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NEW TECHNOLOGY IN AN EXISTING 'LITHIC LANDSCAPE' – SOUTHERN NORWAY: A MELTING POT IN THE LATE NEOLITHIC AND BRONZE AGE

Abstract
Studies of the Late Neolithic and Bronze Age in southern Norway are often concerned with the grand narratives of how the region became part of the European Bronze Age world. In this article, I discuss lithic production and raw material procurement and what these indicate about the character of this process at a local level. The implementation of bifacial lithic technology, alongside the continued exploitation of local raw material sources, implies a merging of culturally specific knowledge. Through everyday practices, cultural differences were transcended, creating a new, hybrid cultural expression. Extensive lithic production should thus be considered a constitutive part of the Nordic Bronze Age farming societies in southern Norway. Furthermore, the separation of 'Arctic' hunters within the interior of southern Norway, and coastal 'European Bronze Age Farmers' cannot be based on the use of lithics of different raw materials. From this perspective, lithic studies can provide basis for challenging a persisting theory of cultural dualism in Bronze Age southern Norway.

Keywords: Bifacial lithic technology, local quartzites, Late Neolithic, Bronze Age, hybridisation

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INTRODUCTION AND BACKGROUND

There is a sudden shift in lithic technology at the transition to the Late Neolithic in southern Norway. From about 2350 calBC onwards, bifacial pressure flaking became the dominant lithic technology. This technology has been called a 'flint-dependent technology' (Apel & Darmark 2007; Apel 2008). There is no geologically deposited flint in Norway, only small beach-flint nodules. Therefore, larger tool types, such as bifacial flint daggers, sickles, and four-sided axes had to be imported from southern Scandinavia. Even if some import-flint in the form of nodules or discs have been found, there does not seem to have been enough large, high-quality imported flint for any regular production of these large tools in Norway. At least, no such production sites have yet been recorded. Instead, locally procured raw materials, particularly different types of fine-grained and micro-crystalline quartzite, as well as beach-flint, continued to be exploited for everyday tool types such as arrowheads. Different types of axes were made in locally procured rock as well. These rock types were exploited in all Mesolithic and Neolithic periods in Norway. Hence, despite a change in the social landscape, the lithic landscape, meaning the rock types traditionally exploited in the various regions of southern Norway, was still overall a familiar one to the inhabitants.

In this article, I will discuss the process of integrating the new 'flint-dependent bifacial technology' into the existing social and lithic landscapes in southern Norway (Fig. 1). Together with agricultural practices and two-aisled house types, the new lithic bifacial technology was brought by migrating groups of the so-

Fig. 1. Map of southern Norway, with regions, place and sites names mentioned in this article. Illustration: A.J. Nyland.

called Bell Beaker culture originating in Jutland, Denmark. The interaction of these groups with existing local societies and traditions in southern Norway led to a merge of two systems of knowledge and the creation of new cultural features characteristic of the South-Norwegian Bronze Age, starting around 1800–1700 calBC. Even though the archaeological record displays how new cultural elements are introduced at the transition, such as two-aisled houses, bifacial technology and the abandonment of a few large adze quarries with roots back into the Middle Mesolithic, there are cultural elements of the Early and Middle Neolithic that continued too. Indeed, a collective identity (see Damm 2010a: 20) containing a mixture of features of both external and local origin might have developed in the Late Neolithic and Bronze Age. I will return to the concepts of migration and acculturation used in the Late Neolithic discourse in southern Norway shortly, but will first emphasise that I find the social developments within this period are best described as a process of hybridisation.

To perceive the interaction and relations between local inhabitants and newcomers as characterised by cooperation and close interaction, may explain patterns found in the archaeological material. To illustrate my points, I will use archaeological examples from sites located in different landscape zones in southern Norway.

Previous research into the Late Neolithic and Bronze Age in southern Norway has rarely focused on lithics beyond the dispersal and clustering of imported flint tools, such as axes, daggers, or sickles. More often than not, it is the agricultural expansion, farming societies, house types, grave mounds, imported material culture, and technology, including metallurgy, which is the object of study. Research emphasis has accordingly been on the processes making southern Norway part of the European Bronze Age social and symbolic network (e.g. Kristiansen 1998; Prescott 2005; 2006; 2009; 2012a; Melheim 2012; Sørensen 2013). While there is no doubt that southern Norway became part of a North-European Bronze Age world, this perspective does not adequately acknowledge the importance of local lithic production. For example, in the Bronze Age whereas flint import declined, bifacial technology was still maintained and the exploitation of local raw materials was extensive well into the Pre-Roman Iron Age.

In the Bronze and Pre-Roman Iron Ages, the variability in raw materials, be it flint or quartzites, implies that the type of rock exploited on an everyday basis may not necessarily have been important. Instead, the significant aspect of raw material use is that most of the rock used was

procured *locally*, and the technology was maintained and adapted to suit different types of rock. Accordingly, because of the local adaptation of lithic technology, the use of 'true' bifacial technology, that is, bifacial tool production of the highest quality, learned in areas with rich flint deposits, according to Jan Apel and Kim Darmark (2008), should not be expected after the brief initial phase of Bell Beaker immigration. Neither should one expect to find within southern Norway a copy of a South-Scandinavian Bell Beaker, or North-European Bronze Age society, with all 'normal' material elements present. From the Late Neolithic onwards, new agricultural practices were established, but the many open sites demonstrate a continued exploitation and dependence on both marine and mountainous resources. To include the material from such sites will help render visible local and regional characteristics that diverge from the known elements of the North-European Bronze Age world, and expand our knowledge of the regional developments within this period. Thus, to understand the prelude to, and the development of, South-Norwegian Bronze Age societies requires a closer look at practices involving lithic procurement and production on site level.

In general, knapping debris and bifacially thinned projectile points have frequently been found at mountainous and inland sites, sites associated with hunting and trapping. These tools are predominately made of quartzite, but points made of other rock types, including beach-flint, have been recovered too. There are numerous examples of coastal sites with lithic tool production too. These include the production of an assortment of small bifacial tools, such as heart- and leaf-shaped arrowheads (see Bjerck et al. 2008; Skjelstad 2011), and a type of small retouched flakes called 'Nøklegård points' (Jaksland & Kræmer 2012). These coastal sites are located in areas normally portrayed as part of the farming society, and implicitly part of the North-European Bronze Age social world. The societal situation has often been described as one of *cultural dualism*. By cultural dualism, I refer to the idea of a southern-Scandinavian-influenced, agricultural, flint and metal using 'Nordic Bronze Age' society, and a separate, hunter-gatherer based society, the so-called 'Arctic tradition' (Bakka 1973; 1976: Pl.16; Kristiansen 1998: 71; H. Amundsen 2011; Apel 2012). The farming societies related actively to the North-European Bronze Age world, with similar economy and settlement types, having access to bronzes and socially prestigious objects, as well as the symbolic world. This type of society is in contrast to a quartzite using 'Arctic' society of hunter-gatherers. One argues a geographical, social, and cultural boundary based on economic resource exploitation, involving the type of lithic raw material exploited as well. Spatial differences in settlement types, such as the dominant use of open sites and rock shelters, the relative lack of metal finds and grave cairns/mounds, and not least, the dominance of tools made of non-flint materials in the interior and mountainous areas (first slate, then a dominant use of quartzites), are seen as significant. This leads to a perception of hunter-gatherer groups as existentially and materially different to Bronze Age and Pre-Roman Iron Age farmers.

In this article, I take as my point of departure the idea that the rapid merging of two systems of knowledge soon after the Late Neolithic transition makes the separation based on lithic technology and use of different rock types problematic. Looking at details in the archaeological record, there seems to have been a rapid synthesis of 'old' and 'new' traditions, the societies depending not only on agriculture, but hunting, gathering, and fishing, and traditional practices of lithic production and raw material procurement as well. Because of this, independent Bronze Age cultural expressions were formed, containing not only unique bronze items and rock art imagery (Kristiansen 1998: 68), but an extensive use of lithics and local raw materials as well.

Note that I do not refute the profound impact of the Bell Beaker immigrants from Jutland had on southern Norway at the Late Neolithic transition. The archaeological record gives strong evidence for the sudden appearance of immigrating farmers in parts of southern Norway, but it tell stories of a rapid mixture of traditional practices and new external impulses developing into a cultural expression of its own too. In this article, I suggest that this is not simply a process of acculturation, but one of *hybridisation,* developing into something that cannot be characterised as a purely 'North-European Bronze Age'. Equally

flawed is the label of 'Arctic tradition'. Perhaps the developing culture was a mixture of elements from both categories, but the varied geography and possibilities for resource exploitation may have resulted in a mosaic-like cultural expression in southern Norway. When studied on a local scale, this interpretation is substantiated by the lithic material.

THE MATERIAL AND SOCIAL SETTING OF THE LATE NEOLITHIC TRANSITION

Shifting perspectives

My discussion of southern Norway is in many ways similar to the ongoing debate concerning transitions, cultural contact and interaction in the northernmost part of Norway in the Neolithic and Bronze Age (e.g. Skandfer 2009; 2012; Damm 2010b; 2012). For example, I sympathise with this emphasis on integration and relations instead of boundaries and cultural dualism. Furthermore, I also agree with the notion of cultural expressions or phenomenon not being defined based on what they lack, or are meagre reflections of, but identifying and interpreting what is present in its own right. In this way, the importance of characterising and exploring different phenomena on a local and regional scale are given more weight. However, the focus in this article being southern Norway, I will commence by outlining the current positions in the debate concerning the Late Neolithic transition. These have set the agenda and currently dominate the discourse in southern Norway, and have subsequent effect on our understanding of societal developments in the Bronze Age.

Identifying the timing of the transition to agriculture has been a focal point in Norwegian Neolithic research since the early 1900s. This has meant tracing the first appearance of domesticates, material culture, or structures, such as house or grave types, associated with various groups in Denmark and southern Sweden, in the following referred to as southern Scandinavia. Whether or not the Neolithic even occurred in Norway has been debated too, since evidence of agriculture as an economically viable subsistence base has not been demonstrated before the Late Neolithic (Prescott 1996). Furthermore, the Neolithic chronological framework applied in southern Norway is, more or less, parallel to that of southern Scandinavia. This attests to the strength and focus of agricultural and southern Scandinavian relations within this field of research. Consequently, the character of the cultural-historical developments in the Neolithic and Bronze Age has been defined by the presence, or lack of, south-Scandinavian tool types, metal objects, or agricultural indicators. Indeed, 'farming' is attributed significance at the expense of hunting in the Neolithic, almost to the degree that it is expressing a form of 'Neolithic chauvinism' (B. Olsen 1988: 425; Zvelebil 1996: 150). Thus, the primacy of the search for cultural influence associated with European Bronze Age agricultural cultures has left studies of lithic variations and local developments from the Late Neolithic, and beyond, wanting. This bias is also found in theories of cultural-historical developments in the Late Neolithic and Bronze Age.

Migration, acculturation, or hybridisation, at the onset of the Late Neolithic

At the outset of the Late Neolithic, the archaeological record in southern Norway shows that a remarkable and sudden change was occurring. From about 2350 calBC, Bell Beaker pottery, two-aisled, rectangular houses, a new lithic technology producing different tool types, such as type I bifacial daggers, sickles, and heart-shaped projectiles in particular, appear. From this time onwards, agricultural indicators of grazing and cereal cultivation are documented with increased frequency across southern Norway (see Mikkelsen & Høeg 1979; Høeg 1982; 1996; Prøsch-Danielsen 1996; Hjelle et al. 2006; Høgestøl & Prøsch-Danielsen 2006; Hjelle 2012). Hence, the Late Neolithic breakthrough of agriculture as an economically important subsistence base in parts of southern Norway is not questioned, neither is the profound impact the initial Bell Beaker immigrants from Limfjorden in Jutland had on the existing societies in southern Norway.

The current dominant explanatory mechanism causing this change is *migration*. It is suggested that the impact of arrivals of the Bell Beaker culture was dramatic, causing a transformation of the existing societies on the western

coast within a generation (Prescott 2012b: 212). It is proposed that during a short time period, the 'Neolithic package', i.e. agricultural production, a new societal organisation, ideology, technology, and symbolic expressions, was introduced by small groups of immigrating Bell Beaker 'entrepreneurs' and adopted by the local populations along the western coast (cf. Prescott 2012a: 124). The 'package' was conveyed to the local population on the western coast of southern Norway through a mixture of 'pomp and terror' (Glørstad 2012a: 95; Prescott 2012b: 120). The argument is that local inhabitants were convinced partly by being impressed by the immigrating peoples' possessions, e.g. the new flint tools, pottery, shining copper-pins, and social networks providing access to such items, and partly through fear, being subdued by the mobility allowed by large seafaring boats, and perhaps horses. The implementation of this cultural package resulted in a widespread homogenisation of cultural expressions and material culture (cf. Prescott & Walderhaug 1995; Prescott 1996; 2009; 2012b; Prescott & Glørstad 2012). While in eastern Norway, the Late Neolithic transition is thought to have been more gradual, as agricultural practices are found more frequently from the Early and Middle Neolithic onwards. The changes in this region are perceived as having been initiated through a south-eastern contact zone (Glørstad 2012a). Still, by the Early Bronze Age the population in large parts of coastal southern Norway had arguably become 'European' (cf. Prescott & Glørstad 2012).

A competing theory argues *acculturation* as the main mechanism for the changes occurring at the onset of the Late Neolithic in western Norway (cf. Bjerck 1988; Bergsvik & Olsen 2003; Nyland 2006; T. Olsen 2004; 2009; A. Olsen 2009; 2012). The acculturation theory emphasises a process of agricultural and cultural transformation more similar to the afore-mentioned one proposed for eastern Norway, although via a south-western, rather than a south-eastern, contact zone. The interpretation of material culture in the time period leading up to the transition differs between the regions as well. It is suggested that by the end of the Middle Neolithic, the so-called Middle Neolithic B, societies along the west coast were already in a state of flux and change. This is due to evidence of small-scale farming or/and pastoralism being combined with hunter-gathering-fishing already between 2600 and 2350 calBC (cf. Hafsten 1956; Hinsch 1956; Hjelle et al. 2006; Høgestøl & Prøsch-Danielsen 2006; Hjelle 2012; A. Olsen 2012; Prøsch-Danielsen 2012; Kaland 2014; Mehl et al. 2015). The exploitation of different landscape zones in western Norway changed in the Middle Neolithic B as well. This is based on cultural layers being thinner than in previous periods at coastal locations oriented towards marine resource, and the appearance of an increasing number of sites at the sheltered heads of the fjords (T. Olsen 2004; 2009; A. Olsen 2009). From this perspective, contact between old and new traditions at the transition to the Late Neolithic becomes less dramatic and, as pertains to the point made in this article, is interpreted as anchored in local conditions and traditions.

The continuation of bifacial lithic technology and local raw materials are unique to the Nordic Bronze Age and Pre-Roman Iron Age in southern, and northern, Norway. For example, it contrasts with the situation in Scania in Sweden (see Högberg 2010), and in Denmark (see Eriksen 2010). This calls for the recognition of local lithic production as important in defining the characteristics of the Bronze and Pre-Roman Iron Ages in different regions. Such recognition requires an explanatory model apart from either migration or acculturation, at least if the aim is to understand the societal developments based on the archaeological remains. Allowing for stronger local autonomy can explain why bifacial technology and the exploitation of quartzite and other local raw materials appears to have been a significant tradition well into the Pre-Roman Iron Age. Accordingly, I view the Late Neolithic transition as a *hybridisation process,* providing a different point of departure for understanding the character and developments in the later periods. This means to acknowledge that existing traditions of lithic procurement and marine and mountainous resource exploitation must have been equally valued, even after the introduction of the Bell Beaker cultural package. The idea of hybridisation processes characterises the Late Neolithic as a period of two-ways interaction and integration, involving a merging of cultural specific knowledge and traditions.

MERGING CULTURAL KNOWLEDGE IN THE LATE NEOLITHIC

So, what took place during this phase? And how does the understanding of the phase as a process of hybridisation materialise archaeologically? The south-western coast of Norway, comprising the districts of Farsund, Lista, and Jæren, was presumably the point of arrival for the Bell Beaker groups (Solberg 1994: 123; Prescott & Walderhaug 1995: 273; Østmo 2005: 64; Prescott 2009: 206). Local inhabitants both there and along the Norwegian coast were comprised primarily of hunter-gatherer-fishers, although during the Early and Middle Neolithic, contact with agriculturalists had been established. The scale of this contact and the subsequent implementation of agricultural practices vary across southern Norway. Nevertheless, the dispersal of Funnel Beaker -related material culture in general demonstrates contact between farmers and hunter-gatherers from the Early Neolithic onwards, although, the agricultural imprint is stronger in eastern Norway, than in the west (see Hinsch 1955; Bergsvik 2006; 2011; 2012; Hallgren 2008; 2012; Glørstad 2012b; Glørstad & Solheim 2015). In the Middle Neolithic A across southern Norway, the influence of the Funnel Beaker culture grows stronger before being replaced by objects related to Swedish-Norwegian Battle Axe, and Corded and Pitted Ware cultures in the Middle Neolithic B (see Hinsch 1956; Mikkelsen 1989; Ø. Amundsen 2000; Reitan 2005; Kilhavn 2013). In the Early and Middle Neolithic, external groups are all associated with limited crop growing and/or pastoralism. Nevertheless, they seem to have been coexisting and actively interacting and merging with the local population of hunter-gatherers. This is evident in the continuity of local traditions involving lithic tool production and lithic procurement practices (Nyland 2016).

As mentioned in the introduction, the Norwegian west coast has been included in what has been deemed a core area of 'true bifacial technology', associated with the Bell Beaker culture in the Late Neolithic (Apel & Darmark 2007; Apel 2012). According to Apel and Darmark, in order to practice the 'true bifacial technology' the flint smiths were dependent on high-quality flint. With this, they implicitly characterise bifacial pressure flake technology as a *flint*-dependent technology. At a few sites in Vest-Agder and Rogaland, arrowheads of Bell Beaker type, together with high levels of flint tool production debris have been found, for example at sites at Næsheim and by Lake Næsheimvandet in Farsund, and not least at Slettabø (Skjølsvold 1977). At the latter, typical Bell Beaker type points of high-quality flint were produced on-site, in addition to Bell Beaker pottery. Type I flint daggers have mainly been found as stray finds in Norway, their contexts therefore rarely documented. However, this can support theories of these items not being produced locally as well.

Flint had always been collected on the beaches in the coastal regions of Norway. However, the nodules found are of varying quality, and larger ones are often frost damaged. This has recently been studied by the experienced flint knapper and archaeologist Lotte Eigeland (2013: 13; 2014: 85–108). Eigeland found that the size and quality of these flint nodules would have made beach-flint unsuitable as blanks for larger tools, such as flint axes, daggers, or sickles, but sufficient for arrowheads and smaller tools. Hence, although beach-flint was available for making smaller tools, as the Bell Beaker groups moved north-west, they moved further away from the nearest rich source of high-quality flint suitable for the larger tool types, Jutland.

The coastal landscape of south-west Norway bears likeness to Jutland in Denmark. Nevertheless, moving further north along the coast, the Bell-Beaker groups would soon enter a new and unfamiliar landscape; physically, socially, *and* in terms of raw materials. To the local inhabitants of the western coast, the land was already familiar and 'mapped'. In a new environment, or encountering something unknown, familiar practices or specific material culture can be employed as means to maintain social structures (see Bourdieu 1990; Berger & Luckmann 2011[1967]). Accordingly, if we perceive bifacial lithic technology as flint-dependent, the technology, flint, or objects of flint, could all have represented a familiar feature needed to uphold social relations. Yet, if there was a dependency on *flint*, this may have reduced the immigrants' capability to familiarise themselves with the unknown, or even to exploit other raw

materials to their full potential. Paraphrasing Eigeland (2009: 837) '…these people were flint knappers not quartz knappers […] they appear to be too tradition-bound to approach this material differently'. The citation from Eigeland was written with reference to Mesolithic groups, allegedly not exploring efficient ways of knapping quartz. However, I find that it illustrates how a process of knowledge exchange between the Bell Beaker groups and local communities must have been required too. In order to enable the rapid expansion that the archaeological record indicates, the Bell Beaker groups needed to merge their cultural and technological knowledge with local knowledge, such as efficient resource exploitation and, for example, where to find suitable quartzite.

A suggested reason for the Bell Beaker migration has been that they searched for resources such as pelts and antlers to be used in exchange for prestige items (Prescott 2012b). In the western mountainous region, there are several sites dating to the first half of the Late Neolithic implying an ongoing exploitation of resources such as pelts and antlers. In these regions, the dominant raw material used is fine-grained quartzites. At the same time, arrowheads were made using 'true' bifacial technology. One example of this comes from a small, single phased, Late Neolithic hunting campsite: site 32 Vikastølen, in a subalpine valley at the head of the Sognefjorden, in the County of Sogn og Fjordane. It has been radiocarbon-dated to 3760±90 BP (T-4780), and 3690±80 BP (T-4781) (Prescott 1986: 54), that is, to the first half of the Late Neolithic. At the site, the majority of the four complete, and ten fragmented bifacially thinned heart-shaped arrowheads, and fragments of arrowheads, with deep hollow bases, were made of local fine-grained quartzite. The rest were made of flint (Prescott 1986: 51–7). The craftsmanship of these points has been described as fine, verging on excellent (Prescott 1986: 56). Hence, it demonstrates the presence of a knapper with the skills to master the flint-dependent true bifacial technique on quartzite, an often unpredictable and inhomogeneous local raw material.

Another large site with similar assemblage is located in another subalpine valley at the head of Sognefjorden. This is the rock shelter Skrivarhelleren, probably inhabited from the onset of the Late Neolithic and into the Early Iron Age. The earliest published date shows activity from 3610±50 BP (T-7686) (Prescott 1995: 67), i.e. towards the end of the Late Neolithic, but new dates provide an age sequence from the transition to the Late Neolithic and continuing into the Bronze Age (C. Prescott, pers.comm.). The site Skrivarhelleren is often referred to as a site of Bell Beaker -related inhabitants, with social and material roots in the social networks of the European Bronze Age, also practicing the earliest form of metallurgy in the region (Prescott 1995; 2000; 2012b; Melheim 2012). The lithics found are less debated. However, in the oldest dated layers in the rock shelter, bifacial points were made of fine-grained quartzites. Moreover, bifacially knapped flint and other local lithic and organic material were being exploited too (Prescott 1991: 44–55). In the vicinity of the rock shelter, a Type Ib flint dagger had been deposited. These finds demonstrate that groups with southern connections had frequented the area during the first half of the Late Neolithic (Prescott 1991: 118). It has been suggested that among other things, the site had functioned as base camp for transhumance (Prescott 1991; 1995: 95–106). Yet, the many projectiles points imply that hunting was a dominant activity as well. The inhabitants of these sites clearly knew where to acquire fine-grained quartzite and how to exploit it.

One large deposit of fine quartzite is located in the mountainous areas of Sogn og Fjordane. A specific geological event caused the formation of a large geological sheet of very fine-grained 'blasto-ultramylonite quartzite' (Askvik 1966: 29). The layer surfaces in outcrops within a large area in the municipalities of Lærdal, Aurland, and parts of Hemsedal. There are several quarries exploiting this sheet recorded over an area of at least 2000 km^2 (see Nyland 2016). The quarry most intensely exploited is located at Kjølskarvet, in Lærdal. This had been in continual use since the Middle Mesolithic, continuing into the Pre-Roman Iron Age. The quarry is located in a good area for hunting. At the same time, in the Late Neolithic and beyond, the site might have been thoroughly entangled in local societal structures and traditions which ensured peoples' continued engagement with the site. From this perspective, the exploitation of this quarry may reflect a familiarity of tradi-

tions reaching back before the arrival of the Bell Beaker people (Nyland 2016). Some of the other quartzite quarries located in the mountain region display relatively long duration, continuing into the Bronze Age (Fig. 2).

A few of the sites were used continually, but examinations of raw material at various mountainous sites, even at sites in the vicinity of quarries, indicates that there was a wide spread practice of pragmatic and opportunistic lithic procurement too. Nevertheless, skill and cultural knowledge would have been an important advantage for effectively exploiting these areas. The exploitation of sources of suitable rock, and skills related to hunting in the mountainous areas, indicates continued and maintained practices for the exploitation of traditional resources throughout the Late Neolithic transition and into the Pre-Roman Iron Age.

QUARRIES AS A SOCIAL ARENA?

In addition to opportunistically accessed sources, new quarries were also being established, some even being regularly exploited from the Late Neolithic onwards. One particular quarry is located in the interior of central Norway, at Femundsåsen, Sør-Trøndelag (Stomsvik 2010; Nyland 2013; 2016). There, from the Late Neolithic onwards, a large talus of quartzite blocks was extensively quarried. A rough estimate of waste still located in the quarry today is around 100 m^3. Alongside the talus, there are several clearly defined workshop sites, visible in the terrain as circular 'platforms' made up of waste from initial reduction of blanks and preform production. Its exploitation continued, perhaps even increased, into the Pre-Roman Iron Age (Nyland 2013; 2016). In its initial phase though, the quarry can be perceived as a social arena where people with different cultural horizons interacted. This interaction is visible in a beautifully produced Late Neolithic lanceolate dagger of type Ib (classified by Scheen 1979: 70–1) (Fig. 3). This type of dagger is, if made of flint, regarded as a Bell Beaker type, whereas the dagger in question was made of *quartzite* from the quarry at Femundsåsen. It was found together with broken preforms and production debris indicating dagger production at site 'L6 Langtjønna øst', about a kilometre away from the quarry.

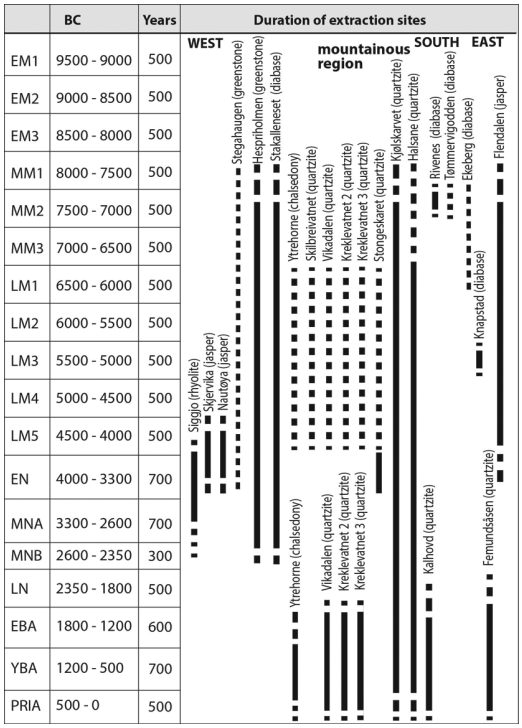

Fig. 2. A relative chronology of 21 quarries in southern Norway, dating to different sequences in prehistory (rock type in brackets). Most of the quarries have been dated typologically, based on visual comparison between raw material from the quarry and chronologically significant tool types and waste material. At only a handful of sites radiocarbon datings exist and identification of the ancient shoreline is relevant and possible (see further discussion about dating in Nyland 2016). Abbreviations: EM, MM and LM – Early, Middle and Late Mesolithic; EN, MN and LN – Early, Middle and Late Neolithic; EBA and YBA – Early and Younger Bronze Age; PRIA – Pre Roman Iron Age.

The quartzite from Femundsåsen is rather inhomogeneous, and a dagger in this rock type must have been hard to complete without breakage. The dagger therefore represents evidence of someone highly skilled in bifacial lithic technology, capable of producing a dagger in local inhomogeneous rock with excellence. It has been suggested that in order to learn how to make type I daggers, one needed access to high-quality flint,

knowledge of procedures, and embodied skills achieved only through some kind of institutionalised apprenticeship (Apel 2008: 99–103, 106). As mentioned, the type I daggers are regarded as characteristic of the Bell Beaker and south-Scandinavian Late Neolithic cultural package. Having been made in the interior of central Norway, this dagger was produced well outside the locus of Apel and Darmark's (2007) earlier mentioned area of 'true bifacial technology', and it is made of quartzite.

In the quartzite quarry, four flakes of fine, high-quality 'Senonian' flint have been found. Limited examinations of the waste piles and working platforms did not show any trace of flint knapping, but the flakes definitively place such activity there. Having examined lithics from around 150 sites located by the lakes, and river system surrounding Femundsåsen, the flint flakes stand out. This is not only because most of the raw materials used at the sites are quartzites and not flint, but the quality of the flint is uncommonly high for this interior region (Nyland 2016: Appendix 15). Moreover, that the flakes are most likely from edge thinning and knapped using bifacial technique is also a point to note. They may demonstrate that someone with access to high-quality flint, as well as knowledge of bifacial technology, once (?) visited the quarry.

Fig. 3. Left: A bifacially made quartzite dagger of type Ib (T19723), found next to Lake Langtjønna, east of Femundsåsen; Right: A preform for a dagger, broken during production (not correct colour rendering). Photos: A.J. Nyland.

Based on the dispersal of flint daggers of type I in Trøndelag and on the Swedish coast, the Trøndelag area has previously been suggested as a transit zone between these two regions (Apel 2001: 317, Fig. 9:17). Communication and lines of movement between the coast of central Norway and Sweden would then pass the district of Femundsåsen. One can therefore imagine a scenario where the quarry and surrounding area was a meeting place of people possessing different types of skills, and with different cultural backgrounds. In light of this, it is plausible that the extraction site could have provided an arena for exchange of technological knowledge that were visited and revisited in these times of change. That there are other types of quartzite being used, small sources being opportunistically exploited in the area, does not make the character of the large quarry at Femundsåsen less extraordinary. Not all quarry sites were necessarily social arenas. However, by comparing the character of exploitation at several sites (see Nyland 2016), the quarry at Femundsåsen stands out as substantiating this interpretation. By working together at the quarry, skills were disseminated both ways and social networks and relations were established. Theorising even further, it could have been that the quartzite at the quarry at Femundsåsen functioned as a social arena in the new social reality created in the Late Neolithic. Perhaps in this transitional phase, the quarry became a nodal point in the landscape, a place important to visit, and revisit, to reify one's social relations, but also one's relations to the land and territory. As a nodal point, it tied old and new social relations and traditions together.

The skilful mastering of bifacial lithic technology, combined with lithic procurement of local rock types, in an area where hunting practices dominated, does demonstrate a successful integration of two systems of knowledge, or cultural horizons. In the Late Neolithic, those exploiting the quarry, surrounding river systems, and lakes, were perhaps neither essentially farmers, nor solely hunter-gatherers. Instead, they might have been both, something in between – a mixture of hunters, fishers, gatherers, pastoralists, and farmers, as even the society was in a process of transformation. If, to master new bifacial tech-

nology and technical concepts, dissemination and apprenticeship is required, this would imply the creation of a new type of Late Neolithic 'community of practice' (cf. Wenger 1998). The lithic production of this time period, and in this region, thereby expresses both the selected traditions, practices and knowledge of external Bell Beaker groups, as well as of the local inhabitants. All of the afore-mentioned examples with bifacial arrowheads and lanceolate dagger made of quartzite represent tangible manifestations of a local process of becoming part of the Bronze Age world; a process characterised by communication, close interaction, and cooperation between the different groups of people.

The Late Neolithic transformation process is understood as one of familiarisation, of integration of knowledge from the new *and* old, resulting in a hybrid cultural expression. In turn, this must affect our understanding of what constituted the 'Nordic Bronze Age' in southern Norway. This perspective affects the earlier argued coexistence of a 'Nordic Bronze Age farmers' using flint, living along the coast, and 'Arctic hunter-gatherers', using local raw materials within the interior regions (see Bjørn 1934; Bakka 1976; Kristiansen 1998; H. Amundsen 2011; 2012).

LITHIC EXPLOITATION CHARACTERISING THE NORDIC BRONZE AGE

To perceive the Late Neolithic phase as a cultural melting pot challenges the theory of cultural dualism in the interior of central and eastern Norway. The theory of cultural dualism has been supported by distribution patterns that show a lack of metal objects in the interior, as well as large flint tools associated with southern Scandinavian 'cultures' being almost mutually exclusive to the distribution of quartzite tools. The use of quartzite has thus intrinsically been linked to hunter-gatherers, and in the Late Neolithic and Bronze Age setting, a northern-bound and 'Arctic' tradition (H. Amundsen 2012: 156). Consequently, the use of quartzite becomes an 'ethnic' marker, perceived to attest to a presence of indigenous mobile hunter-gatherers exploiting the inland regions (Bakka 1973; 1976; H. Amundsen 2011; 2012). Looking at the contexts of bronzes and south-Scandinavian import finds though, the majority of them are strays. Moreover, the archaeological record may also be biased, since most excavations have been, and are still, mostly undertaken in coastal areas where modern development initiates a greater number of excavations and surveys.

Still, there is no doubt that southern Norway became committed to the North-European Bronze Age world with its particular cultural and symbolic expression. Coastal central Norway is regarded a strong Bronze Age region with numerous rock art images, bronzes, and three-aisled houses. However, examining lithics and local rock procurement can provide a different point of departure for discussing the social situation. I suggest that after the initial phase of flint dependency at the Late Neolithic transition, local rock types became a familiar resource through the interaction and integration of people. Hence, perhaps there were still different cultural affiliations, but we cannot separate between them based on the type of rock used.

During the Bronze Age, the import of flint declined, but the use of quartzite continued even if procurement practices varied. Perhaps some quarries were still perceived as social arenas, but, the social and cultural setting had probably changed again, and with it, the significance given quarries or raw material sources. Few quartzite quarries are known, and there is some evidence for transport of raw materials too. One example of this is the quartzite, most likely from the afore-mentioned sheet of fine-grained greenish quartzite in the mountain regions of Lærdal, Aurland and Hemsedal, found at a Late Bronze Age site called Site 85 Kalvebeite, Årdal, Sogn og Fjordane (see Fig. 2). If quarried at Kjølskarvet, the blanks were carried about 30 km as the crow flies, which is not far in this setting. Hence, in the Bronze Age and Pre-Roman Iron Age, long-distance transport does not seem to have been the dominant practice. Quarries were repeatedly visited, and some were intensively exploited, e.g. the quarries at Femundsåsen, Halsane in Buskerud County, Kjølskarvet, and two more quarries around Kreklevatnet in Sogn og Fjordane County. However, based on visual examination of rock types at sites dated to the period, the dominant character of procurement practices appears to have been opportunistic procurement and immediate consumption (Ny-

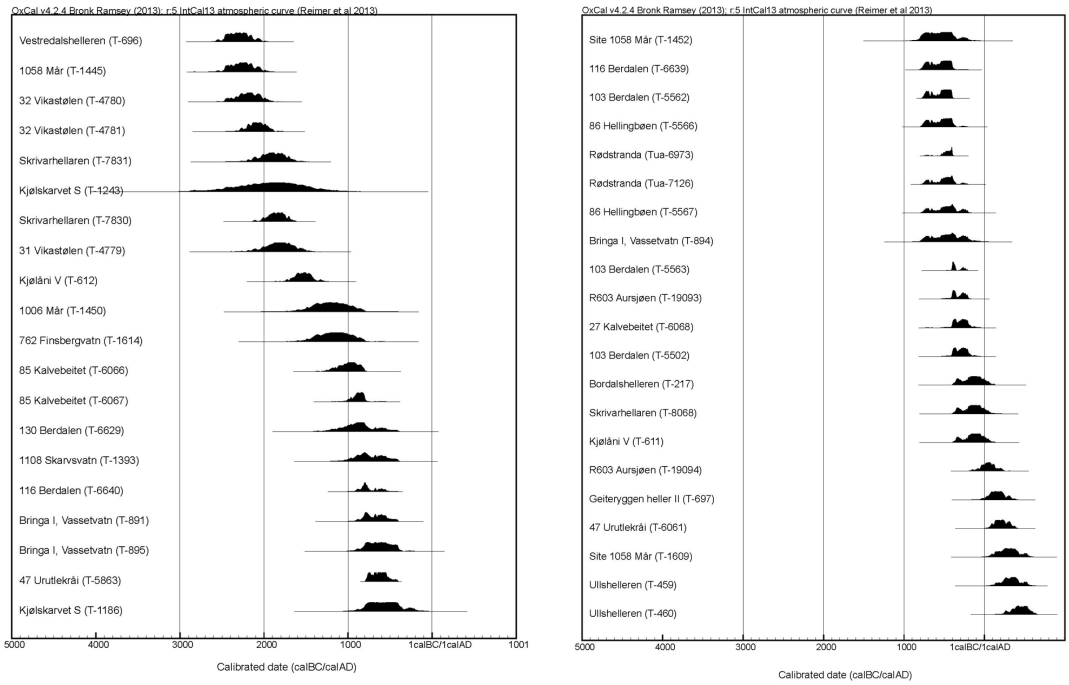

Fig. 4. Calibrated radiocarbon dates from a selection of excavated sites with bifacial arrowheads in southern Norway. Unfortunately, many of these dates were obtained prior to determination of wood types and the application of the AMS method. The dates still indicate a strong tendency of the use of lithics well into the Early Iron Age, and have been supported by more recent excavations. Calibrated with OxCal v4.2.4.

land 2016). A similar pattern of procurement and exploitation of lithic raw material is known from central and northern Sweden. There is, for example, a known quarry in the Swedish province of Lapland with a similar distribution and exploitation as Femundsåsen, in use at the same time (see Holm 1991). Around lakes and river systems in Dalarna in western Sweden, bifacial, lanceolate-shaped points made of various quartz, quartzites, quartzitic sandstones, and volcanic rocks appear to have been procured from a variety of outcrops, boulders, and as cobbles in the moraine, and used immediately (Lannerbro 1976; 1997). Hence, from quarries being a social arena in the Late Neolithic phase of transformative hybridisation, lithic procurement appears to have become more pragmatic. Flint tools and disks were still imported, but this declined in the Early Bronze Age. Examining the raw material used at Bronze Age sites, there seem to be both local and regional variability. It no longer mattered if it was beach-flint, or quartzite, the main criteria was its *availability* (Nyland 2016).

A recent study of bifacial arrowhead production using flint and quartzite from the same Bronze-Age-dated site, Rødstranda in Hedmark, has shown how bifacial technique was adapted to the raw material at hand (Damlien 2011: 37). This supports the core of my description of lithic procurement practices in the Bronze Age and Pre-Roman Iron Age: rock was procured locally to solve immediate tasks in people's everyday lives. Such opportunistic and pragmatic procurement strategies can explain the variability in the types of rock employed between areas, districts, and regions. In light of this, variation in raw material use between the coast and inland is to be expected due to geology. The idea that quartzite tools represent indigenous hunter-gath-

erer may therefore be an analytical construction. This would then necessitate a revision of the opposition perceived between flint and quartzite tools.

Lithic tool production persisted into the Pre-Roman Iron Age, even when metal became increasingly available. Some sites were ^{14}C-dated more than 30 years ago, and a few of these may be flawed due to bulk sampling and the lack of determined wood type (see sites and dates in Odner 1969; Martens 1973; Prescott 1986; 1991; 1995) (Fig. 4). Nevertheless, new AMS radiocarbon dates substantiate the continued use of lithic technology well into the Pre-Roman Iron Age too (in Bjørgo et al. 1992; Årskog & Åstveit 2014). The production of bifacial points and tools took place not only in the interior and mountainous regions, but on the coast as well. The pragmatic procurement practice is also manifest there: points were made of locally available raw materials, such as quartzites, beach-flint, and even rhyolite (e.g. Kristoffersen 1990; Skjelstad 2011; Mjærum 2012). Hence, across southern Norway, it seems that in this period it is the continuation of the bifacial technology, and not the type of rock used, that is of consequence. Lithic technology should therefore be considered as an equally important characteristic of the Nordic Bronze Age as metal and farming, and not as an ethnic marker of a marginalised hunter-gatherer population.

CONCLUDING REMARKS

At the Late Neolithic transition, a new symbolic language, new lithic technology, and economy, appear to have been embraced relatively rapidly. Nevertheless, the society emerging in the Late Neolithic displays a mixture of old and new traditions. Through a process of interaction and integration, a regionally anchored cultural expression emerged. The idea of a Neolithic 'package' should therefore be superseded by the notion of a Neolithic 'repertoire', allowing a mosaic of transition processes to have taken place (cf. Thomas 2003: 71–2). In southern Norway, the material culture and social organisation appear in a state of flux at the onset of the Late Neolithic. There is no doubt that the region was committed to the material, symbolic and ritual sphere of the European Bronze Age. However, the regional processes in the Late Neolithic created a different point of departure for the succeeding developments. This hybridisation process created an expression that renders the archaeological record in southern Norway different from the material culture of the North-European and South-Scandinavian Bronze Age. Most noticeable is the extensive lithic tradition and continued exploitation of mountain and forest resources (Johansen 1974; Gustafson 1978; Bolstad 1980; Bjørgo et al. 1992; Indrelid 1994; Prescott 1995; Stene 2010; Årskog & Åstveit 2014).

The use of marine-oriented open sites, circular pit houses in the coastal regions, and settlement in rock shelters, continued well into the Bronze Age (e.g. Mikkelsen 1989; Kristoffersen 1990; Kristoffersen & Warren 2001; Waraas 2005; Jaksland & Kræmer 2012). Some quarries were abandoned at the Late Neolithic transition, some continued to be exploited, and new quartzite quarries were established (Nyland 2016). Entering the Bronze Age, the initial phase of merging traditions of the lithic technology and local raw material exploitation had consolidated. In this social landscape, there was perhaps no need for employing quarries as social arenas any more, and the engagement with rock and places of procurement became more pragmatic. This attitude continued into the Pre-Roman Iron Age.

The process of social change is always ongoing, dynamic and reflexive. This because our familiar world, the world within reach, or the everyday world is constantly expanding as we as humans are confronted with, or experiencing, something unfamiliar (Heidegger 1962; De Certeau 1984; Lohmar 1994). It is because of such constant friction and interaction of groups who perceive each other as different that societies change and develop. A variety of responses and strategies for meeting the new can be chosen by a society. I have argued that sharing knowledge related to lithic production provided a mechanism to transcend experienced cultural differences and strengthen social relations (see also Nyland 2016). In the Late Neolithic, lithic procurement and production was involved in the societies' strategies for bringing people together. Becoming familiar with the lithic landscape was a two-way process, leading to a cultural expression made tangible in lithics and resource exploitation. Moreover, in southern Norway, lithic

tool production remained a significant part of everyday life in the Bronze and Pre-Roman-Iron Ages' social worlds. However, this has not yet been sufficiently explored archaeologically. An improved and more detailed typological and chronological framework for the Bronze Age, concerning more than just bronzes, is required. It is time to give lithic production in the Bronze and Pre-Roman Iron Ages in southern Norway more attention.

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