INGRID YSTGAARD
Department of Archaeology and Cultural History, NTNU University Museum
Department of Historical Studies, Norwegian University of Technology and Science
ingrid.ystgaard@ntnu.no

Preface

ØRLAND AND VIK: GEOGRAPHY AND ARCHAEOLOGY

Ørland is a flat, low-lying peninsula, situated on the Norwegian coast, at the mouth of the Trondheim fjord (Figure 1). The name of the peninsula means the land of the flat, wide tidal zone (Schøning 1979:283). The Trondheim fjord reaches far inland, and connects the important sea route along the Norwegian coast to one of Norway's main agricultural regions on the eastern shores of the Trondheim fjord. Records of several harbours in the outer Trondheim fjord area show the region's significance in communications and trade in ancient and historical times (Henriksen 1997:102-108, Sognnes 2005:188-189, Berglund & Solem 2017). The coastal region in central Norway is very rich in marine resources and has a long history of fisheries (Elvestad 1998). The landscape in the coastal region is less well suited for crop cultivation, but the fertile Ørland peninsula with its marine sediments constitutes an exception (Herje 1984:4, Berger 2001:33-34). Due to the strategic significance of its geographical position, and to the rich marine and agricultural resources, the outer Trondheim fjord area in general and Ørland in particular have a very rich archaeological record (Berglund & Solem 2017, Figure 2). In the eastern, higher lying parts of the peninsula there are several traces of Bronze Age occupation and ritual activities (Henriksen 2014:157). Bronze axes have been found in Astrått, Hovde and Storfosna (Henriksen 2014:172, Berglund & Solem 2017:209). A birch bark vessel containing so-called bog butter, dating to the transition between the Bronze Age and the pre-Roman Iron Age, was found in Røstad (Henriksen 2014:157). Across the peninsula, there are several Iron Age burials. The burials tend to be particularly well preserved. Iron Age burials contain both weaponry and jewellery. They also often contain preserved remains of the deceased, as a result of the calcareous, shell-sand soils (Herje 1984:4, Stuedal 1998). There are several recorded and preserved large burial mounds with a diameter of more than 20m (Figure 2, Forseth & Foosnæs 2017, cf. Ringstad 1987, Berglund & Solem 2017). There has also been found payment gold at Røstad near Austrått (Berglund & Solem 2017:209). A number of settlement sites from the Iron Age and medieval periods have been excavated in recent years (Grønnesby 1999, Birgisdottir & Rullestad 2010, Mokkelbost & Sauvage 2014, Sauvage & Mokkelbost 2016, Eidshaug & Sauvage 2016, Ellingsen & Sauvage Ch. 13). There are records of at least three medieval churches that no longer exist (Brendalsmo 2001:291-293). Two medieval churches are still standing at Viklem and Austrått,

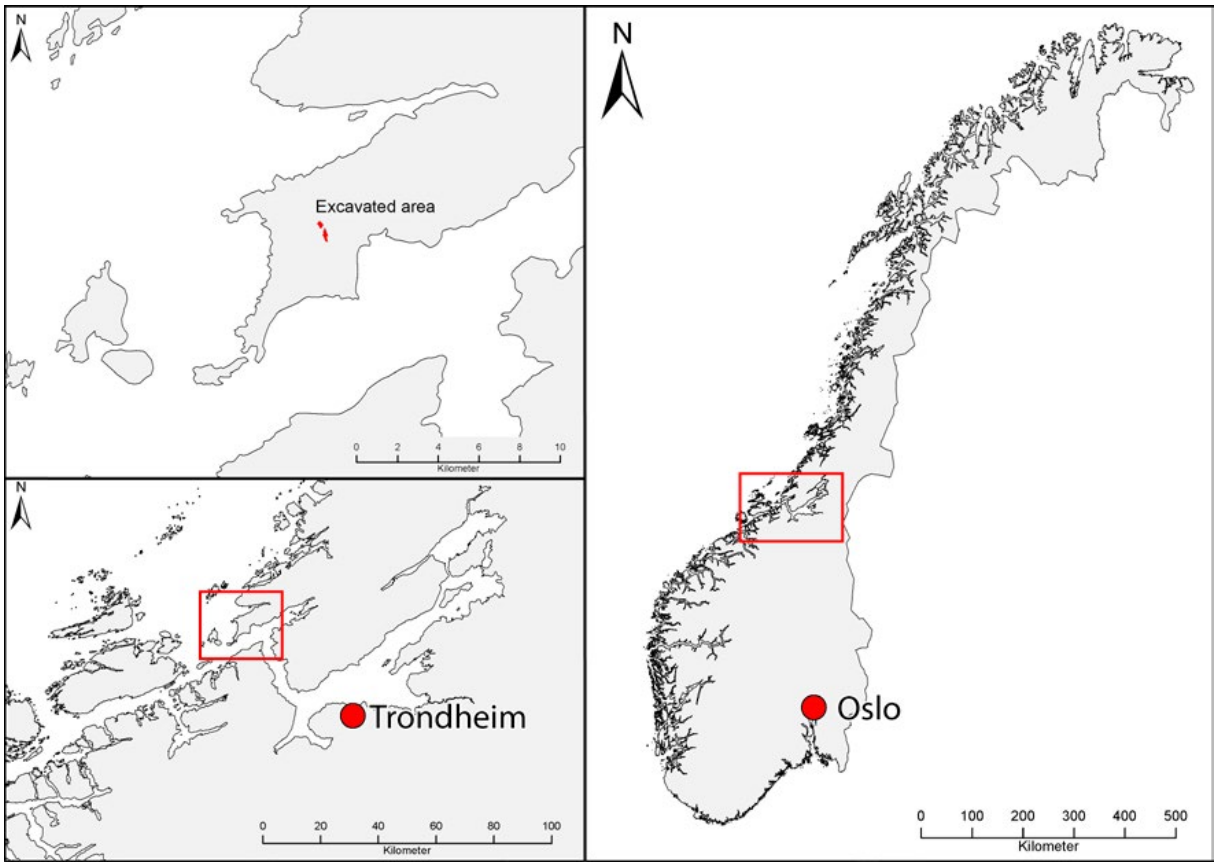

Figure 1. The location of the excavated area at Vik. Illustration: Magnar Mojaren Gran, NTNU University Museum.

the latter forming part of a 16-17th century manor complex (Andersen & Bratberg 2011:66). The number of preserved Iron Age burials, large burial mounds, medieval churches, and large-scale Iron Age settlement sites excavated in Ørland places it among the areas in central Norway with the highest densities of Iron Age and medieval remains (cf. Forseth & Foosnæs 2017).

Today, Vik lies on on a marked, dry ridge, c. 11m above sea level, in the central parts of the Ørland peninsula. However, the name of Vik together with the shape of today's landscape reveal that in earlier times, Vik (meaning bay) was indeed situated next to a large, shallow bay which covered large parts of what is today dry land. The flat profile of the land, combined with the land upheaval after the last Ice Age, has caused profound changes to the landscape since Ørland rose from the sea in the last part of the Bronze Age and right up to today. Archaeological remains reveal that Vik had a central and strategic position in Ørland during the Early Iron Age (for the Norwegian chronological scheme see Table 1). A number of graves have been excavated along the ridge at Vik, and one of Ørland's medieval churches was situated at Vik (Brendalsmo 2001:293).

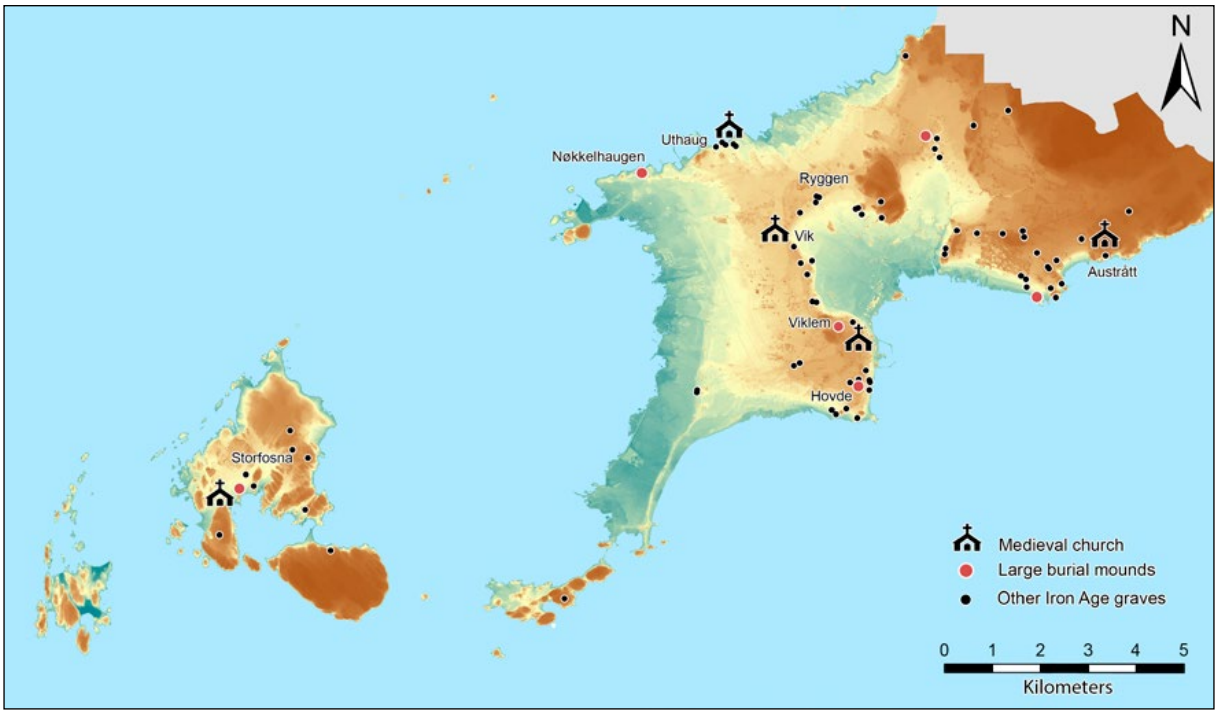

Figure 2. Large burial mounds, Iron Age graves and medieval churches in Ørland. The stone churches at Austrått and Viklem are still standing. Illustration: Magnar Mojaren Gran, NTNU University Museum.

Bronze Age	
Early Bronze Age	1700–1100 BC
Late Bronze Age	1100–500 BC
Early Iron Age	
Pre-Roman Iron Age	500–1 BC
Early Roman Iron Age	AD 1–200
Late Roman Iron Age	AD 200–400
Migration period	AD 400–575
Late Iron Age	
Merovingian period	AD 575–800
Viking period	AD 800–1030
Medieval period	
Early medieval period	AD 1030–1130
High medieval period	AD 1130–1350
Late medieval period	AD 1350–1537
Modern period	AD 1537–now

Table 1. *Chronological table.*

EXTENSION OF ØRLAND MAIN AIR STATION. SURVEY AND EXCAVATION

In World War II, during the German occupation of Norway (AD 1940 – 1945), the German occupational forces established an airfield in the central parts of Ørland. The main part of the airfield was located at Vik. After the war, the Norwegian Air Force developed the airfield as a base for F16 jet fighters (Hovd 2004). In 2012, the Norwegian Parliament decided on investing in an entirely new fleet of F35 jet fighters, and that these jets should be stationed in Ørland. As a result, the existing air base had to be enlarged. As part of the planning of the extended air base, an extensive archaeological survey was conducted by Sør-Trøndelag (South Trøndelag) County Council in 2013 (Figures 3

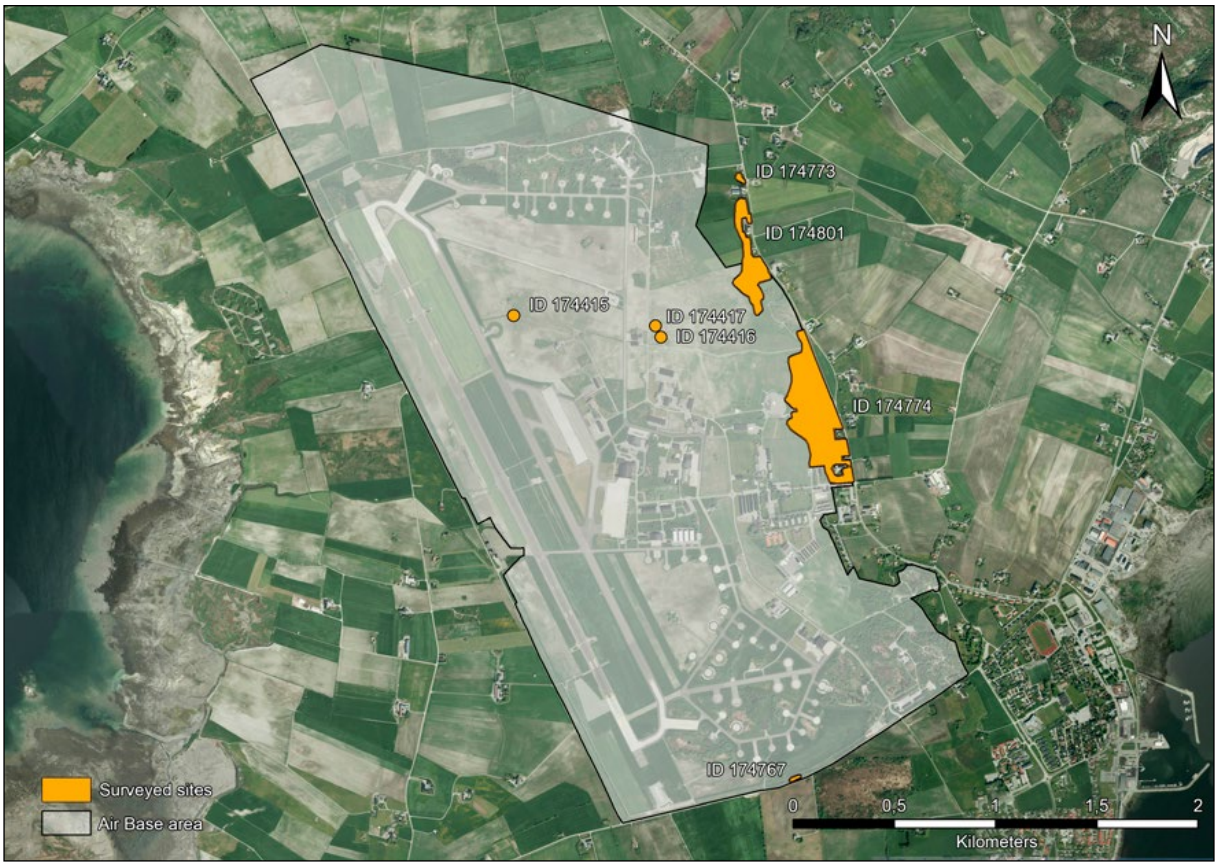

Figure 3. Overview of the Ørland airfield planning area and sites with mainly Iron Age settlement remains under cultivated land, surveyed by Sør-Trøndelag County Council in 2013 (Haugen, Sjøbakk & Stomsvik 2014). Illustration: Magnar Mojaren Gran, NTNU University Museum.

and 4). The survey revealed that relatively dense Iron Age settlement traces were located along the central ridge running through Ørland from north to south, approximately 11m above the present day sea level. A large part of the surveyed archaeological remains were found within the planned extension area of the air base at Vik (Haugen, Sjøbakk & Stomsvik 2014).

An initial archaeological excavation was conducted by the Norwegian University of Science and Technology (NTNU) University Museum in 2014, in order to allow for the building of a temporary construction road. The excavation revealed the outskirts of early Iron Age settlement areas, with postholes, cooking pits, agricultural layers and water holes (Fields 1-3, Figure 5; Engtrø & Haug 2015). The main part of the archaeological excavation was conducted by the NTNU University Museum in 2015 and 2016 (Fields A-E, Figure 5; Ystgaard et al. 2018). The survey and excavations were financed by the Norwegian Defence Estates Agency (NDEA), according to the terms of the exemption from the protection by the Cultural Heritage Act granted by the Directorate for Cultural Heritage. In a separate agreement between the NDEA and NTNU University Museum, the NDEA agreed to finance

Figure 4. Survey trenches from 2013 (Haugen, Sjøbakk & Stomsvik 2014), defining protected area with Iron Age and early medieval settlement traces (ID 174774, 60212, and 174801). Parts of the protected area were excavated in 2014, 2015 and 2016. Survey trenches extended throughout the planned area of the airfield (Figure 3). Illustration: Magnar Mojaren Gran, NTNU University Museum.

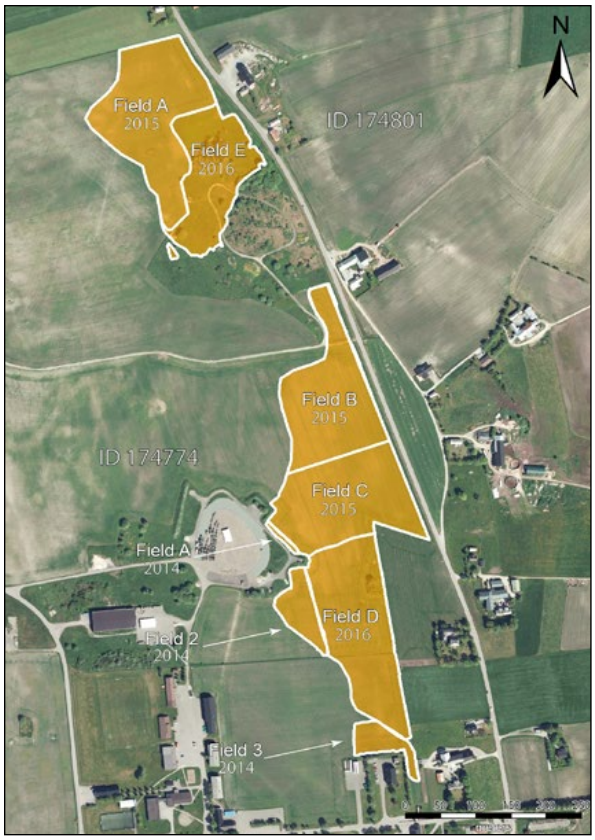

Figure 5. Excavation area with Fields 1-3 (2014 excavation, Engtrø & Haug 2015) and Fields A-E (2015 and 2016 excavations, Ystgaard et al. 2018). Illustration: Magnar Mojaren Gran, NTNU University Museum.

the publication of results from the excavation in a scientific publication – the present book.

EXCAVATION AIMS, RESEARCH OBJECTIVES AND THE CONTENTS OF THIS BOOK

The geography of Vik is of a special character. The flat landscape has led to comparatively rapid landscape changes throughout the Iron Age and medieval periods due to land upheaval. Moreover, the Ørland peninsula and Vik seem to have been more or less continuously settled from the time the peninsula became inhabitable. This has made the area a suitable laboratory for the study of relations between landscape change, vegetation and human activity throughout the Iron Age and medieval periods.

The excavations conducted prior to the extension of Ørland airbase are among the hitherto largest excavations in Norway in terms of area size, covering c. 117 000m^2 altogether. Development-led

excavations are often connected to road and railway projects, and only cover those parts of settlement sites that happen to lie in the confined area of the road or railway construction sites. This means that the totality of a settlement is often not explored and excavated. However, at Vik a larger area could be excavated due to the size of the planned air base enlargement. Because of this, the totality of several settlement concentrations could be examined. This has contributed to the large scientific potential of the Vik excavations.

Based on these preconditions, the main part of the excavations at Vik carried out in 2015 and 2016 had two main aims or research frameworks as guidelines:

1. To gain a coherent understanding of the relationship between landscape development and settlement from the Late Bronze Age to the early medieval period.
2. To study the spatial and social organization of the settlement from the Late Bronze Age to the early medieval period.

A starting point for the first research framework was an already existing shore displacement curve for the region (Kjemperud 1986), but the curve lacked detailed data from c. 1000 BC to the present. Therefore, an important question was how more nuanced data would affect the shoreline displacement curve. The Norwegian Geological Survey agreed to provide more nuanced data in order to make a more detailed shore displacement curve. The new curve is presented by Romundset & Lakeman in Chapter 2. Today, most of Ørland is cultivated, but much land was only cultivated relatively recently, after large swamps and marshes had been drained (Schøning 1979:293, Berger 2001:36-37). Only limited data existed on the vegetation history and natural conditions in Ørland before modern times. Therefore, it was of great importance to gain new, coherent pollen data from the region and from the local area surrounding Vik, as well as from the excavation area itself. The Natural History Department at the University Museum, University of Bergen, agreed to perform pollen analysis and so help us to deepen our understanding of the environment, natural conditions, landscape development, settlement and farming economy in Ørland and at Vik. Their results are presented by Overland & Hjelle in Chapter 3. The results from the shoreline displacement curve and the vegetation history analysis are co-interpreted with large-scale tendencies in the data from the archaeological excavations at Vik by Ystgaard, Gran & Fransson in Chapter 1. This chapter also provides a phasing and a chronological framework for the interpretations in each chapter of this book.

A starting point for the second research framework was the survey results, which revealed that several concentrations of Iron Age settlement traces from different parts of the Iron Age and medieval period were found along the well-drained ridge at Vik (Haugen, Sjøbakk & Stomsvik 2014). The 2015 and 2016 excavations uncovered traces of eight different concentrations of settlement, dating from varying phases from the pre-Roman Iron Age to the medieval period (Ystgaard et al. 2018). A series of studies of the spatial organization of the settlement traces, and to some extent also of the social organization implied, is presented in this volume. Work with the analysis of the spatial organization of the settlement took up much of the project group's time. Therefore, analysis of the social organization was narrowed down to the exploration of aspects related to the spatial organization. The social organization of the settlement has therefore not yet been fully analyzed.

Geoarchaeological analyses and interpretations were of vital importance to the study of spatial organization of settlement from most phases. Results from geoarchaeological studies, including geochemistry,

soil micromorphology and plant macrofossil studies, are presented by Linderholm, Macphail & Buckland in Chapter 4. Results from the archaeological excavations are presented chronologically, with emphasis on research questions relevant to each period. Most chapters relate to the main research framework, focusing on spatial organization of the settlement. Pre-Roman Iron Age houses and farmsteads are discussed by Fransson in Chapter 5. Roman Iron Age settlement traces were abundant and very informative, and thus four of the chapters in this book focus on material from this period. Building traditions and settlement organization in the Roman Iron Age are discussed by Heen-Pettersen & Lorentzen in Chapter 6. Large waste deposits were preserved in Roman Iron Age contexts. The waste deposits, their spatial relations to contemporary settlement, and their information potential are presented by Mokkelbost in Chapter 7. Most zooarchaeological material stemmed from Roman Iron Age contexts, and mainly from waste deposits. This large and informative material is presented by Storå, Ivarsson-Aalders & Ystgaard in Chapter 8. Roman Iron Age contexts also yielded relatively large quantities of pottery. Pottery is rarely found in large amounts in central Norwegian settlement sites from this period. Therefore, pottery from Vik is thoroughly analyzed and presented by Solvold in Chapter 9. After the extensive settlement activity in the Roman Iron Age, settlement declined from the last part of the Roman Iron Age and during the first part of the Migration period. Around AD 550, settlement at Vik was completely abandoned. New settlement traces did not occur until the late Viking Age. Two chapters deal with remains of a late Viking Age / early medieval period farmstead. Settlement remains are presented and discussed by Fransson in Chapter 10, while exceptionally well preserved finds of organic material from a well that was examined in this farmstead are presented by Randerz in Chapter 11. Spatial organization of the built environment in Vik from the Late Bronze age to the early medieval period, and some aspects of the social organization, are summarized and discussed by Ystgaard in Chapter 12. These results are highlighted by a discussion of the finds of a hall environment from the Viking Age in nearby Viklem by Ellingsen & Sauvage in Chapter 13.

PROJECT PUBLISHING POLICY

The size and potential of the material from the Vik excavations led the project group to make a few choices regarding the publishing policy of the project. As soon as the NDEA had granted funding for a scientific publication of the excavation results, the outlines of a publishing policy in three stages were established. The *first stage of publication* is the excavation report (Ystgaard et al. 2018). The excavation report contains the basic results of the excavation, and gives the reader access to the immediate results and interpretations of the excavated areas. This includes full site descriptions, a list of excavated features, a finds catalogue, a list of radiocarbon dates, and lists of macrofossil samples, micromorphological samples, pollen samples, wood determinations, photos and drawings.

This book represents the *second stage of publication*. Here, the excavation results have been refined through a second stage of scientific processing and writing, focusing on research questions which developed out of the research frames of the original excavation project. An aim of this scientific publication has been to allow the archaeologists in the project group to expand on their results from the fieldwork, through defining tighter research objectives and presenting their results to a scientific audience. Field supervisors were included early on in the planning of the publication. It is my belief that this helped field supervisors maintain high standards of scientific quality both in their day-to-day work

in the field and in their work with the excavation report. It also helped them maintain high standards in their scientific thinking and in the discussions within the excavation team and the project group. In the long term, the opportunity to scientifically develop and publish excavation results helps field archaeologists gain scientific merits and develop their careers. Scientifically merited field archaeologists with sound careers are of vital importance to ensure a close connection between excavation archaeology and scientific development within the field of archaeology. There is no doubt that scientifically up-to-date field archaeology is vital to the legitimation of the excavation practice in today's cultural heritage management.

An opportunity to publish results is also of importance to the projects' specialist cooperators. The common aim of a project publication encourages communication and scientific discussions between the specialists, and between the specialists and archaeologists. It is our experience that the continuously ongoing dialogue between archaeologists and specialists, and also between different specialists, raises the quality of the work we do developing our objectives. I also raises the quality of our fieldwork, analyses and discussions (cf. Gjerpe 2013).

The *third stage of publication* starts as soon as the Vik material has been made available to the scientific community through the excavation report and this book. The Vik material has the potential to raise and contribute to several research objectives, both cultural historical, methodological and theoretical. Archaeologists and other scientists can now explore the opportunities found in the results of a methodologically up-to-date and scientifically facilitated material. Below, a few questions are outlined which have not yet been thoroughly addressed.

FURTHER SCIENTIFIC POTENTIAL OF THE VIK MATERIAL

The results of the collaboration between archaeologists and natural scientists can be developed into further research. In particular, there is a potential in closer comparisons between the empirical archaeological data sets and the results of the geological, botanical, and soil chemical analyses – this could lead, among other things, to closer discussions about the nature of animal husbandry and agriculture, and their relation to settlement and natural conditions.

Methods and possibilities within radiocarbon dating have developed continually since the introduction of radiocarbon dating in the 1950s. Today, it is possible to date very small amounts of charred material, and at the same time the costs for each sample are going down (Bayliss 2009:125). Accordingly, the Vik project chose to lead an ambitious sampling and dating policy. Radiocarbon samples were collected from a wide range of contexts. Samples were prioritized for dating from all the excavated buildings, and from a wide selection of waste deposits, cooking pits and agricultural layers. Altogether 626 radiocarbon dates from varying contexts from Vik have been dated. The large dating material represents the settlement activity in Vik very well, and this opens up many possibilities when it comes to chronological and methodological issues. The next step could be to analyze the dating material further, employing statistical analytical methods in order to establish more nuanced chronologies (Bayliss 2009:126). Within the second stage of publishing, i.e. this publication, the project group had the chance to perform initial statistical analysis of the radiocarbon sample set (Ystgaard, Gran & Fransson, Ch. 1). However, the statistical modelling of radiocarbon dates has been restricted to initial modelling at this stage of publication. Bayessian modelling presupposes that a number of a priori interpretations are conducted

before one perfoms the statistical modelling of the dating material (Bayliss 2015, Herschend 2016). In this volume, focus has been on the a priori interpretations. Our preliminary modelling results are not ready for publication in this volume. However, the groundwork in terms of archaeological interpretations has been done, and the material is ready for the next step of chronological analysis.

Chronological questions concerning the Vik material can be asked on many different levels. A key area is narrowing down the probability of the date spans for a large number of archaeological contexts such as buildings and waste deposits. This might well make it possible to refine quite a few of the chronological discussions in the excavation report and in this book. The total sum of radiocarbon dates can be employed to explore main chronological events of the site, for instance to determine more exactly when the site was first inhabited with permanent buildings. Perhaps even more interesting is the potential for dating and assessing the nature of the abandonment of the settlement around AD 550, and interpreting this in the light of the Late Antique Little Ice Age (Büntgen et al. 2016) as it is recorded in global natural historical and archaeological records.

Further cultural historical questions can also be explored based on the Vik material. In this volume, the nature and contacts of the finds material, apart from the pottery from buildings and waste deposits, has not been addressed specifically. A first impression is that the material from the Roman Iron Age settlement contexts does not differ fundamentally from contemporary grave contexts. This impression could be something to pursue more closely, comparing the material worlds of the living and the dead.

Another area that offers potential is a deeper examination of the relation between the various subsistence practices in Roman Iron Age Vik. The different aspects of the Vik material represent widely different practices such as fisheries, shell foraging, animal husbandry, crop cultivation and hunting. The rich and well-documented animal osteological material could form the starting point of several studies which could go in a diversity of directions, employing analytical methods such as aDNA, strontium and isotope analysis. Such studies could deepen our knowledge not only of the economic organization of the Roman Iron Age farmsteads at Vik, but also of the development of domesticated animals and of cod fisheries prior to the development of commercial fisheries in the medieval period.

A large number of cooking pits were uncovered and excavated during the project. This intriguing material has so far been only superficially treated, and further analyses, perhaps in combination with the already analyzed pottery material (Solvold, Ch.9), will undoubtedly bring new light to our knowledge of pre-Roman and Roman Iron Age commensality and rituals.

A preliminary interpretation of the organizations of Iron Age and Early medieval buildings and farmsteads has been provided in this book. In 1997, a pre-Roman Iron Age farmstead was excavated at Hovde, approximately 3km south of Vik. Hovde is situated on the same well-drained ridge as Vik (Grønnesby 1999). A comparison between the settlement remains at Vik and Hovde could provide deeper insights into the organization of society in Ørland in the Early Iron Age. It is possible to extend the comparison of Early Iron Age settlements further, and widen it into a synthesis of central Norwegian settlement material. This could form the basis of a deeper analysis of the social organization of the Iron Age societies at Vik, central Norway and Norway. Further, there is potential in a comparison between the late Viking Age and early medieval settlement at Vik, presented by Fransson, Ch. 10, and the Viking age settlement at Viklem, presented by Ellingsen & Sauvage, Ch. 13.

DEVELOPMENT-LED EXCAVATIONS AND THEIR SCIENTIFIC POTENTIAL

Norwegian cultural heritage management practice is based on the Cultural Heritage Act (*Lov om kulturminner*). Among other things, two principles of this Act are of importance to development-led excavations. First, all archaeological and other remains older than AD 1537 (the year of the Lutheran Reformation in Norway) are protected. Exemptions from protection are sometimes granted for development projects. Every such decision is based on an evaluation of the cultural heritage site(s) in question, focusing on the scientific value of an excavation as opposed to the value of continued preservation. Second, if an exemption is granted, the developer applying for exemption has to finance the costs of archaeological excavation (polluter pays principle).

The excavations at Vik were development-led and financed by the developer, in accordance with the provisions in the Cultural Heritage Act. Development-led excavations should safeguard the source value of the archaeological remains in question, according to the established practice of Norwegian archaeological heritage management. However, such development-led excavation projects are not supposed to extend their work into, or to finance, scientific research or scientific publications. Therefore, development-led excavations are seldom extended scientifically beyond the incorporation of the finds material in museum collections and the publication of the excavation report in a museum's report series.

However, somewhat paradoxically, the Directorate for Cultural Heritage (*Riksantikvaren*) demands that development-led excavations are based on research questions emanating from the "current state of research". Today, all archaeological excavations (except for medieval towns, churches and fortresses) are carried out by five university museums in Norway (based in Tromsø, Trondheim, Bergen, Stavanger, and Oslo). When a university museum is planning a development-led excavation, it often finds there is no up-to-date "state of research" review upon which it can draw, since earlier development-led excavations are most often not processed scientifically beyond the basic excavation reports.

In other words, the "current state of research", which is, as we have seen, demanded as a starting-point for new excavations, is often non-existent. This means that new archaeological excavations, and research developing from them, lack an up-to-date scientific evaluation of results from earlier development-led excavations. Museums' collections and excavation reports are of course of vital importance. However, if the aim of cultural heritage management is to carry out archaeological excavations based on an updated research status, the results of these excavations need to be developed beyond the excavation reports, into publications and subsequent research projects. Without up-to-date results and scientific analysis from development-led excavations to draw upon, new development-led excavations tend to reproduce existing knowledge instead of challenging it.

Thanks to the generous cooperation of the Norwegian Defence Estate Agency and a separate agreement between the NDEA and the NTNU University Museum, the Vik project had the chance to go beyond the limits of today's practice, and prepare this volume, which represents a first scientific processing of the Vik material. We sincerely hope that this volume will lift the Vik material into the consciousness of the scientific community, and that the scientific processing of the results presented here will contribute to further scientific development of the practice of development-led excavations.

ACKNOWLEDGEMENTS

We are profoundly grateful to the Norwegian Defence Estate Agency for granting us the opportunity to write this book. We also want to thank our editor at Cappelen Damm Akademisk, Simon Aase, and our copy editor, Richard Peel. The authors are grateful for the comments by the anonymous peer reviewers. We would like to thank the Department of Archaeology and Cultural History at NTNU University Museum for facilitating the Vik project during four years. Last, but not least, a sincere thank you to the project's field archaeologists for their enthusiasm and courage.

REFERENCES

Andersen, H. A. & T. Bratberg 2011: *Austrått. En norsk herregårds historie.* Pirforlaget, Trondheim.

Bayliss, A. 2009: Rolling out revolution: Using radiocarbon dating in archaeology. *Radiocarbon*, Vol 52, Nr 1: 123–147.

Bayliss, A. 2015: Quality in Bayesian chronological models in archaeology. *World Archaeology* Vol. 47, Nr. 4: 677–700.

Berger, O. G. 2001: Utdrag fra Ørland. En kyst- og garnisonskommune. Om utviklingen av jordeiendomsforhold og kulturlandskap fra middelalderen og fram til år 2000. Hovedfagsoppgave i geografi, Universitetet i Trondheim.

Berglund, B. & T. Solem 2017: Maktkontinuitet i munningen av Trondheimsfjorden. Arkeologi og vegetasjonshistorie 800 BC – 1200 AD. *Heimen*, 3-2017 Vol. 56: 206–235.

Birgisdottir, B. B. & S. Rullestad 2010: Utgravningsrapport 2010. Hårberg (gnr. 69/6) Ørland kommune, Sør-Trøndelag fylke. Undersøkelse i tilknytning til reguleringsplan for ny adkomstvei frå Fv. 245 til Hårberg bustadfelt i Ørland kommune, Sør-Trøndelag fylkeskommune. NTNU Vitenskapsmuseet topografisk arkiv.

Brendalsmo, J. 2006: *Kirkebygg og kirkebyggere. Byggherrer i Trøndelag ca. 1000 – 1600.* Unipub forlag.

Büntgen, U. et al. 2016: Cooling and societal change during the Late Antique Little Ice Age from 536 to around 660 AD. *Nature Geoscience*, vol. 9, issue 3. ISSN 1752-0894.

Eidshaug, J. S. P. & R. Sauvage 2016: *Arkeologisk undersøkelse av gårdshaug på Viklem, Ørland kommune.* NTNU Vitenskapsmuseet arkeologisk rapport 2016:11.

Elvestad, E. 1998: Typologi som arkeologisk praksis. En analyse av klassifiserte fiskeredskaper fra Trøndelags forhistorie. Hovedfagsoppgave i arkeologi, Universitetet i Trondheim.

Engtrø, D. Ø., & A. Haug, 2015: *Arkeologiske undersøkelser - anleggsvei på Ørland kampflybase, Ørland kommune, Sør-Trøndelag*. NTNU Vitenskapsmuseet arkeologisk rapport 2015:2.

Forseth, L. & K. Foosnæs 2017: Maktens monumentalitet. Frostatingets lokalisering sett i lys av storhaugene i Trøndelag. In Risbøl, O. (ed.): *Frostatinget i et historisk lys*. Gunneria 81: 41–70. NTNU Vitenskapsmuseet, Trondheim.

Gjerpe, L. E. 2013: Om arkeometri, en fornøyd arkeologi og jordbruk i eldre jernalder. *Primitive Tider* 2013: 33–46.

Grønnesby, G. 1999: Eldre jernalders hus og hall på Hovde i Trøndelag. *Viking* 62: 69–80.

Haugen, H., I. Sjøbakk & K. H. Stomsvik 2014: Arkeologisk rapport. Maskinell søkesjakting og manuell prøvestikking i forbindelse med reguleringsplan for ny kampflybase, samt ny gang- og sykkelveg mellom Uthaug og Hårberg, Ørland kommune. Sør-Trøndelag fylkeskommune.

Henriksen, M. M. 1997: Nøkkelen til Trøndelag. Bosetning, kommunikasjon og kontroll. Agdenes og Snillfjord 500 f.Kr. til 1000 e.Kr. Hovedoppgave i arkeologi ved Institutt for arkeologi og kulturhistorie, Vitenskapsmuseet, NTNU.

Henriksen, M. M. 2014: *Stille vann har dyp bunn. Offerteoriens rolle i forståelsen av depotfunn belyst gjennom våtmarksdepoter fra Midt-Norge ca. 2350-500 f.Kr*. Avhandling (Ph.D.), Norges teknisk-naturvitenskapelige universitet, Det humanistiske fakultet, Institutt for historiske studier, 2014:304.

Herje, T. 1984: Landskap og samfunn i endring. Bjugn og Ørlandet i jernalder – en analyse av økonomi og samfunnsorganisasjon i et midt-norsk kystmiljø. Avhandling til magistergraden i nordisk arkeologi ved Universitetet i Oslo.

Herschend, F. 2016: Towards a standardized discussion of priors in Bayesian analyses of ^{14}C dated archaeological periods: A study based on the dates from Gjøsund. *Journal of Archaeology and Ancient History* Nr. 19.

Hovd, R. (ed.) 2004: Ørland hovedflystasjon. *Okkupasjon – Kald krig – Ny tid – Lokalsamfunn.* Ørland hovedflystasjon, Ørland.

Kjemperud, A. 1986: Late Weichselian and Holocene shoreline displacement in the Trondheimsfjord area, Central Norway. *Boreas* 15: 61–82.

Mokkelbost, M. & R. Sauvage 2014: *Arkeologisk utgravning Ørland kirkegård, Ørland kommune.* NTNU Vitenskapsmuseet arkeologisk rapport 2014:16.

Ringstad, B. 1987: *Vestlandets største gravminner. Et forsøk på lokalisering av forhistoriske maktsentra.* Magistergradsavhandling, Bergen.

Sauvage, R. & M. Mokkelbost 2016: Rural buildings from the Viking and early medieval period in Central Norway. In: Iversen, F. & H. Petersson (eds.): *The agrarian life of the North 2000 BC – AD 1000. Studies in rural settlement and farming in Norway*, pp. 275-292. Kristiansand. Portal Academic.

Schøning, G. 1979 [1778]: *Reise som giennem en deel af Norge i de aar 1773, 1774, 1775 på Hans Majestæt Kongens bekostning er giort og beskreven af Gerhard Schøning*. Tapir, Trondheim.

Sognnes, K. 2005: I bronsens og jernets tid. In: Aune, K. (ed.): *Fosens historie fra istid til 1730*, pp. 137–198. Skrifter utgitt av Fosen historielag 7, Orkanger.

Stuedal, H. V. 1998: Rapport fra arkeologisk utgravning av 2 flatmarksgraver, Uthaug gnr. 74, bnr. 10 Liabø, Ørland kommune, Sør-Trøndelag. Topografisk arkiv, NTNU Vitenskapsmuseet.

Ystgaard, I., M. M. Gran, M. Mokkelbost, U. Fransson, A. Heen-Pettersen, A. B. Lorentzen, G. I. Solvold & E. W. Randerz 2018: *Arkeologiske utgravninger på Ørland kampflybase 2015 – 2016*. NTNU Vitenskapsmuseet arkeologisk rapport 2018:27.