, Chronologie und sozialer Kontext (Studien zur Archäologie in Ostmitteleuropa, 7). Bonn: Habelt.

Kneisel, J. (2016). Spreading Ideas: Late Bronze Age Face-urn Burials across Northern Europe and the Baltic Sea. In L. Melheim, Z. T. Glørstad, & H. Glørstad (Eds.), Comparative Perspectives on Past Colonisation, Maritime Interaction and Cultural Integration (pp. 219–233). New Directions in Anthropological Archaeology. Sheffield: Equinox Publishing

Kragh, A. (2020). Trade and exchange in the Nordic Bronze Age.

Krause, R. (2004). Elite dell'antica età del bronzo tra le Alpi e il Danubio: Riflessioni su strutture sociali e gerarchiche nell'ambito della metallurgia. In F. Marzatico & P. Gleischer (Eds.), *Guerrieri, principi ed eroi fra il Danubio e il Po dalla preistoria all'Alto Medioevo* (pp. 147–154). Catalogo della Mostra 19/06–07/11 2004. Trento: Provincia Autonoma di Trento, Castello del Buonconsiglio.

Krause, R. (2011). L'Europa continentale: Tecnologia, circolazione del metallo e diffusione delle tipologie fino al termine dell'età del bronzo. In F. Marzatico, R. Gebhart, & P. Gleischer (Eds.), *Le grandi vie delle civiltà: Relazioni e scambi fra Mediterraneo e il Centro Europa dalla preistoria alla romanità* (pp. 143–146). Trento: Provincia Autonoma di Trento, Castello del Buonconsiglio.

Kristiansen, K. (1987). Centre and Periphery In Bronze Age Scandinavia, Cambridge University Press.

Kristiansen, K. (1998). Europe before history: New studies in archaeology. Cambridge University Press.

Kristiansen, K. (2012). Bronze Age Dialectics: Ritual Economies and the Consolidation of Social Divisions. In T. L. Kienlin & A. Zimmermann (Eds.), Beyond Elites. Alternatives to Hierarchical Systems in Modelling Social Formations. Akten der internationalen Konferenz vom 22.– 24. Oktober in Bochum. Bonn: Verlag Rudof Habelt.

Kristiansen, K. (2013). Rock Art and Religion. The sun journey in Indo-European mythology and Bronze Age rock art. Adoranten, 2012, 69–86.

Kristiansen, K. (2014). Rock art and religion: The sun journey in Indo-European mythology and Bronze Age rock art.

Kristiansen, K. (2016). Interpreting Bronze Age Trade and Migration. In E. Kiriatzi & C. Knappett (Eds.), Human Mobility and Technological Transfer in the Prehistoric Mediterranean (pp. 154–180). Cambridge: Cambridge University Press. https://doi.org/10.1017/9781316536063.011

Kristiansen, K. (2018). The Rise of Bronze Age Peripheries and the Expansion of International Trade 1950–1100 BC, Trade and Civilisation; Economic Networks and Cultural Ties, from Prehistory to the Early Modern Era, pp. 87 – 112, Cambridge University Press.

Kristiansen, K., & Larsson, T. B. (2005). The Rise of Bronze Age Societies: travels, transmissions and transformations. Cambridge: Cambridge University Press.

Kristiansen, K., & Suchowska-Ducke, P. (2015). Connected Histories: the Dynamics of Bronze Age Interaction and Trade 1500–1100 BC. Proceedings of the Prehistoric Society, 81, 361–392. https://doi.org/10.1017/ppr.2015.17

Lahelma, A. (2008). A touch of red: archaeological and ethnographic approaches to interpreting Finnish rock paintings. Helsinki: Finnish Antiquarian Society

Larsen, M. T. (1976). The old Assyrian city state and its colonies. Copenhagen: Akademisk Forlag.

Ling, J. (2005). The Fluidity of Rock art. In J. Goldhahn (Eds.), Mellan sten och järn. Rapport från det 9:e nordiska bronsålders symposiet (Gotarc Serie C. Arkeologiska Skrifter, 59, pp. 437–460). Gothenburg: University of Gothenburg.

Ling, J. (2008). Elevated Rock Art: Towards a Maritime Understanding if Rock Art in Northern Bohuslän, Sweden (Gotarc Series B. Gothenburg Archaeological Theses, 49). Gothenburg: University of Gothenburg.

Ling, J. (2012). War Canoes or Social Units? Human Representation in Rock-Art Ships. European Journal of Archaeology, 15(3), 465–485. https://doi.org/10.1179/1461957112Y.0000000013

Ling, J. (2014). *Elevated rock art: Towards a maritime understanding of Bronze Age rock art in Northern Bohuslän, Sweden*. Oxford: Oxbow Books.

Ling, J., & Claes Uhnér. (2014). Rock Art and Metal Trade, Adoranten 2014, pp, 23-43.

Ling, J., & Cornell, P. (2017). Violence, warriors, and rock art in Bronze Age Scandinavia. In R. Chacon & R. Mendoza (Eds.), *Feast, famine and fighting? Multiple pathways to social complexity* (pp. 15–33). New York: Springer.

Ling, J., & Rowlands, M. (2013). Structure from the north, content from the south: Rock art, metal trade, and cosmopolitical codes. In E. Anati (Ed.), *Art as a source of history: XXV Valcamonica Symposium Capo di Ponte* (pp. 187–196). Capo di Ponte: Edizioni del Centro.

Ling, J., & Stos-Gale, Z. (2015). Representations of oxhide ingots in Scandinavian rock art: the sketchbook of a Bronze Age traveller? Antiquity, 89(343), 191–209. https://doi.org/10.15184/aqy.2014.1

Ling, J., & Uhnér, C. (2014). Rock art and metal trade. *Adoranten*, 23–43.

Ling, J., Chacon, R., & Chacon, Y. (2018). Rock art, secret societies, long-distance exchange, and warfare in Bronze Age Scandinavia. In Dolfini et al. (Eds.), (pp. 149–174).

Ling, J., Earle, T., & Kristiansen, K. (2018). Maritime Mode of Production: Raiding and Trading in Seafaring Chiefdoms. Current Anthropology, 59(5), 488–524. https://doi.org/10.1086/699613

Ling, J., Hjärthner-Holdar, E., Grandin, L., Billström, K., & Persson, P.-O. (2013). Moving metals or indigenous mining? Provenancing Scandinavian Bronze Age artefacts by lead isotopes and trace elements. Journal of Archaeological Science,40(1),291–304. https://doi.org/10.1016/j.jas.2012.05.04

Ling, J., Stos-Gale, Z., Grandin, L., Billström, K., Hjärthner-Holdar, E., & Persson, P.-O. (2014). Moving metals II: provenancing Scandinavian Bronze Age artefacts by lead isotope and elemental analyses. Journal of Archaeological Science, 41(1), 106–132. https://doi.org/10.1016/j.jas.2013.07.018

Ling, J., Hjärthner-Holdar, E., Grandin, L., Stos-Gale, Z. A., Kristiansen, K., Melheim, A. L., . . . Canovaro, C. (2019). Moving metals IV: Swords, metal sources and trade networks in Bronze Age Europe. Journal of Archaeological Science: Reports, 26, 101837. https://doi.org/10.1016/j.jasrep.2019.05.002

Liversage, D., Northover, J.P. (1998). Prehistoric trade Monopolies and bronze supply in Northern Europe. In: Mordant, C., Pernot, M., Rychner, V. (Eds.), L'Atelier du bronzier en Europe du Xxe au VIIIe siecle avant notre ere, Paris, pp. 138-151.

Lødøen, T. K. (2001). Interpretation of Stone Age Ideology based on Rock Art, Structures and Artefacts in the Vingen area, Western Norway. In: Knut Helskog (ed.) Theoretical 18 Perspectives in Rock Art Research. The Institute for Comparative Research in Human Culture. Oslo. p. 211-223.

Lødøen, T. K. (2003). Late Mesolithic Rock Art and Expressions of Ideology. In Larson, L., H. Kindgren, K. Knutsson, D. Loeffler and A. Åkerlund (eds): Mesolithic on the Move. p. 499-507. Oxbow Books.

Lødøen, T. K. (2015). The method and physical process behind the making of hunters' art in Western Norway: the experimental production of images. In H. Stebergløkken et al. (eds.), Ritual landscapes and borders within rock art research. Oxford: Archaeopress, pp.67–77

Lødøen, T. K., & Mandt, G. (2009). The Rock Art of Norway. Windgather Press/Oxbow Books.

M.S. Walton, A. Shortland, S. Kirk, P. Degryse. (2009). Evidence for the trade of Mesopotamian and Egyptian glass to Mycenaean Greece, Journal of Archaeological Science, pp 1496–1503.

Malmer, M. P. (1981). A chronological study of North European rock art. Stockholm: Kungl. Vitterhets Historie och Antikvitets Akademien, Antikvariska Serien 32.

Marretta, A. (2005). Foppe Di Nadro Sconosciuta Dalla cartografia GPS alle analisi più recenti,Atti della Ia giornata di studio sulle incisioni rupestri della Riserva Regionale di Ceto, Cimbergo e Paspardo Nadro.

Marretta, A. (2013). Age of the heroes: a brief overview of Valcamonica rock art during the Iron Age. Adoranten 2013, 1–14.

Marretta, A. (2014). Where it all began: the Copper Age roots of Valcamonica. Adoranten 2014, 52–67

Marretta, A. (2015). Trading images: exchange, transformation and identity in Valcamonica rock-art between the Bronze Age and the Iron Age. In J. Ling, P. Skoglund & U. Bertilsson (Eds.), Picturing the Bronze Age. Swedish Rock Art Research Series, 3 (pp. 105–119). Oxford: Oxbow books.

Marretta, A. (2022). From the core to the periphery: notes on recent research in western rock art areas of Central Valcamonica, Adoranten 2022, pp, 85-102.

Mauss, M. (1925). *The gift: Forms and functions of exchange in archaic societies*. Routledge.

Melheim, L. (2018). Weight units and the transformation of value: Approaching premonetary currency systems in the Nordic Bronze Age. In D. Brandherm, E. Heymans, & D. Hofmann (Eds.), *Gifts, goods and money: Comparing currency and circulation systems in past societies* (pp. 67–83). Oxford: Archaeopress.

Melheim, L., & Ling, J. (2017). Taking the stranger on board: The two maritime legacies of Bronze Age rock art. In P. Skoglund, J. Ling, & U. Bertilsson (Eds.), North Meets South – Theoretical aspects on the northern and southern rock art traditions in Scandinavia (Rock Art Series, Vol. 6, pp. 59–86). Oxford: Oxbow Books. https://doi.org/10.2307/j.ctvh1dpgg.7

Melheim, L., & Prescott, C. (2016). Exploring New Territories – Expanding Frontiers: Bowmen and Prospectors on the Scandinavia Peninsula in the 3rd–2nd Millennia BC, In A. L. Melheim, H. Glørstad & A. Z. Tsigaridas Glørstad (Eds.), Comparative Perspectives on Past Colonisation, Maritime Interaction and Cultural Integration (pp. 189–217). Sheffield: Equinox Publishing.

Militello, P . (2004). Commercianti, architetti, ed artigiani: Riflessioni sulla presenza micenea nell'area iblea. In V. La Rosa (Ed.), Le presenze miceenee nel territorio siracusano (pp. 296–336). Padova: Bottega D'Erasmo.

Milstreu, G. (2017). Updating Rock Art. Re-cut rock art images (with a special emphasis on ship carvings), Adoranten, pp, 37-47.

Molloy, B. (2009). For gods or men? A repraisal of the function of European Bronze Age shields. Antiquity, 83 (322), 1052– 1064

Molloy. B. (2011). Use-wear analysis and use-patterns of Bronze Age swords. In: M. Uckelmann and M. Mödlinger, eds. Bronze Age warfare: manufacture and use of weaponry. Oxford: Archaeopress, 67–84.

Montelius. O. (1885). Om tidsbestämning inom bronsåldern med särskildt afseende på Skandinavien. Stockholm: Kongl. Vitterhets-, historie- och antiqvitetsakademien.

Montelius, O. (1917). Minnen Från Vår Forntid. Ordnade Och Beskrifna Af Oscar Montelius. Stockholm: Norstedt.

Morkot, R.G. (2007). War and the economy: the international 'arms trade' in the Late Bronze Age and after. In: T. Schneider, K. Szpakowska, eds. Egyptian Stories: A British Egyptological tribute to Alan B. Lloyd on the occasion of his retirement. Muenster: Ugarit-Verlag Muenster. pp. 169–195

Nava, M. L. (2011). La tradizione millenaria dell'ambra. In F. Marzatico, R. Gebhart, & P. Gleischer (Eds.), *Le grandi vie delle civiltà: Relazioni e scambi fra Mediterraneo e il Centro Europa dalla preistoria alla romanità* (pp. 159–168). Trento: Provincia Autonoma di Trento, Castello del Buonconsiglio.

Needham, S. (2009). Encompassing the Sea: 'Maritories' and Bronze Age maritime interactions. In P. Clark (Ed.), *Bronze Age Connections: Cultural Contact in Prehistoric Europe* (pp. 12–37). Oxbow Books. http://www.jstor.org/stable/j.ctt1cd0p3m.5

Nimura, C. (2016). *Prehistoric rock art in Scandinavia: Agency and environmental change*. Oxford: Oxbow Books.

Nimura, C. Skoglund. P., & Bradley. R. (2020). Navigating inland: Bronze Age watercraft and the lakes of southern Sweden. European Journal of Archaeology 23, 186–206

Nord, J. (2009). Changing landscapes and persistent places: an exploration of the Bjäre Peninsula. Lund: Lund University Department of Archaeology and Ancient History

Nordenborg Myhre, L. (2004). Trialectic archaeology: monuments and space in southwest Norway. Stavanger: Museum i Stavanger

Nørgaard. H. W., Pernicka. E. & Vandkilde. H. (2019). On the trail of Scandinavia's early metallurgy: Provenance, transfer and mixing. PLoS One, 14(7), e0219574. https://doi.org/10.1371/journal.pone.0219574

O'Brien. W. (2015). Bronze Age Copper Mining in Europe. In C. Fowler, J. Harding, & D. Hoffmann (Eds.), The Oxford Handbook of Neolithic Europe (pp. 437–453). Oxford: Oxford University Press

Oka. R. and Kusimba.C.H. (2008). The archaeology of trading systems, Part 1: towards a new trade synthesis. Journal of Archaeological Research, 16, pp. 339–395.

Papadimitriou. N. and Kriga. D. (2012). 'Peripheries versus core': The integration of secondary states into the World System of the Eastern Mediterranean and the Near East in the Late Bronze Age (1600-1200 BC). In: M. E. Alberti and S. Sabatini, eds. Exchange Networks and Local Transformations. Interaction and local change in the Mediterranean from the Bronze Age to the Iron Age, 9–21. Oxford: Oxbow Books.

Pare, C. F. E. (2000). *Metals make the world go round: The supply and circulation of metals in Bronze Age Europe*. Oxbow Books.

Pernicka E, Lutz J, Sto¨llner T. (2016).Bronze Age Copper Produced at Mitterberg, Austria, and its Distribution. Archaeologia Austriaca. Band 100:19–55.

Peroni, R. (1997). Le terra mare nel quadro dell'età del bronzo europea. In M. Bernabò Brea, A. Cardarelli, & M. Cremaschi (Eds.), *Le Terramare: La più antica civiltà padana* (pp. 30-36). Milano.

Peruchetti, L., et al. (2017). Physical barriers, cultural connections: prehistoric metallurgy across the Alpine region. European Journal of Archaeology 18, 599–632

Pétrequin, P., et al. (eds). (2012). Grands haches alpines du Néolithique, Ve et IVe millénaires avant J-C, tomes 1 and 2. Besançon: Presses Universitaires de Franche-Comté.

Pétrequin, P., Pétrequin, A.-M. & Gauthier, E. (eds.). (2017). Jade 3–4. Objetssignes et l'interprétation sociales des jades alpins dans l'Europe néolithique. Besançon: Presses Universitaires de Franche-Comté.

Prescott, C., Sand-Eriksen, A., & Austvoll, K. I. (2018). The Sea and Bronze Age Transformations. In E. Holt (Eds.), Water and Power in Past Societies (pp. 177–198). Albany, New York: SUNY Press.

Primas, M. & Pernicka, E. (1998). Der Depotfund vonOberwilflingen. Neue Ergebnisse zur Zirkulation vonMetallbarren. Germania 76, 25–65

Probst, E. (1996). *Deutschland in der Bronzezeit*. München: C. Bertelsmann.

Pulak, C. (1998). The Uluburun shipwreck: an overview. The International Journal of Nautical Archaeology, 27(3), pp. 188–224.

Pulak, C. (2008). "The Uluburun Shipwreck and Late Bronze Age Trade." In *Beyond Babylon: Art, Trade, and Diplomacy in the Second Millennium B.C.* edited by J., K. Benzel, and J. Evans, 290-386. New York and New Haven, CT: Metropolitan Museum of Art and Yale University Press.

Renfrew, C. (1975). Trade as action at a distance: questions of integration and communication. In J. A. Sabloff & C. C. LambergKarlovsky (Eds.), Ancient Civilization and Trade (pp. 3–60). A School of American Research Book. Albuquerque: University of Mexico Press

Renfrew, C. (1986). Varna and the emergence of wealth in prehistoric Europe. In A. Appadurai (Ed.), *The social life of things: Commodities in cultural perspective* (pp. 141-168). Cambridge University Press.

Rowlands, M. and Ling, J. (2013). Boundaries, flows and connectivities: mobility and stasis in the Bronze Age. In. S. Bergerbrant and S. Sabatini, eds. Counterpoint: Essays in Archaeology and Heritage Studies in Honour of Professor Kristian Kristiansen. BAR International Series 2508. Oxford: Archaeopress. pp. 517–29.

Sabatini, S. (2007). House urns. A European Late Bronze Age. Trans-cultural Phenomenon (Gotarc Series B. Gothenburg Archaeological Theses, 47) Gothenburg: Gothenburg University.

Sabatini, S. (2016). Late Bronze Age oxhide and oxhide-like ingots from areas other than the Mediterranean: Problems and challenges. Oxford Journal of Archaeology, 35(1), 29–45. https://doi.org/10.1111/ojoa.12077

Saksa, A. I., Bel'skiy, S. V., & Mizin, V. G. (2017). New finds of cup-marked stones near the village of Ol'khovka (Sakkola Lapinlahti) on the Karelian Isthmus in 2016. *Fennoscandia Archaeologica*, XXXIV.

Sandars, N.K. (1978). The Sea Peoples. Warriors of the Ancient Mediterranean. London: Thames and Hudson.

Sand-Eriksen, A. (2015). Mjeltehaughellene – et klokkebegeruttrykk? Stil som uttrykk for sosial identitet. Unpublished Master's Thesis. Oslo: University of Oslo.

Sand-Eriksen, A. (2017). Mjeltehaugen: Europe's northernmost Bell Beaker expression? In S. Bergerbrant & A. Wessman (Eds.), New Perspectives on the Bronze Age. Proceesings of the 13th Nordic Bronze Age Symposium held in Gothenburg 9th to 13th June 2015 (pp. 7–18). Oxford: Archaeopress.

Sansoni, U. (2013). Reflection on European and Central Asian rock art in the Indo-European framework. In E. Anati (Ed.), *Art as a source of history, XXV Valcamonica Symposium, Capodiponte, September* (pp. 209–216). Capo di Ponte: Edizioni del Centro.

Sansoni, U. (2015). The Alpine and Scandinavian Rock Art in the Bronze Age: a Common Cultural Matrix in a Web of Continental Influences. In J. Ling, P. Skoglund & U. Bertilsson (Eds.), Picturing the Bronze Age (Swedish Rock Art Research Series, 3, pp. 129–141). Oxford: Oxbow books.

Sansoni, U. (2018). *Alpine and Scandinavian rock art in the Bronze Age: A common cultural matrix in a web of continental influences*.

Schmitt, S. (2012). Rock art and its role in prehistoric trade networks. Journal of World Prehistory, 25(3), 183-203.

Schultz Paulsson, B., Isendahl, C., & Frykman Markurth, F. (2019). Elk heads at sea: maritime hunters and long-distance boat journeys in Stone Age Fennoscandia. Oxford Journal of Archaeology 38, 398–419

Schwenzer, S. (2004). Pugnali da parata: Status symbol delle élite locali. In F. Marzatico & P. Gleischer (Eds.), *Guerrieri, principi ed eroi fra il Danubio e il Po dalla preistoria all'Alto Medioevo* (pp. 155-160). Catalogo della Mostra 19/06–07/11 2004. Trento: Provincia Autonoma di Trento, Castello del Buonconsiglio.

Shennan, S. (1993). Commodities, transactions and growth in the Central European Early Bronze Age. Journal of European Archaeology, 1(2), pp. 59–72

Sherratt, A. G. (1993). What would a Bronze Age world system look like? Relations between temperate Europe and the Mediterranean in later prehistory. Journal of European Archaeology, 1(2), 1–57.

Sherratt, A., & Sherratt, S. (1991). From luxuries to commodities: the nature of Mediterranean Bronze Age trading systems. In N. H. Gale (Eds.), Bronze Age Trade in the Mediterranean (Studies in Mediterranean Archaeology). Göteborg: P. Åströms Förlag

Skjelsvik, E. & Straume, E. (1958). Austrheimsteinen i Nordfjord : et nytt bidrag til dateringen. Årbok / Universitetet i Bergen. Historisk-antikvarisk rekke, 0409-1027 ; 1957:1. Bergen.

Skoglund, P. (2016). Rock art through time: Scanian rock carvings in the Bronze Age and earliest Iron Age. Oxford: Oxbow

Skoglund, P., Ling, J., & Bertilssson, U. (eds.) (2017). North meets south: theoretical aspects on the northern and southern traditions in Scandinavia. Oxford: Oxbow

Skoglund, P., Nimura, C., & Bradley, R. (2017). Interpretations of footprints in the Bronze Age rock art of South Scandinavia. Proceedings of the Prehistoric Society 83, 289–303

Sognnes, K. (2001). Prehistoric imagery and landscapes: rock art in Stjørdal, Trondelag, Norway. Oxford: British Archaeological Reports

Sognnes, K. (2002). Bilde, landskap og ritar i midt-norsk stein- og bronsealder. In J. Goldhahn (Eds.), Bilder av bronsålder: ett seminarium om förhistorisk kommunikation: rapport från ett seminarium på Vitlycke Museum 19.e-22.e oktober 2000 (pp. 1–22). Stockholm: Almqvist & Wiksell.

Sognnes, K. (2008). Stability and change in Scandinavian rock art: the case of Bardal, Norway. Acta Archaeologica 79, 230–245

Tas, I. and Özbirecikli, M. (2009). A review on the tools used for logistics in the Late Bronze Age: the case of the Uluburun shipwreck. KUBABA-Arkeoloji- Sanat Tarihi - Tarih Dergisi, 6, pp. 37–52.

Tilley, C. (1991). Material culture and text: the art of ambiguity. London: Routledge

Tvauri, A. (1999). Cup-marked stones in Estonia. *Folklore Institute of Estonian Language*, Tartu, 11, 113–169. https://doi.org/10.7592/FEJF1999.11.estonia

Uckelmann, M. (2011). The function of Bronze Age shields. In M. Uckelmann & M. Mödlinger (Eds.), Bronze Age warfare: Manufacture and use of weaponry (British et al., Vol. 2255, pp. 187–200). Oxford: Archaeopress.

Urtāns, J. (1987) Kultoviye kamni s uglubleniyami v Latviyi. *Kratkiye soobshcheniya instituta arkheologiyi*, 23(1), 72.

Vaitkevičius, V. (1996). Akmenys su duobutemis. *KP*, 3, 7, 8.

Vaitkevičius, V. (2004). *Studies into the Balts' sacred places* (BAR International Series 1228). Oxford: John and Erica Hedges, Ltd.

Vandkilde, H. (1996). From Stone to Bronze. The Metalwork of the Late Neolithic and Earliest Bronze Age in Denmark. Aarhus: Archaeological Society Publications XXXII.

Vandkilde, H. (2014). Breakthrough of the Nordic Bronze Age: Transcultural warriorhood and a Carpathian crossroad in the sixteenth century BCE. *European Journal of Archaeology, 17*(4), 602–633.

Vandkilde, H. (2016). Bronzization: The Bronze Age as Pre-Modern Globalization Prähistorische Zeitschrift 91.1:103-223.

Vandkilde, H. (2017). The Metal Hoard from Pile in Scania, Sweden. Place, Things, Time, Metals, and Worlds Around 2000 BCE. Denmark: Aarhus University Press. https://doi.org/10.2307/j.ctv62hgr5

Varberg, J., Gratuze, B., & Kaul, F. (2015). Between Egypt, Mesopotamia and Scandinavia: Late Bronze Age glass beads found in Denmark. *Journal of Archaeological Science, 54*, pp, 168–181.

Varberg, J., Kaul, F., & Gratuze, B. (2019). Bronze Age glass and amber: Evidence of Bronze Age long-distance exchange. *Adoranten*, pp, 5–29.

Vogt, D. (2012). Østfolds helleristninger. Oslo: Universitetsforlaget

Wengrow, D. (2011). 'Archival' and 'sacrificial' economies in Bronze Age Eurasia: an interactionist approach to the hoarding of metals. In T. C. Wilkinson, S. Sherratt, & J. Bennet (Eds.), Interweaving Worlds: Systemic Interactions in Eurasia, 7th to the 1st Millennia BC (pp. 135–144). Oxford; Oakville: Oxbow Books. https://doi.org/10.2307/j.ctvh1dr2k.15

Wilkinson, T. C., Sherratt, S., & Bennet, J. (2011). (Eds.). Interweaving Worlds: Systemic Interactions in Eurasia, 7th to the 1st Millennia BC. Oxford; Oakville: Oxbow Books. https://www.jstor.org/stable/j.ctvh1dr2k

Wrigglesworth, M. (2015). Between land and water: the ship in Bronze Age West Norway. In H. Stebegløkken, R. Berg, E. Lindgaard & H. Vangen Stuedal (Eds.), Ritual Landscapes and Borders Within Rock Art Research: Papers in Honour of Professor Kalle Sognnes (pp. 111–118). Oxford: Archaeopress.

Zaikovkiy, E. (2000). Sledi yazichnitskikh veravaniyav na Vileyschine. *Kuferak Vilenschini*, 1, 16–18.