Ingvild Øye



Introduction

This volume contains 20 papers initially presented at the conference *The outfield/wasteland – 'utmark' – as industry and ideology in the Iron Age and the Middle Ages*, in Bergen in September 2003, the second international conference on the theme. The first, *Utmark (Outland)*, was held in 1996 in Torsby in Sweden, organised by the University of Lund (Andersson, Ersgård and Svensson 1998).

The aim of the Bergen conference was to illuminate the structure and content of such landscapes in a long time perspective, from the early Iron Age to the end of the Middle Ages – a formative period of the European landscape, also when 'marginal' land is concerned. The marginality of such areas may, however, be contested. In the early Middle Ages, they were places of innovation and change: stone industry, iron-, charcoal- and tar production, mountain farming, etc. They were, however, also areas of conflict and social contrasts, and people who worked or lived there may have not only used them but also experienced and conceptualised them differently.

The articles in this volume cover important aspects in the interface between culture, nature and cultural heritage and are concentrated around four main themes: Use of the resources in outfields and wasteland, territorial rights and organisation, belief and tradition in outlying areas, and areas of conflict. The gravitational centre is Norway and Sweden, but the different topics are also seen in a broader geographical perspective, from the Faeroes, Ireland and England to the west, Poland and Russia to the east and Switzerland to the south.

The concept 'utmark'

The Scandinavian concept 'utmark' lacks a corresponding denotation in English terminology. The term denotes natural-geographical environments such as forests, moorland, mountains and coastal areas, and economic, social and cultural aspects of these landscapes as parts of agricultural systems, as a complementary component to the infield. The concept can, however, also denote the resources, use and production in areas on the periphery of the core settlement seen in their own context. In the first sense, 'utmark' may perhaps best be translated with the terms outfield or wasteland. The English noun *outland* has, however, been used to cover its wider meaning. As

UBAS International 1 9

outland may also have other connotations, the term *utmark* has been used in this volume without being translated to express this double meaning.

The concept of *utmark* is rather young. People in the Middle Ages – and probably earlier – lacked a common concept to denote all these categories the noun 'utmark' now embraces. Farms were the main settlements in the Iron Age as in the Middle Ages, and in Norway, as far north as around 70° N. Essentially, Iron Age and medieval farms consisted of two complementary components that reflected a mixed and integrated cattle and arable economy: on one hand the farmland proper within the fence (*innan garðs*), consisting of plots of arable land, meadows and enclosed pastures; and on the other, the outlying portion of the farm – outfields and wastelands outside the fence (*utan garðs*). Medieval people used several words to distinguish between these different areas and defined and structured them according to the farm and its territories, inside and outside the main fence (Old Norse *garðr*). To these two main parts of the farm proper was added common wasteland further away within the farm's outer boundaries (*innan stafs*), containing pastures and forest (figure 1). Further away, the commons were denoted by the term *almenningr* – areas open for 'all men'. By the high Middle Ages, the King had overlordship to the commons in Norway.

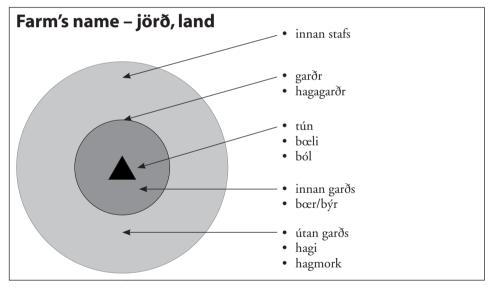


Figure 1. Terms for the different zones within the medieval farm.

Today, 'utmark' simply means an outlying field or area, indirectly as a complement and a contrast to the infield, innmark, and consequently still related to the farm and the farmer. It has, however, become used in a wider sense, embracing all inhabited and generally uncultivated land, and this is also how the present Norwegian law defines 'utmark'. The law clearly defines areas, such as shielings (Norw. seter), outlying meadows, pastures and forests, as *utmark*. Here, the general public has free access, whoever is in ownership. Rights of usage are, however, more restricted and use for

commercial purposes is limited to the owners or group of owners in common. The concept 'utmark' also includes commons, forests and mountainous areas where one or several rural communities have juridical rights of usage based on customary law. In Norway, the coastline also represents an important *utmark*. It is in this wide sense of the word 'utmark' is used in this publication.

'Utmark' as a field of research

In Norway, the areas covered by grazing land, forests, moors, rivers, tarns and lakes are extensive, and less than three per cent of the total land mass has ever been under cultivation. Still, these vast areas have not attracted a corresponding archaeological interest. Over the last two or three decades, however, archaeological research has revealed a rich and varied material in the outlying areas, promoted by the Norwegian Cultural Heritage law in connection with projects related to the establishment of new hydroelectric power and oil related industry. So far, the biggest project is initiated in connection with the establishment of a new regional military training and firing range in Østerdalen, Gråfjell, in south-east Norway, close to the border of Sweden. A comprehensive archaeological survey project is now completed in this area. A total of 230 square kilometres have been mapped, resulting in the identification of about 3000 cultural monuments of which approximately 2200 date from the Middle Ages or earlier.

These large-scale rescue excavations and surveys have given new insights into several aspects of land use in such areas, for instance shieling systems, especially in the mountainous areas in western Norway (among others, Magnus 1983, Bjørgo et al. 1992). Areas that earlier were regarded as marginal and unimportant land have also received a new interest and gained new importance. Notably, the heathland landscapes in the coastal areas have become an important field of interdisciplinary research (P.E. Kaland 1979, S. Kaland 1979, 1987, Kvamme 1982). Investigations in forested areas in eastern Norway have also revealed extensive cultivation, based on slash-and-burn methods from the early Iron Age to the early Modern period, differing from the more intensive cultivation closer to the settlements (Pedersen 1990, Holm 1995, 2004). Iron extraction and production, including char burning is another new important field of research in Norway, especially in Central Norway, Trøndelag, and the uplands of Østlandet (Farbregd, Gustafson and Stenvik 1985, Martens 1988, Narmo 1996, 1997, Stenvik 2003). Large-scale hunting systems in inner parts of Østlandet have additionally been investigated (Mikkelsen 1994). Finds from these investigations have also been interpreted as traces of dual ethnicities (Bergstøl 1997).

Resources

In all preindustrial rural societies, the economic basis presupposes as wide a resource territory as possible. The rural communities provided food and non-food commodities for themselves as well as for the growing urban communities from the early Middle Ages onwards, and larger supplies were gathered from the outlying areas. Pastoral

farming was important all over Norway and particularly so in the western and northern parts of the country, where the areas of arable land were most limited. The wealth of grazing and other fodder resources of outfields and wasteland gave Norwegian farming a special character and position in a north European perspective; a position it shared with more peripheral parts of Sweden and the north Atlantic islands which were settled by Norse colonists in the Viking period. The use of the outfields was vital not only for the farming economy. Products like fish and sea animals, wild game and fowl, herbs and berries, and products of metals and other minerals were important, not only in the local rural households but also in urban economy and in a wider network of trade and barter.

Along the coast, there were two kinds of *utmark* – the one on land and the other at sea. Reidar Bertelsen clearly demonstrates the importance of the sea in the northern part of the country, even in areas regarded as typical farming communities. Here, the sea offered a wide range of vital resources, sea birds and sea mammals, but most important was cod and other kinds of white fish. The coastal 'utmark' in northern Norway also provided larger parts of the growing population in northern Europe with its important supplies of dried fish.

Long before the Viking period, the grazing resources of more distant, high lying areas in valleys and mountains were exploited from seasonally occupied sites, setre, comparable to British shielings. People would move with livestock to seter huts and pastures in the summer season. They occupied themselves with dairy production, collection of winter fodder, hunting, fishing and perhaps also production of iron from lake or bog ore in some parts of the country. In Norway, three different types of seter systems can be traced back at least to the Middle Ages, and the different types could be used in combination. The first type that was common in western and northern Norway was located within the farm area itself, normally in the outfields within the farm's boundary. The second type, common in the upland areas of Østlandet and Trøndelag, was primarily connected with hay-making and the collection of other types of fodder. The third seter type was located in upland valleys and mountains, where people and animals stayed throughout the summer months. Generally, one gets the impression that the common wasteland used for seter and other types of exploitation was, by the high Middle Ages, far from being a no-mans land. Farms, or groups of farms, had established exclusive customary rights and the areas were subject to a fairly strict system of use and management.

New archaeological investigations have demonstrated that these systems are older than has previously been proven on the basis of written records. The systems were also adopted in the Norse settlement areas to the west, for instance the Faeroes and Iceland. Marit Skrede gives an overview of new archaeological results from an investigation in western Norway, focusing on two sites at respectively 800 and 650 m.a.s.l. in the mountain valley of Friksdalen in Sogn (figure 2). The highest lying and most nucleated site, Svolset, comprising 16 house grounds, can be dated to the Roman period and was deserted by the end of the late Viking period, when the

settlement was moved to the lower lying site. The house remains here, dated to the Middle Ages and later, were different and less nucleated. Both sites are interpreted as shielings, run and controlled by one of the biggest farms in this part of the country, showing the importance of this kind of surplus production for power and economy at an early stage.

The Swedish project 'Settlement, shieling and landscape' also studied shielings and the varied use outlying areas contextually, related a single hamlet in the periphery of northern Värmland in Sweden. Susanne Petterson presents the methodology involved and the main results. By employing interdisciplinary methods, it possible study settlement the development and the fluctuations over a period of about 1200 years, starting from around AD 500. The activities included not only use of shielings, forest grazing and haymaking, but also cereal cultivation, bloomery iron production and the use of pitfalls for elk - a production intended for both self-subsistence and

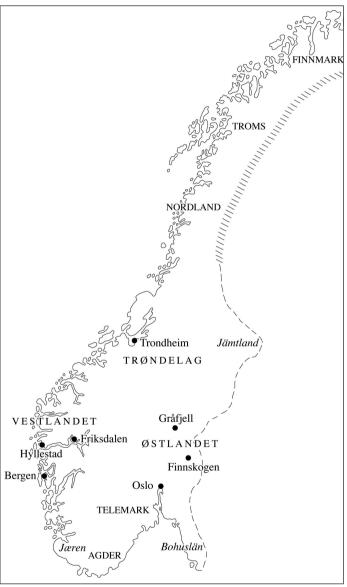


Figure 2. Norway with its medieval boundaries and places mentioned in the text.

for producing retail goods. The production of retail goods fluctuated with the market opportunities; expanded when the market increased and conversely, and production

for self-consumption decreased in periods of market decline. By producing goods for sale, the forest farmers developed a strategy that made them able to maintain a consumption of goods in accordance with their desired social position.

The extensive Gråfjell project in Norway has also revealed a multifaceted use of the outlying areas – hunting systems as well as shielings, grazing and hay-making and activities related to animal husbandry (cf. figure 2). The vast majority of them are, however, associated with iron-extraction activities during the period from about 950 to 1250 AD. Ole Risbøl discusses questions concerning modes of production as well as challenges related to the management of this heritage in land-use planning. A central issue concerns how to define and evaluate cultural environments in such vast areas – questions that are also relevant for cultural heritage management and protection of extensive outlying areas on a more general level.

Some of the outfield activities known in Norway were at an early stage transferred to the Norse settlements in the west, including the Faeroes. Simun Arge presents and characterises some of the physical remains in the Faeroese outfields against their cultural, social and economic background. As in Scandinavia, there has been an increasing interest in the cultural history of outlying areas. Although several traces and remains have been recognised, much of their function and origin is still rather obscure. Arge argues that even if they may appear insignificant, they constitute an important source material with the potential to illuminate economic and social matters in the islands' early history.

Switzerland is one of the countries in Central Europe which often is considered as a parallel to Scandinavia when it comes to outfields and wasteland. Settlements in the mountainous zones of the Alps differed from settlements in the occidental-Mediterranean zones. Werner Meyer demonstrates how the harshness of the natural environment in this area gave other conditions for economic expansion than in the more central regions. Furthermore, how the poorer mountainous zones were often ignored and developed a reputation for backwardness because of the impossibility of utilising various medieval technical innovations.

Still, special resources and techniques were developed in the Swiss Alpine region, as well as in other regions. Letizia Heyer Boscardin gives an insight into the techniques and use of soapstone, which was mined here for many centuries. She explains how it was worked into useful objects, like cooking vessels and pots from the pre-Roman period into the Middle Ages – and how these techniques and use of the raw material developed during the period. The method of mining soapstone depended on the different regional-geological deposits of this raw material. In the Swiss Alpine regions, the most advanced techniques have survived to the present, while in other regions only an 'antiquated' method was known.

Rights to the 'utmark'

Outlying areas thus offered possibilities for creating surplus, but, at the same time, demanded a wider organisation and a network for larger scale distribution. Power and conflicts in these areas represent a neglected field of research. The second theme in

the conference therefore focused on the socio-economic aspects concerning property rights, possibilities and limitations of rights of usage. To what extent were these areas commons or under private control and disposal?

In medieval Norway, around 70 percent of the farms, measured by their value, were farmed by tenants who leased the farms. Renting of land involved not only the right to farm an agreed proportion of arable land, but also a complex bundle of use rights, such as common rights of meadow and pasture, access to woodland and use of parcels of land that could be held in severalty. In general, tenants had a right to timber and wood for use on their farms and to build their own boats. Conversely, it was prohibited to take timber or wood out of the farm for profit. Thus, the larger landowners, represented by the Church, King and magnates in the Middle Ages, appeared as entrepreneurs in the *utmark* areas and extracted significant amounts of the surplus. There was thus a tension between the rights of landowner and tenant over woodland and other wasteland. Ownership of production areas that could be utilised for surplus production was an important economic basis for the elite.

One of the largest production areas for quernstones in Norway is located in Hyllestad in Sogn at the outlet of the Sognefjord – constituting an area of some 27 square kilometres (cf. figure 2). Archaeological investigations in some of the quarries indicate that the production goes back to the end of the Merovingian period, with a peak in the high Middle Ages. Irene Baug shows the importance of these products and their wide distribution, from the Baltic in the southeast to Iceland in the northwest. In the Viking period, most of the quernstones were exported to early towns and market places in southern Scandinavia, and the activity continued into the Middle Ages, when the distribution was organised through towns. Both the production and distribution thus indicate a highly organised activity with the establishment of a strong trading network as early as in the Viking period. The activity was most likely controlled by a social, economic and political elite. In the late Iron Age, local chieftains might have been in control of production and exchange, while different ecclesiastical institutions owned the area in the Middle Ages. This also means that the people who worked and lived in the area were not those who initiated and organised the work in the quarries.

The new focus on *utmark* activities in 'marginal' areas outside the habitation core areas, has consequently revealed that the social and economic development of agrarian settlements is better demonstrated here than in the core areas. The extent of landscape utilisation and the social organisation of the labour force may also reflect the potential and the complexity of the society. In his paper, Søren Diinhoff focuses on the corresponding expansion in the use of the *utmark* and the demand for higher production in early farming communities in western Norway. An economy dependent on surplus production was made possible as a result of a more complex society with an elite who were able to organise the means of production and provide a stable trade network. It was the resources in the outlying areas that in their turn made it possible to produce the needed surplus upon which this new and more complex society was based. Quernstones were only one of these products.

Looking to England, we find similarities, but also differences compared with Scandinavia. Carenza Lewis looks closer at *utmark* in medieval southern and eastern England, the uncultivated and thinly settled landscapes which are largely lost today, transformed long ago into arable fields and settlements. Here, she considers the nature and extent of such 'lowland utmark', the use of the concept of marginality in understanding such land, and the factors which affected its development, persistence and transformation. Although little of it remains today, much of medieval lowland England was utmark, but was extensively reduced by settlement and agriculture throughout the Middle Ages. Still, it was also valuable in its own right for the resources it provided. It was in no way inherently environmentally marginal to settlement, even that of a fairly intensive nature. Lewis points out that the fate of utmark seems to have not been the consequence of any externally derived factor of technology, economy or even socio-political status. This destiny was rather due to case-by-case anthropogenic factors, where such outlying areas could provide zones of opportunity: dynamic, resourceful, adaptable and resilient. In the Middle Ages, this was increasingly determined by human decision-making and the short- and longterm consequences of those decisions made in a period when lords' decisions were increasingly determined by market and economic imperatives.

Worldview

In European folklore, outlying areas have been looked upon as hostile environments – a wilderness. This oral tradition can provide information on how the history of ancient monuments has changed and accumulated through the centuries. Archaeologists have also employed Norse mythology to help interpret the cognitive aspects of landscape structures. Symbolically, fencing expressed a scheme for ordering the universe, by which different parts of the land served as dwelling places for the deities, human beings, giants and other forces of chaos of Norse mythology. Archaeologists, who are trained to survey and interpret the concrete, physical structures and monuments, have, more or less consciously, used this outlook as an analogy or model for the Iron Age and medieval period. Is it possible to search for alternative ways of interpretation and cognition when studying the relationship between people and nature in these periods? How did cosmologies affect daily routines in the landscape? The beliefs and traditions connected with *utmark* were therefore chosen as a third theme.

Gro Steinsland discusses the possible parallels between the ideas of *Utgard* on a macrocosmic level and the outfield on a microcosmic level. According to Steinsland, Norse cosmology and its world forces are so diverse that no one has yet succeeded in constructing a fully satisfactory, simple model of the pre-Christian worldview. To her, the best illustration of the complex Norse worldview is a circular, horizontal model where one 'home' encloses the other in concentric circles, with energies radiating outward from the cosmic centre where the gods are situated. Although the cosmological conceptions of *Utgard* may have parallels in the conceptions of the outfield, and that myths and everyday practices seem to have corresponded in some

ways, she finds that more cross-disciplinary empirical research is needed for these conclusions to be fully substantiated.

Mats Mogren discusses the possibilities of understanding traditionally 'processualist' themes, such as settlement and production, in a cognitive perspective based on concepts of cognitive control of the landscape, a pre-modern cognition of time and the temporality of the landscape. He uses a forested area with sparse population and limited arable land around a lake in Ängersjö parish in the Swedish southern taiga region as a case study. Here, Mogren underlines the mutual importance of time for the interpretation of space and how the production-remains in forests also can be about memory.

Eva Svensson draws attention to another aspect, the gender-defined social space, based on studies of two settlements – a farm and a hamlet located in the forested areas of northern Värmland in the west of Sweden and their outlying areas in the late Viking period and early Middle Ages. Here, she has studied the spatial distribution of 'work-related' artefacts and visible monuments and other physical remains related to outland use. She finds that the social space at the settlement sites and within the outlying areas appears to have been organised on a mixed gender basis. The female tasks at the settlements were, however, of a more repetitive character and intended for production within the household itself, whereas the male occupations more often involved the production of goods for retail. The male tasks, for their part, gave a physical structure to the landscape of the outland, as these activities often included creating physical monuments, while the female tasks left less visible traces. According to Svensson, male domination and female subordination seem to have dominated the social arenas in the forested areas of central Scandinavia.

Ingunn Holm brings another group to the fore – the Forest Finns – a group of people who originally lived in Savolaks in Finland, where they probably during the Middle Ages took up farming, growing a certain sort of rye, using a slash-and-burn technique, in old spruce forests (cf. figure 2). Some of them moved to Sweden and Norway by the end of the sixteenth and the beginning of the seventeenth centuries, where they established small communities in the wide forested areas on the border between Norway and Sweden. The oral tradition of Finnskogen, the forest of the Finns, gives insight into their abilities as sorcerers, sharing traits with the arctic shamanism of Northern Eurasia. They were able to walk considerable distances through wide forests to find places where they could make a swidden. Holm discusses their conception of the landscape and how they structured their landscape and organised it in belief and tradition. It seems that the Forest Finns looked upon the landscape as somewhat 'unlimited'.

It is a long way from the deep forests in Norway to the Pangwa of south-western Tanzania, where Randi Barndon has carried out ethno-archaeological and ethnographic research among the Pangwas. In her paper, she illustrates how proto-industrial or premodern iron metallurgy was associated with local concepts of morality. The Pangwa perceived the ritual, technological and everyday mundane activities also as *moral*

stages, where people perform and negotiate over right and wrong or good and bad in line with an overall bodily based metaphorical scheme. With a *thermodynamic way* of thinking, in which the body must be in balance, people undertake technological activities in their daily lives, at home or when out in the wasteland.

Ethnicity – conflicts of land use?

Ethnic groups with some kind of hunter/gatherer economy have probably lived in the forests and mountains in parts of Scandinavia. In Northern Scandinavia, a Sámi population existed at least from the early Iron Age, perhaps as early as the Scandinavian Bronze Age. Some time during the Iron Age or the early Middle Ages, the Sámi established themselves as an ethnic group in Central Scandinavia. Also in other parts of Europe, there may be ethnic relations which have structured the use of the landscapes and certain kinds of activities may therefore be ascribed to certain ethnic groups.

While the history of the Sámi in the north is fully acknowledged, the same is still not the case for the South Sámi in central Scandinavia. Today, it is possible to present a new view of the course of history of the Sámi in this area. Inger Zachrisson makes it clear that the Sámi have a very long history also in Central Scandinavia, from the Iron Age and Middle Ages. She points out that new archaeological results are, in addition to written sources and linguistic evidence, presently being used in a major legal action in Sweden. Compared with the legal situation in Norway, she finds that the Swedish government appears as weaker in respect to acknowledging the South Sámi.

Jostein Bergstøl criticises the use of the concept *utmark* for having a cultural bias and for being irrelevant seen from a Sámi point of view. As the dichotomy infield/outfield is a structuring principle and contextual concept, derived from the typical Scandinavian farming communities' way of structuring their surroundings and understanding the world, he finds the concept to be too culturally loaded to serve as an analytic tool. Bergstøl therefore argues that it should be replaced by more neutral terms.

Ireland is another country with ethnic conflicts. Kieran O'Conor points out the differences between the landscapes of Gaelic-controlled and Anglo-Norman dominated parts of high medieval Ireland. He uses castles as an expression of these underlying differences and conflicts. Castles, whether made of mortared stone or earth and timber, were rare in Gaelic Ireland before the very late fourteenth century, and the ones that did exist before that are remarkably simple in their design. This lack of castles is not due to the Gaelic lords' inability to erect such structures, but rather a reflection of the way Gaelic society was organised politically, socially, economically and militarily during this period. This fact serves as a reminder that there were and are ways of exhibiting high status in any given society other than building large architecturally complex structures such as castles.

In Russian archaeology, the history of colonisation of the northern outlands of Rus', the economic development of the forest zone of Eastern Europe, and the cultural

situation in the North has traditionally been seen as two separate problems with little in common. Nikolaj Makarov points out that the gap can partly be explained by their traditional approaches, and partly by the lack of relevant archaeological material allowing insight into the economic and cultural history of separate local communities. Here, he focuses on the archaeological material from investigations of the Minino sites near Lake Kubenskoe near Vologda. These have been able to give new insight into the economic expansion in this periphery. The author has demonstrated specific patterns of subsistence and exploitation of natural resources, and cultural development of separate groups of medieval population.

In the last paper in this volume, Pzremoslaw Urbanczyk presents an example from Central Europe of how physical boundaries, in this case, a small and apparently insignificant river, the Dzierzgo river, can serve as an important divider over a long time span. For more than a millennium, this small river served as a borderline and not even changing cultural, ethnic, political and administrative situations eroded this divisional function. He finds the river's importance thought provoking – but without finding a rational explanation for its status.

It is our hope that the different and diverse aspects of *utmark* presented in this volume will give further food for thought and stimulate further research on such landscapes among its readers.

References

- Andersson, Hans, Lars Ersgård and Eva Svensson (eds.) 1998: Outland Use in Preindustrial Europe, Lund Studies in Medieval Archaeology 20, Lund
- Bergstøl, Jostein 1997: Fangstfolk og bønder i Østerdalen. Rapport fra Rødsmoprosjektets delprosjekt "marginal bosetning". Varia 42. Universitetets Oldsaksamling, Oslo
- Bjørgo, Tore, Siv Kristoffersen, Christopher Prescott 1992: Arkeologiske undersøkelser i Nyset-Steggjevassdragene 1981-1987. Arkeologiske rapporter 16. Historisk Museum, Universitetet i Bergen. Bergen
- Farbregd Odmund, Lil Gustafson, Lars F. Stenvik 1985: Undersøkelsene på Heglesvollen. Tidlig jernproduksjon i Trøndelag. Viking, tidsskrift for norrøn arkeologi, bd. XLVIII. Norsk arkeologisk selskap, pp 103–129, Oslo
- Holm, İngunn 1995: Trekk av Vardals agrare historie. Varia 31. Universitetets Oldsaksamling. Oslo Holm, Ingunn 2004: Forvaltning av agrare kulturminner i utmark. Doctoral thesis in archaeology, University of Bergen
- Kaland, Peter Emil 1979: Landskapsutvikling og bosetningshistorie i Nordhordlands lyngheiområde. (eds. Rolf Fladby and Jørn Sandnes). På leiting etter den eldste garden. Nye metoder i studie av tidlig norsk bosettingshistorie, pp. 41-70. Oslo
- Kaland, Sigrid H. H. 1979: Lurekalven, en lyngheigård fra vikingtid/middelalder, (eds. Rolf Fladby & Jørn Sandnes). *På leiting etter den eldste garden. Nye metoder i studie av tidlig norsk bosettingshistorie*, pp. 71–86. Oslo
- Kaland, Sigrid H. H. 1987: Viking/Medieval Settlement in the Heathland Area of Nordhordland. Universitetets Oldsaksamlings skrifter. Nye rekke nr. 9. Proceedings of the Tenth Viking Congress, ed. James Knirk, pp. 171–190. Oslo
- Kvamme, Mons. 1982: En vegetasjonshistorisk undersøkelse av kulturlandskapets utvikling på Lurekalven Lindås i Hordaland. Master thesis in botany, University of Bergen
- Magnus, Bente 1983: Seterdrift i Vest-Norge i yngre jernalder? En foreløpig rapport om en undersøkelse. *Hus, Gård och Bebyggelse* (ed. Guðdmunður Olafsson), pp. 93-104. Tjodaminasafn Islands. Reykjavik

- Martens, Irmelin 1988: Jernvinna på Møsstrond i Telemark. Norske oldfunn 13. Universitetets Oldsaksamling, Oslo
- Mikkelsen, Egil 1994: Fangstprodukter i vikingtidens og middelalderens økonomi. Organiseringen av massefangst av villrein i Dovre. Universitetets Oldsaksamlings skrifter. Ny rekke; nr 18. Oslo
- Narmo, Lars Erik 1996: Jernvinna i Valdres og Gausdal et fragment av middelalderens økonomi. Varia 38. Universitetets Oldsaksamling, Oslo
- Narmo, Lars Erik 1997: Jernvinne, smie og kullproduksjon i Østerdalen. Arkeologiske undersøkelser på Rødsmoen i Åmot 1994- 1996. Varia 43. Universitetets Oldsaksamling, Oslo
- Pedersen, Ellen Anne 1990: Rydningsrøysfelt og gravminner spor av eldre bosetningsstruktur på Østlandet. Viking. Bind LIII-1990, pp. 50-66. Oslo.
- Stenvik Lars F. 2003: Iron production in Scandinavian Archaeology. *Norwegian Archaeological Review. Vol. 36, No. 2.* Taylor and Francis ltd., London