Soapstone in Northern Norway: Research status, production evidence and quarry survey results

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Abstract

Archaeological research on the production and use of soapstone artifacts in northern Norway remains limited in scope and the region has received marginal attention in the Norwegian soapstone literature. Archaeological documentation of soapstone quarry locations has been minimal, although the Geological Survey of Norway has systematically surveyed a majority of the soapstone exposures in the region and provided information on quarry activity. This paper begins by reviewing the current status of

soapstone from archaeological contexts in northern Norway, including an overview of material in the Tromsø University Museum collection. Soapstone production evidence is reviewed and challenges associated with quarry documentation discussed. Results from recent collaborative geological and archaeological quarry surveys are presented and some suggestions for future soapstone research provided.

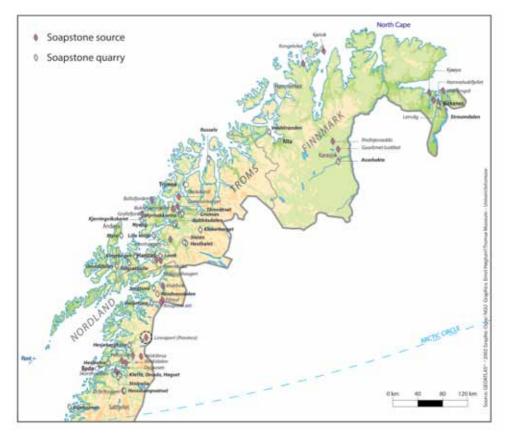




Fig. 1. Map of northern Norway showing the distribution of soapstone sources and quarry sites. Map: E. Høgtun, Tromsø University Museum

Introduction

The role of soapstone in northern Norway has received limited attention in the archaeological literature and the region has also played a marginal role in attempts to synthesize existing knowledge of this material at the national and international level. Although soapstone artifacts are plentiful in northern Norwegian archaeological sites from the Late Iron Age up until the recent historical period, a regional synthesis is still lacking. As was the case with Norwegian soapstone research in general (Shetelig, 1912), there was an early focus on the typology of soapstone vessels during the Iron Age linked to trade networks and chiefly control of circulation (see Risbøl, 1994).

Skjølsvold (1961, 1969) was the first to emphasize the importance of quarry sites

Table 1. Distribution of soapstone artifacts by site type and chronological period in northern Norway

Site type	Finnmark	Troms	Nordland
Occupation site	141	172	1248
Urban site			139
Farm mound	2	19	85
Grave site	2	20	62
Boathouse	I		1
Soapstone quarry		5	
Other / unknown	109	327	909
TOTAL	258	543	2444
Chronological Period	Finnmark	Troms	Nordland
Recent	100	35	48
Recent / Medieval	8	132	340
Medieval	21	178	939
Medieval / Iron Age		33	273
Iron Age / Late Iron Age	1	60	595
Early Iron Age		7	18
Bronze Age / Early Metal Age	2	3	8
Stone Age	10	4	13
Unknown	116	91	233
TOTAL	258	543	2444

and artifact production during the Iron Age, although maintaining the traditional focus on vessels. Grieg (1933) systematized the classification of medieval soapstone vessels based on formal attributes. More recent studies such as those by Lossius (1977) and Vangstad (2003) have provided an increasingly robust chronology from reliable archaeological site contexts for this period. Although soapstone research has led to an increased awareness and understanding of this resource since the Stone Age, the geographical focus remains on southern and western Norway. Broader studies that have included northern Norway are characterized by a lack of firsthand knowledge and superficial treatment of what has been considered a peripheral region. This paper provides a general status report for soapstone in northern Norway from Saltfjellet in Nordland County and northward with an archaeological overview of soapstone resources and their exploitation in the region. Soapstone production evidence is reviewed and challenges associated with quarry documentation discussed. Results from recent collaborative geological and archaeological quarry surveys are presented and some suggestions are given for future soapstone research in the final section.

Archaeological soapstone evidence from northern Norway

In order to examine the distribution of soapstone artifacts and their cultural contexts, data from the region of northern Norway administered by Tromsø University Museum found in the national database for archaeological finds (*gjenstandsbasen*) was utilized. This database is administered by MUSIT (museum IT), a collaborative initiative aimed at managing and disseminating digitized museum collections in Norway. Although all archaeological finds held in the collection at Tromsø University Museum should be registered in the database, the

quality and reliability of the information available varies to a considerable degree and cannot be accepted uncritically. However, it does provide coarse-grained information that is considered adequate for the broad overview presented here.

Soapstone chronology and site types

The extensive production and distribution of soapstone vessels and other objects in Norway during the Late Iron Age (Skjølsvold, 1961; Resi, 1979) and Medieval Period (Grieg, 1933; Lossius, 1977; Risbøl, 1994) is well documented. A review of soapstone finds with a known age (N=2805) from Tromsø Museum's district to the north of Saltfjellet in the national artifact database (Table 1) reveals a predominance of medieval material (over 50%) followed by the Late Iron Age (23%) and Post-Reformation/Recent Period (6.5%). Only 2.3% of the finds predate the Late Iron Age.

The distribution of finds by site type as shown in Table 1 reveals that occupation sites account for nearly all of the soapstone from known contexts (95%), including farm mounds (5.6%) and urban sites (7.4%). Farm mounds, more appropriately referred to as "habitation mounds", are a characteristic site type in northern Norway where they begin to appear in significant numbers towards the end of the Late Iron Age. The number and size of these sites increase dramatically during the Medieval Period with occupation continuing up until the recent historic period, and some are still occupied. The only site classified as "urban" is the medieval settlement at Storvågan in Lofoten. Site types of minor importance include boathouses and a single soapstone quarry in Troms (Talgrøtholla) where unfinished artifacts were collected.

Soapstone artifact types

The distribution of soapstone artifact types in northern Norway from the national database is presented in Table 2. All artifact types with more than 10 individual finds are listed in

Artifact type	Total
Vessel (kar, gryte)	980
Oil lamp (kole)	103
Ladle (øse)	57
Spindle whorl (spinnehjul)	535
Loom weight (vevlodd)	172
Forge-stone (avlstein)	18
Mold (støpeform)	42
Slab (helle)	30
Fishing sinker (fiskesøkke)	135
Oval line sinker (jarstein)	101
Sickle-shaped sinker (dorgesøkke)	45
Net weight (garnsøkke)	17
Anchor stone (senkestein)	16
Minor artifact type / unknown	994
TOTAL	3245

Table 2. Soapstone artifact types from northern Norway

the table. Only a small fraction of the finds predate the Viking Age and most are from the Medieval Period. A majority of the artifact types during this period exhibit only minor changes in form and are therefore treated collectively in the following discussion. Soapstone vessels are the dominant artifact category and account for 43% of all finds of known type. Most of this material consists of small sherds with few complete or nearly complete vessels. Specialized vessel types that can be distinguished from the general category of bowls or trough-shaped vessels used for cooking and as containers include vessels with a handle classified as ladles (2.5%) and lamps for marine mammal or fish oil (4.6%).

Apart from vessels, soapstone artifacts associated with textile production are the most widespread and numerous. This category includes spindle whorls (23.7%) and loom weights (7.6%), although loom weights are often difficult to distinguish from fishing net weights due to similarity in size and appearance. Both artifact types also include reworked vessel sherds.

Although only 20 have been found in Tromsø Museum's district, forge-stones from soapstone provide important supplemental evidence for the presence of smithies, only three of which from the Late Iron Age and Medieval Period have been excavated in northern Norway. Jørgensen (2012) provides a comprehensive overview of forge-stone distribution in relation to blacksmith activity in northern Norway. The two main types of forge-stones, cylindrical and shield-shaped, served to increase the distance between the bellows and forge. Soapstone, which is heat-resistant and easily worked, was an excellent material for this purpose. The only exception is a single forge-stone of fired clay. Soapstone molds are another limited (1.9%) but important artifact category associated with metalworking ranging from Early Metal Period (N=2) and Bronze Age (N=3) bronze casting molds to more plentiful casting molds for a range of objects (buttons, ornaments, etc.) from the Medieval to Recent Period (N=27).

Worked slabs of soapstone (helle) are a minor artifact category (1.3%) which may include building stone, grave markers, stove parts, and other objects. Many baking plates (baksteheller) in the database are erroneously classified as soapstone. Baking plates are manufactured from greenschist deposits which can occur at quarries where soapstone may also be found in close proximity and building stone was extracted during the Medieval Period, such as Klungen/Øye in the vicinity of Trondheim (Storemyr and Heldal, 2002; Storemyr, Lundberg, Østerås & Heldal, 2010).

The collective category of fishing-related weights and sinkers accounts for a significant proportion of the soapstone artifacts in northern Norway (13.9%). Line sinkers make up most of this material with subcategories for large oval sinkers (*jarstein*) and smaller sickle-shaped sinkers (*dorgesøkke*) identified

in the database (see Helberg, 1993; Olsen, 2004). A category of heavy sinkers or possible anchor stones (*senkestein*) has also been identified. Net weights are usually no more than a piece of soapstone with a perforation and therefore difficult to classify. As such they represent a residual category that can be difficult to distinguish from other find types.

Soapstone quarry documentation

The Geological Survey of Norway (NGU) has systematically mapped many of the soapstone exposures in northern Norway and placed them in a national natural stone database (http://geo.ngu.no/kart/mineralressurser/), which includes information on quarry activity viewed in relation to the economic potential for modern quarrying as well as evidence of historical use. The distribution of documented soapstone deposits from Saltfiellet and northward in northern Norway from NGU and other sources is shown in Fig. 1. Deposits where quarry activity has either been reported or confirmed are listed in Table 3 based on information from geological and archaeological literature, local historical records and literature, and unpublished sources. Quarry sites registered in the Norwegian National Cultural Heritage Database (Askeladden) are also noted. Recent research has focused on interdisciplinary stone quarry studies involving geologists and archaeologists, such as the Millstone Quarry Landscape Project led by NGU. This work reflects a broad scope concerned with the exploitation of stone resources including quarry landscapes, the use of stone in medieval church construction, and petrography and sourcing.

The earliest archaeological quarry surveys in northern Norway were undertaken by Harald Egenæs Lund (Lund, 1954, 1963, in Skjølsvold, 1961, p. 147). These included the Helgeland region of Nordland, Ofoten, and southern Troms (Harstad, Kvæfjord, Gratangen, Dyrøy,

Table 3. Reported and documented soapstone quarry sites located to the north of Saltfjellet in northern Norway

Location	Municipality	National Heritage Database ID	Age estimate
FINNMARK			
Straumdalen	Sør-Varanger	27250 (Langfjorden)	Pre-reformation
Assebakte	Karasjok		Pre-reformation?
Voldstranden	Alta		Pre-reformation?
TROMS			
Russelv	Lyngen		Historic?
Kleberberget	Målselv		Recent
Myrbakksetra	Målselv		Recent
Grunnes	Målselv		Recent
Tårnvatn	Lenvik		Recent
Kjerringvikskaret	Torsken		Recent
Nyeng	Sørreisa	28201 (Talgrøtberget)	Pre-reformation?
Rabbåsdalen	Sørreisa		Recent
Lille Vinje (Talgrøtberget)	Dyrøy		Pre-reformation?
Steien	Bardu		Recent
Hesthølet	Bardu		Recent
Talgrøtholla	Kvæfjord	8814, 35633	Pre-reformation?
Kanebogen	Harstad	74346	Historic/Pre-reformation?
Lavik	Gratangen	27198	Pre-reformation?
NORDLAND			
Myre (Dverberg / Stallberget)	Andøy		Recent
Osvolldalen	Sortland	67649 (Storkvantodalen)	Pre-reformation?
Småtuva	Ballangen		Recent
Raudvassdalen	Ballangen		Recent
Hesjetuva (Tennstrand)	Tysfjord		Historic?
Hesjeberghola	Sørfold		Recent
Hesjeelva	Bodø		Historic?
Drusås, Klette, Høgset	Bodø		Recent
Stolpelia	Bodø	57153 (Stolpe)	Pre-reformation
Hessihompvatnet	Saltdal		Recent

Inner Senja, and Lenvik). The only soapstone quarry excavation to date in northern Norway was undertaken in 1985 at Remman in Tjøtta, southern Helgeland, Nordland (Berglund, 1999). A trench excavated into a spoil heap up to 2.2 m thick produced a radiocarbon date

of ca. AD 1300 near the base and evidence of quarry use continued up until about 1600. The highest concentration of historic quarry sites in northern Norway occurs in this region and indirect evidence indicates quarry activity since the Late Iron Age.

A majority of the quarry sites to the north of Helgeland are concentrated from Saltdal to Sørfold and the Ofoten region of Nordland, and from the island of Senja southward in southern Troms (see Fig. 1 and Table 3). Of the quarry sites identified in Nordland to the north of Saltfiellet, two may have been used in the later historic period, and several have the potential for medieval or earlier use. Of the quarry sites recorded in Troms, five recently surveyed locations appear to have the potential for use prior to the Reformation. Only one confirmed quarry site is known in Finnmark (Straumdalen, Sør-Varanger), although there are historical references to potential quarries near Alta and Karasjok.

Research problems related to soapstone production

Given the limited scope of archaeological research conducted with regard to soapstone quarrying in northern Norway, there exists a broad range of research topics awaiting investigation. The following section provides a brief assessment of central problems to be addressed and their attendant challenges. One inescapable attribute of quarry sites is the fact that quarrying often obscures earlier activity so that only the most recent phase is visible, although quarry locations may also have shifted over time thus preserving older evidence. Evidence from the earliest use phases may also lie deeply buried under accumulated waste material. Modern quarry production can also severely impact evidence of earlier use. Widespread sampling of soapstone to evaluate its suitability for the restoration of Nidaros Cathedral has also impacted automatically protected quarry sites.

A fundamental task is the establishment of a chronological framework for soapstone production in relative and absolute terms. This will require detailed archaeological documentation of quarry sites with potential for early use, including the excavation of spoil heaps. Excavation will be essential for tracing changes in quarrying characteristics and the documentation of production phases over time. Problems to be addressed include the degree to which activity was continuous or episodic/seasonal and to what degree it expanded or contracted over time. Detailed recording of evidence for the extraction of different types of objects (shape, size, removal technique, etc.) over time is also necessary. Previous quarry studies have focused on vessels and little data exists on attributes associated with the removal of smaller objects such as sinkers, molds, loom weights, etc.

Documentation of production stages is another key aspect to understanding quarry activity. The degree to which objects were worked on site, from coarse roughouts and blanks to final finishing stages, can provide insights into the organization of production and how this changed over time. Who worked at the quarries - amateurs or specialists? Is there evidence for more intensive activity associated with temporary occupation? Can we document the social structure of quarry activity, such as the degree of elite control vs. unrestricted access? Chiefly control and specialized production is less likely for small objects easily produced by individuals from nearby communities.

Quarry sites should be viewed as integral components of quarry landscapes and documentation of broader archaeological and environmental contexts for the use of quarry sites is necessary. Relevant landscape elements include the importance of agriculture, infield vs. outfield resource exploitation, population distribution, access to transport networks on land and along waterways, and the potential influence of large farms or other power centers for potential control of production. Soapstone artifacts from archaeological sites in the

vicinity of quarries and the presence of waste material or unfinished objects can reveal relationships between production and consumption potentially linked to exchange.

Results of recent soapstone quarry surveys

This section presents preliminary results of joint archaeological and geological surveys of soapstone quarry sites by Tromsø University Museum with NGU geologist Gurli B. Meyer carried out in 2011 and 2012. Results are presented and discussed in light of their potential for future research focusing on the excavation of spoil heaps and geochemical characterization. The surveys were initiated as an extension of ongoing millstone quarry research associated with the research project "Millstone". Geological samples were collected from three quarry sites (Talgrøtholla, Talgrøtberget, Stolpe) and Trondenes Church.

Stolpe - Misvær, Nordland

The soapstone quarry at Stolpe/Stolpelia is one of the most promising sites for potential early use and excavation. The site has been briefly surveyed by Tromsø Museum (Jørgensen, 1986) and several samples of waste material collected. Stolpelia is situated on a hillside at ca. 270-275 m a.s.l. in the outfield of a farmstead ca. 4 km south of Misvær in Bodø Municipality, Nordland. The site covers an area of approximately 40 x 30 m with several contiguous quarrying areas and evidence for the removal of a variety of objects, including partially quarried bowlshaped vessels and rectangular to ovalshaped depressions from smaller artifacts such as molds, sinkers, or loom weights. A rectangular foundation of soapstone blocks has been constructed on a soapstone exposure along the upper quarry margin. There is an overgrown mound near the lower margin of the quarry with waste material that appears to cover earlier traces of quarrying. Earlier guarry activity has been impacted by



Fig. 2. Evidence of modern soapstone removal at Stolpe. Photo: S. Wickler

a small scale modern quarry with an access road and the removal of soapstone slabs by drilling (Fig. 2). Geological evidence indicates that the soapstone deposit, which occurs within a gabbro, can extend more than 200 m. The material is fine-grained and of good quality and has been sampled by NGU through drilling.

The Misvær area has had a mixture of Norse and Sami influences and settlement representing both ethnic groups extending back at least to the twelfth century based



Fig. 3. Vertical soapstone face at Talgrøtholla. Photo: S. Wickler



Fig. 4. Traces of quarry activity at Talgrotberget that have been protected by turf. Photo:S.Wickler

on excavation results from residential sites at Vestvatn in Misvær and Eiterjord in Beiarn (Munch, 1967). Soapstone artifacts from these sites exhibit close similarities (e.g. small ladles with decorated handles) and use of the quarry at Stolpe is likely to reflect the multiethnic nature of settlement in the area.

Talgrøtholla - Kvæfjord, Troms

This quarry site is located in a steep sided bowl-shaped valley below the mountain peak Horntinden to the south of Hemmestad. The soapstone exposures occur at ca. 630 m a.s.l. in an area with frequent rockslides, with vertical bedrock faces (Fig. 3) and loose blocks spread across the valley floor. Gunnerus (1761, p. 273) was the first to

Fig. 5. Soapstone exposure with quarrying evidence at Kanebogen. Photo: S. Wickler



mention the quarry and Lund (1954) visited the site but was unable to locate specific guarry locations. According to local residents, the quarry had been used historically for stoves, sinkers, etc. The site was surveyed by archaeologist Asgeir Svestad in 1990 (see Askeladden ID 8814) who reported traces of quarrying in rock faces at two locations and the presence of waste material and roughouts at the top of a steep slope, some of which were collected (Ts. 6554). Subsequent surveys were undertaken by the Trondarnes District Museum in 1993 and Amundsen and Singstad (1999) who identified some traces of potential quarrying. No definite evidence of quarrying activity was seen or waste material identified during our survey in 2012. Speculation that this quarry supplied stone for Trondenes Church appears unfounded on the basis of available survey results.

Talgrøtberget (Nyeng) – Sørreisa, Troms

As with Stolpe, this quarry is automatically protected and was probably in use by the Late Iron Age. The soapstone source consists of a freestanding exposed bedrock outcrop largely covered by glacial overburden with an overhang area about 2.5 m deep and 3 m high. The quality of soapstone is highly variable including both coarse-grained material and dense, fine-grained veins (Lindahl, 2013, p. 6). The main quarry area is ca. 80 x 30 m with traces of quarrying concentrated around the outer margins of the upper rock surface and along the vertical sides. A substantial area with earlier quarry evidence lies undisturbed under a layer of turf (Fig. 4). Initials and other graffiti, both modern and historic, have been carved into the rock surface and removal of soapstone during World War II has damaged some earlier quarry evidence (Lindahl, 2013, p. 6). Traces of production vary in shape and size including larger vessels and numerous smaller rectangular depressions. As part of a Fotefar mot Nord project (Sandmo, 1997), an information sign and gravel parking area have been placed next to the quarry. Preparation



of the parking area appears to have cut into a substantial spoil heap deposit, from which a sample of soapstone waste was collected by NGU. The areal extent and depth of the spoil heap deposit at Talgrøtberget is unknown but appears sufficient to warrant excavation.

Kanebogen - Harstad, Troms

This is a small quarry site situated along the shoreline of a small embayment adjacent to a campground to the south of Harstad and has been briefly surveyed by Tromsø Museum (Jørgensen, 2000). Quarrying evidence covers a roughly 10 x 10 m area extending from the high tide level up to 2 m a.s.l. with traces restricted to rectangular depressions up to 25 x 40 cm although many are smaller (Fig. 5). Evidence for the removal of similarly shaped objects, which may include larger fishing line sinkers (jarstein), also occurs at Talgrøtberget and Stolpe. The quality of stone is highly variable and much of the source is not actually soapstone. Given its low elevation, quarry activity is likely to have been relatively recent, although no written sources or oral traditions appear to refer to the site.

Trondenes Church – Harstad, Troms Trondenes Church was inspected in conjunction with the survey of nearby quarry sites and is therefore included here (Fig. 6). As the northernmost medieval stone church in existence, sourcing the soapstone used in the construction of Trondenes Church is of considerable interest. The existing church building is said to be from the thirteenth century but dendrochronology has placed its completion at ca. 1434 (Eide, 2005). Although many types of soapstone were used in the church, no sources have yet been identified (Lindahl, 2013, p. 7). A majority of the soapstone is light colored and quite coarse grained, and is typical of material formed from ultramafic rock types such as peridotite and Iherzolite. These can come from a number of different small sources in the region (e.g. Sørreisa, Gratangen). Some of the rock is a chlorite soapstone that is fine grained and greenish. A sample of soapstone removed during restoration of a portal was obtained from Harstad geologist Peter Midbøe, but apparently much of the original soapstone was discarded during restoration (P. Midbøe, pers. comm.).

Potential for future soapstone researchGiven the currently limited state of knowledge

Fig. 6. View of Trondenes Church taken from the south. Photo: S. Wickler

concerning soapstone production and use in northern Norway, there is a need to address fundamental research issues related to chronology, production strategies and organization, frameworks for exchange and trade, and sociocultural contexts, including multiethnic expressions of identity.

Excavation of spoil heaps associated with soapstone quarry sites should be a priority in order to establish a general chronological framework that will allow a broader range of issues to be addressed. Based on collective survey results, the most promising quarry sites in each of the three northernmost counties appear to be Stolpe in Misvær, Talgrøtberget in Sørreisa, and Straumdalen in Sør-Varanger, eastern Finnmark. Excavation should be planned and undertaken in close consultation with the aid of geological expertise, and preferably the direct participation of NGU in field investigations. This will also be of critical importance in selecting material for geochemical analysis.

Research to date has focused almost exclusively on the production and use of soapstone within a Norse (Germanic) cultural context which fails to take into account the complex multiethnic situation in northern Norway. Finnmark and other areas with predominantly Sami settlement have been largely ignored. Although eight soapstone sources and three quarry sites have been reported in Finnmark, only Straumdalen in Sør-Varanger has been surveyed (Helskog, 1975). This site covers an area of ca. 150 x 40 m with multiple quarry locations and a potentially thick waste deposit. The site lies

within a core Sami region in close proximity to settlements of central importance from the Early Metal Period and Stone Age, including Kjelmøy which is only 20 km away. Both soapstone objects and soapstone tempered ceramics have been found at Kjelmøy and other Early Metal Period sites in the area.

Attempts at geochemical characterization and sourcing of soapstone have been limited in northern Norway but have the potential for producing worthwhile results given the recent advances in geological methods and characterization of soapstone sources. Geochemical analysis of soapstone temper has not yet been attempted and may have considerable potential for both Kjelmøy ceramics (Olsen, 1984, p. 37) and bucketshaped pots from the later Roman Iron Age and Migration Period (AD 350–575) (Engevik, 2010).

Despite the many challenges and unanswered questions related to soapstone in the North, recent efforts and the promise of increased attention to this field of research in the near future should provide results leading to better understanding of the important role played by soapstone since the Stone Age.

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