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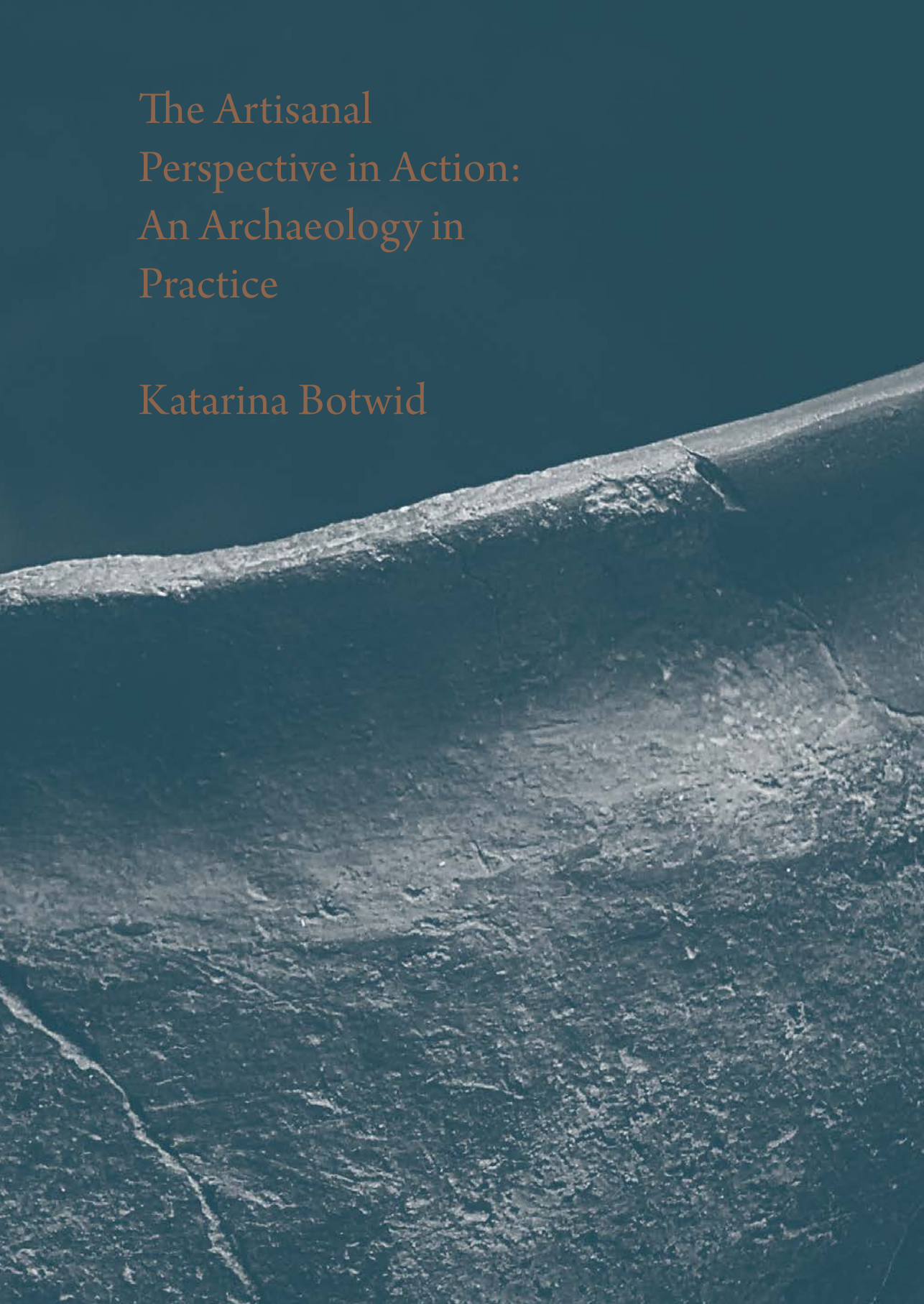
The Artisanal Perspective in Action: An Archaeology in Practice

Katarina Botwid



My grandfather and I, 1959

The Artisanal Perspective in Action: An Archaeology in Practice

Katarina Botwid

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This book is dedicated to curiosity, to creativity and to all those who made me what I am.

Contents

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Persson, who in addition to her role as designer at Rörstrand was also my teacher at Hellidens Folkhögskola. It was she who told me I should go on with ceramics. And I did. We spoke often about 'getting caught in the clay'—I am so glad that Inger taught me to look critically at 'things ceramic'. She taught me to take myself and my craft seriously.

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Linda Olofsson. Flint knapper Torbjörn Pedersen's and bronzesmith Liz Nilsson's hands have stopped their work †—I won't forget you.

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Preface

When I put my fingers on top of small, small fingerprints, I feel the past is close to me. A child, somewhere between 6 and 9, left his or her fingerprints on a cooking pot from the Late Bronze Age. The child lived in Östergötland and had practised and practised together with someone else. A ceramist, perhaps a relation, or perhaps not. Now it is I who experience with all my senses how and with what rhythm the child worked. How careful or how sloppy this person was. The tactile experiencing of the vessel gives information, information which can be interpreted and studied. Research consists of several parts, in the silent knowledge and the experience of another's craft skill, and then developing this into a description of how such knowledge can be materialised, imbedded in an artifact. The artefact in turn belongs to a context, a connection—a society, a time and a practical reality. My work is about how we can introduce practical expertise into archaeology—that one can take part in and use knowledge within all sorts of practices. My own field studies often concern ceramics, but also embrace a wider picture. The dissertation includes three articles and a monograph (papers 1–4).

The artisanal perspective, which is my starting point, is quite strict. It is not possible to claim something new without demonstrating or explaining the practice behind a certain technology or artefact. Interpretive explanations are closely linked to raw material, techniques and ways of crafting.

I wrote in the beginning of my studies; 'There is no truth. We weren't there. But we have the right to test our thoughts, knowledge and findings against the material we dig out of the earth. On the other hand, we do not have the right to paste our values onto prehistoric people.'

What I think today is that there is no possibility to avoid a transfer of values. We are people, and therefore never objective. For this reason, it is of the utmost importance that we help each other and that we regard the interpretations from several (different) perspectives. The comments and thoughts of others are always useful in one way or another. We are many who during these years living with a dissertation in progress have helped each other see more clearly, in seminars, conferences, teaching situations, round table discussion and excursions.

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Katarina Botwid

The Artisanal Perspective in Action: An Archaeology in Practice

English

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1

Introduction

Prehistory slowly but surely emerges through the study of remains. Remains that lead up to our contemporary times. We stand here in our contemporary age and try to understand how life as it is led has seemed to people over the millennia. We even try to understand how human beings have been shaped by nature. This is a major undertaking that depends on our incredible and strong will to understand the world.

The word 'remains' is often used about dead people, human remains, but can also be used to signify everything that survives, into our own time. I am here in this time and I want to understand how *the creating human being* has lived an artisanal life from the first artefact that has been preserved to those being created today. A human being lives on through his or her daily work, no more clearly so than in artefactual reality, through traces and choices that are visible in the materials chosen by a creating individual.[1]

What is visible can be observed. If we extend visibility to *perception*, then all of our senses can observe. Then the audible can be heard. The tactile can be felt. Odours can be perceived. Flavours distinguished. Together and independently of each other the senses can create information that is communicable.

All perceptions create a foundation for knowing. From the beginning we create our own understanding of our world by what we see, hear, feel, smell, and taste. At different times our surroundings are what we call a particular context—a word that signifies the infinitely many circumstances that are linked to the place we are at.[2] Often it is assumed that everyone who participates in observations knows a sufficient number of contextual circumstances to understand the whole. In a desire to understand, I see that I wish to examine these contexts closer.

In a thesis like the one I am presenting, the investigation of circumstances is central. I mean that these circumstances create an opportunity for making visible that which is *important* in order to develop new reasoning. My own circumstances will be described as clearly as possible in order to provide insight into the starting point that I have chosen, and how I position myself in my interaction with other circumstances. In or-

1 See Hanna Arendt, *Människans villkor: vita activa (The Human Condition)*, rev. ed. (Gothenburg: Daidalos, 1998), especially Chapter Three, 117ff, on labour, and Section 12, 'Världens tingliknande karaktär' ('The Thing-Character of the World'), 132–35, concerning immersing oneself in thinking about things. Arendt's text will be referred to on several occasions in this thesis with respect to crafts per se.

2 See Zagorka Zivkovic, preface to Martha Nussbaum, *Känslans skärpa, tankens inlevelse* [The clarity of feeling, the feeling of thought] (Stockholm: B. Östlings bokförl. Symposion, 1995), 12, where the circumstances of a person's location in time and space are touched upon.

der to continue working, I will limit the number of circumstances that I feel are relevant to my topic. It is *my* view of the interacting circumstances that is presented. Accordingly, circumstances that other people would prefer to present are missing. This can in itself create new discussions that I feel can be important in order to provide a broader view of how we can interact. The thesis takes an interdisciplinary approach, which is by its nature a balancing act.

1.2 Positioning: Defining One's Own Circumstances

I am part of a context that is the result of my choices in life, my education, and my experiences. My position *right now* is relevant for the continued description of how interactions within my thesis subject, archaeology, may occur. My thought is to make the entire construction visible. Presenting the position, and simultaneously describing as many sides of it as possible, provides an opportunity for other people to understand my point of departure. I choose to take my point of departure in the context in which I at present find myself, with recollections of earlier points of departure. Today I am a researcher who works with linking together several neighbouring subject areas and exploring what they look like. I then want to create common points of departure that can lead to future new and important research findings, remaining convinced that both practical and theoretical knowledge is valuable and can be communicated. Here it is important to believe, and dare to suggest, that obstacles exist to be overcome and are not there to further delimit and limit scientific understanding. My work will therefore primarily focus on the understanding of differences and increased interaction.

1.2.1 The Author's Interdisciplinary Background

In 1989 I began a basic artisanal education in the subject of ceramics. After finishing my studies in 1992, I had practical and theoretical knowledge at a level that enabled me to start up and run my own small-scale production of ceramics within a living artisanal tradition. The education was closely connected to mediatory archaeology and the contemporary art scene in Europe, since a number of museums were visited so that sketching, inspiration, and knowledge transfer could occur. Visual and written information, together with the knowledge of practising teachers within crafts and the history of art formed the knowledge base.

This knowledge was then used to continue working with and within the pedagogical workshop environment. The practical pedagogy consisted of a teacher demonstrating a technique by performing all the actions and commenting on his or her own actions. We artisanal students were then required to repeat the actions until some of these began to function purely technically. Each student had problems with different actions, and the teacher corrected us individually as we went along. Each technique has its own learning curve and some actions are considered more difficult than others. It is a personal choice to commit one's time and energy to various degrees of technical difficulty in crafts. My personal choice was to practise all techniques diligently in order to understand whether or not I wished to work with them. I felt that one cannot know whether to choose a technique before one is familiar with it, because then the choice is made in a simplified way and one becomes too one-sided. Other people make completely different choices. This is a question of personal preference and of the context in which one intends to use the craft.

After my basic training I applied to and was, together with four other students of ceramics, admitted to the university to study the artistic practice of the craft of ceramics. The goal was to become accomplished enough to carry out a degree project for the Master of Fine Arts degree,[3] which in Sweden takes five years within the framework of the faculties of fine, applied, and performing arts. After completing my education I worked full time at my artistic practice and in teaching the craft of ceramics. As an expert and a consultant, I was given commissions for the Department of Earth Sciences at the University of Gothenburg during the International Science Festival in 1997 as a provider of ideas for the planning of the activities of Universeum,[4] the public science centre in Gothenburg, and in designing knowledge environments. At the beginning of the twenty-first century I completed commissions as an expert and consultant for the course *Raku* at the request of UR (the Swedish Educational Broadcasting company)/the Swedish public service television company SVT (now Kunskapskanalen [The knowledge channel]).[5]

3 Master of Fine Arts (MFA) from the School of Design and Crafts (HDK) at the University of Gothenburg, 1998.

4 The science centre Universeum in Gothenburg is a research-related mediatory link to the general public. It is a collaboration between the University of Gothenburg, the West Sweden Chamber of Commerce, Chalmers University of Technology, and the Göteborg Region Association of Local Authorities (GR); see http://www.universeum.se/

5 UR-Akademin [the UR academy]. Collected courses. [Electronic resource]: *Raku*, Utbildningsradion (the Swedish Educational Broadcasting Company), 2001.

My technical specialisation within ceramics/arts and crafts is prehistoric and historic firing techniques.[6] Through this specialisation, my connection to prehistoric techniques became evident and led me to studies in archaeology that began in the autumn of 2002.[7]

During my studies in archaeology I realised that my practical knowledge would be able to interact with this, to me new, academic way of explaining the world in words. My artistic practice carried meaning expressed *without* words. Early on I realised that I had something to say about the prehistoric artisans who had practised the ceramics craft before me. The craft of ceramics has not died out like some other materials-based techniques; it does not have to be reinvented. But can the knowledge of the ceramics craft be used in order to reflect the artisanal circumstances of different historical times? This became the question that drove me to continue my studies in archaeology alongside my daily teaching of artisan students. As a combined crafts teacher/archaeology student I studied my students' artisanal development in a new way. Would their attempts to acquire new knowledge in the ceramics craft reveal something about how skill is obtained and acquired in several different periods of time? After completing a bachelor's and a master's (120 credits) thesis in archaeology,[8] in which the interaction between my two subjects became visible, there was only one way open: I wanted to conduct research into the possibility of basing archaeological explanations on practical knowledge—an 'in practice' perspective.

1.2.2 The Artisanal Perspective: An Interdisciplinary Perspective

In order to be able to study archaeology in the way I wish to promote in my thesis, I believe that two traditions of knowledge emerge clearly in a carefully delimited artisanal perspective. Within these areas, with everything they contain in the form of *theoretical academic knowledge* and *practical knowledge*, there are opportunities that can be used in order to

6 Firing of tunnel kilns, pit kilns, open fires, salt firing, raku kilns, firing ceramics in practice (building kilns and firing).

7 Gotland University (HGO), now Uppsala University – Campus Gotland.

8 Katarina Botwid, 'Från skärva till helhet – keramisk hantverkskunskap som redskap för djupare förståelse av artefakter och arkeologisk kontext' [From a sherd to a whole: Ceramic artisanal knowledge as a tool for a deeper understanding of artefacts and archaeological contexts] (Visby: Gotland University, 2009) and 'Offrad keramik – mossfynd från romersk järnålder i Käringsjön i Halland' (Ceramic Offerings: Bog Finds from the Roman Iron Age in Sweden) (Visby: Gotland University, 2009).

trace contexts that are prevalent in different time periods. In an artisanal perspective neither of the two knowledge traditions can be ruled out.

The archaeological periods are interesting to a person who works *within* a specific archaeological period. Artisanal interpretations and artisanal issues do not depend upon a particular delimitation in time but can be used across the entire archaeological and historical period. The case studies I have used in order to examine and amass empirical evidence for my reasoning are discussed in the articles and the monograph that are now published within the framework of my thesis project. The case studies are linked to crafts and artisanal skill within several archaeological time periods.

1.3 Problem Formulation

In what *various* ways can an artisanal perspective contribute to archaeological interpretations?

This question will be answered by testing, in the four case studies of the thesis, the fundamental methodology and the interdisciplinary approach. The purpose is to investigate *how* this integrated knowledge perspective makes it possible for an artisanal perspective to develop.

1.4 Disposition

'The Artisanal Perspective in Action: An Archaeology in Practice' is a compilation thesis. The introductory chapter contains a discussion that is based on three scholarly articles and a short monograph (Papers 1–4). Together these five texts make up the thesis.[9] The disposition of the thesis is as follows. The introductory part, Chapters 1 and 2, contains the introduction and the theory and methodology sections. Thereafter, previous research and the current research situation are described in Chapter 3.

9 Paper 1: Katarina Botwid, 'Evaluation of Ceramics: Professional Artisanship as a Tool for Archaeological Interpretation', *Journal of Nordic Archaeological Science*, 18 (2013): 31–44; Paper 2: Katarina Botwid, 'The Colour of Life: An Artisanal Perspective on Ceramic Anomalies during the Scandinavian Roman Iron Age', forthcoming in *Technology and Change in History*; Paper 3: Katarina Botwid, 'Visible Craft: Tracing Skill, Knowledge and Invisible Tools Through the Artisanal Perspective' submitted to *Journal of Material Culture*, and Paper 4: Understanding Bronze Age Life at Pryssgården (LBA) in Sweden – from an Artisanal Perspective, Acta Archaeologica Lundensia report series 8°, (forthcoming).

The archaeological material that forms the basis for the thesis (the four papers) are presented and summarised in Chapter 4. Together they make up different parts of the results that will answer the question at hand. The four papers have been appended to the thesis after the synthesis and discussion.[10] Consequently, and by means of a summary section, these results form the basis for an expanded discussion in Chapter 5. In this chapter, an integrated knowledge perspective is addressed in order to clarify the legitimacy of a practical-theoretical archaeological perspective. Finally, in Chapter 6, 'Synthesis and discussion', a concluding argument is conducted that allows theory and practice to be interwoven into a possible future and clearly defined *artisanal perspective*.

10 Appended Papers: Papers 1–4.

2

Theory and methodology

A society of explorers is a society in motion. Here in the text of my thesis I want to show and explain that explorers can move in several different ways. Some move in a world that has for long been defined as a researcher's world, the theoretical academic world. Other explorers move in that part of research that means doing research in, and on the basis of, practice.[11] That this world of explorers should explain their starting points in their practical work is not always necessary. It is necessary, however, when writing a thesis. In the following chapters I describe the theoretical framework with respect to which I position myself through my work. The idea is to create an interdisciplinary space between theory and practice; this because I wish to be an active explorer who might be called a practical theorist or a theoretical practitioner.

2.1 The Theoretical Points of Departure for the Thesis

There seems to be a need for dividing people into practitioners or theorists. Perhaps it is still important for us to understand *how* another person should be understood? Or addressed? People often define themselves as either practitioners or theorists. Which of these two fields would better fit the job as a chef—the person who, with enormous speed and without saying a word, displays the skilful technique of slicing a net out of a carrot with a large chef's knife, or a person who is a dietician and can explain and has knowledge of the contents of the ingredients?

This is the big question:

How do we assess and value knowledge?

I believe that we must deal, in various ways, with the concepts of practice and theory, and this is why examples and metaphors are important. How do we relate to research that requires everything to be explained in words? Can we write down every cut in the carrot in order to then understand how the hand moves? Can we learn how to ride a bicycle from a manual? Or can we cook by reading lists of ingredients? In my theoretical framework for the thesis I use various ways of *thinking about*,

11 See H. M. Collins and Robert Evans, 'The Third Wave of Science Studies: Studies of Expertise and Experience', *Social Studies of Science* 32, no. 2 (2002): 250–59; H. M. Collins and Robert Evans, 'King Canute Meets the Beach Boys: Responses to The Third Wave', *Social Studies of Science* 33, no. 3 (2003): 446–49; Harry Collins, 'A New Programme of Research?' in *Case Studies of Expertise and Experience*, special issue of *Studies in History and Philosophy of Science, Part A* 38, Issue 4 (2007): 615–20; and Evan Selinger, Hubert Dreyfus, and Harry Collins, 'Interactional Expertise and Embodiment' in *Case Studies of Expertise and Experience*, special issue of *Studies in History and Philosophy of Science, Part A*, 38, Issue 4 (2007), 734ff.

that is, theorising about, how practical knowledge can be *operationalised* in research that is being done today. When the framework has been laid down, various theoretical understandings will follow from various parts of the thesis text depending on where in the text we are. In order to widen the discussion, the references are extended to include other thinkers who deal with the field of tacit knowledge, but my work proceeds mainly from the theories that are described in the following section. The reason why I chose this framework is that I bring in *tacit knowledge* as an active tool of my methodology, *artisanal interpretation,* to which I will return in the methodology section.

2.1.2 Tacit Knowledge

Tacit knowledge includes the part of reality that often relates to the acting human being. However, tacit knowledge does not just concern actions but also other *pre-linguistic* stages of understanding. Even thoughts are preceded by tacit knowledge. In an individual, the pre-linguistic level is turned to that individual's inner and is a response to something. A feeling experienced, received, or something understood before *actions* can be performed and *words* can be spoken.

When we make interpretations of a hidden reality, we can *make something visible* rather than tell a truth. To me personally it is important not to express an opinion about an absolute truth. I speak on the basis of ideas put forward by Michael Polanyi.[12] He argues that it is of primary importance to establish the validity of tacit knowledge.[13] My question then becomes how this validity can gain a foothold in archaeology?

Within other sciences, primarily outside the humanities, tacit knowledge has an established validity of its own, and is studied within disciplines such as of science studies,[14] philosophy of science, and technology. Within medicine and nursing the dimension of tacit knowledge is studied on all levels, from how a surgeon who wields a scalpel can know the differ-

12 Michael Polanyi (1891–1976) is an important theorist in the investigation of *tacit knowledge* who, following a career as a researcher in physical chemistry, chose in his seventies to pursue what he called 'an afterthought to my career as a scientist' (Michael Polyani, *The Tacit Dimension,* (New York: Doubleday, 1966), 3. For a Swedish translation of this quote, see Michael Polanyi, *Den tysta dimensionen* (Gothenburg: Daidalos, 2013), 25. Polanyi is a person who, on a philosophical level, has come to be of great importance to anyone who wants to understand the nature of tacit knowledge.

13 Polanyi, *Den tysta dimensionen*, 87.

14 Science studies refers to the study of the *social aspects* of science.

ence (in the tip of the tool) between cutting through healthy and diseased tissue[15] to *how* a doctor who has had tacit knowledge and been injured can be rehabilitated after becoming a novice anew, no longer able to perceive the extended understanding s/he once had in her/his fingertips.[16]

Polanyi gives several examples of how the pressure on the hand from a tool an individual is holding can, with practice, give meaning to the pressure so that the person using the tool (the scalpel, the probe, the stone burnisher) so to speak *transfers* the *feeling* of touching something to the tip of the tool. This process creates a conscious sense perception via the tool we are using, and we thereby direct our attention toward *that to which* we are applying the tool. Polanyi calls this process the *semantic aspect* of tacit knowledge, when meaning is displaced from ourselves to something exterior to us. Here he develops two facets (which he calls 'terms') of tacit knowledge, one directed inwards and one directed outwards. Polanyi uses the designation *proximal* for the first term of tacit knowledge and *distal* for the second term.[17] These concepts will be used in connection with my clarification of how the methodology of artisanal interpretation works on a phenomenological level, and here I also use Polanyi's fourth aspect, that is, what tacit knowledge *gives knowledge of*, i.e., the ontological aspect.[18] One can say that *tacit knowledge* is and has been a factor in scholarly discussions within several disciplines for a longer period of time.[19]

15 Polanyi, *Den tysta dimensionen*, 39–43.

16 Lars-Erik Björklund, *Från novis till expert: förtrogenhetskunskap i kognitiv och didaktisk belysning* (*From Novice to Expert: Intuition in a Cognitive and Educational Perspective*), Studies in Science and Technology Education, no. 17 (Norrköping: Nationella forskarskolan i naturvetenskapernas och teknikens didaktik [The Swedish National Graduate School in Science, Mathematics and Technology Education Research] (FontD)/Linköping University, Department of Social and Welfare Studies 2008), 39.

17 Polanyi, *Den tysta dimensionen*, 33–37.

18 Polanyi writes that 'from the three aspects of tacit knowing that I have defined so far—the functional, the phenomenal, and the semantic—we can deduce a fourth aspect, which tells us what tacit knowing is a knowledge of. This will represent its *ontological* aspect' (Polyani, *The Tacit Dimension*, 13; *Den tysta dimensionen*, 36–37).

19 See, among others, Eva Löfgren, ed., *Hantverkslaboratorium*, (Mariestad: Hantverkslaboratoriet [The Crafts Laboratory], 2011); Lars-Erik Björklund, *Från novis till expert*; Lotte Alsterdal, Jonna Bornemark, and Fredrik Svenaeus, eds., *Vad är praktisk kunskap?* [What is practical knowledge] (Huddinge: Södertörn University, 2009); Bernt Gustavsson, *Kunskapsfilosofi: tre kunskapsformer i historisk belysning*, [The philosophy of knowledge: Three forms of knowledge in historical perspective] (Stockholm: Wahlström & Widstrand, 2000); Bernt Gustavsson, ed., *Kunskap i det praktiska*, [Knowledge in the practical] (Lund: Studentlitteratur, 2004); Jean Lave and Etienne Wenger, *Situated Learning: Legitimate Peripheral Participation* (Cambridge:

There are a few examples where tacit knowledge has been studied and operationalised within the field of Swedish archaeology, which means that this thesis can continue along the present path. One of the latest theses that use this point of departure was presented in the field of historical archaeology at Lund University. Johanna Bergqvist, in her thesis *Läkare och läkande – Läkekonstens professionalisering i Sverige under medeltid och renässans* (2013),[20] has done an in-depth study of source material, both the material sources (artefacts) and textual artefacts (historical texts and archival material), and she has then reasoned her way to the use and basic significance of tacit knowledge in the practice of medieval healing. Bergqvist has been able to use this significance to develop, in Chapter 5, theoretical tools for discussing a professionalisation of the medical profession. This thesis is one of the few in archaeology that uses tacit knowledge as a theoretical foundation, something that makes it possible for Bergqvist to follow the profession of healing from practical, 'unschooled' instrumental knowledge to a tradition of educated knowledge. These non-linear developments were later to result in the emergence of the medical profession.[21]

Within Swedish prehistoric archaeology Maria Petersson uses a theoretical methodology in her thesis from 2006, *Djurhållning och betesdrift: Djur, människor och landskap i västra Östergötland under yngre bronsålder och äldre järnålder*, with regard to the role of field work when archaeological knowledge is produced.[22] She uses Bengt Molander's concept *knowledge in action* (kunskap i handling), which in itself builds on know-

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Cambridge University Press, 1991); Trevor H. J. Marchand, ed., *Making Knowledge: Explorations of the Indissoluble Relation between Minds, Bodies, and Environment* (Oxford: Wiley-Blackwell, 2010); Bengt Molander, *Kunskap i handling* [Knowledge in action], 2nd rev ed. (Gothenburg: Daidalos, 1996); Tim Ingold, 'Beyond Art and Technology: The Anthropology of Skill' in *Anthropological Perspectives on Technology,* ed. Michael B. Schiffer (Albuquerque: University of New Mexico Press, 2001); Polanyi, *Den tysta dimensionen*; David Pye, *The Nature and Aesthetics of Design* (London: Herbert Press, 1978); and Thomas Tempte, *Lilla arbetets ära: om hantverk, arbete, några rekonstruerade verktyg och maskiner* [A little book on the honour of work: On crafts, work, a few reconstructed tools and machines], 2nd ed. (Stockholm: Carlsson, 1997).

20 Johanna Bergqvist, *Läkare och läkande – Läkekonstens professionalisering i Sverige under medeltid och renässans* [Healers and leechcraft: The professionalization of the art and craft of healing in Sweden during the Middle Ages and Renaissance], Lund Studies in Historical Archaeology, no. 16 (Lund: [Lund University, Department of Archaeology and Ancient History], 2013).

21 Ibid., passim.

22 Maria Petersson, *Djurhållning och betesdrift: djur, människor och landskap i västra Östergötland under yngre bronsålder och äldre järnålder* [Animal husbandry and organised grazing: Animals, people, and landscape in western Östergötland during the Late Bronze Age and Early Iron Age] (Stockholm: Riksantikvarieämbetet [Swedish National Heritage Board]/Uppsala: Uppsala University, Department of Archaeology and Ancient History, 2006).

ledge that is directed outwards and can be described in words (see the explanation above).[23] Petersson can make use of Molander's concept, and she implements and explains the comprehensive view, survey, and experienced-based knowledge she finds in her own professional role as a field archaeologist. Petersson argues that theory and practice are inseparable in field archaeology. According to her, 'the practical side of field archaeology provides an independent contribution to the results that is more than just a response to theoretical objectives'.[24] Here we find a direct use of theories of practical knowledge that have been implemented in an archaeological thesis. My theoretical starting point has some similarities with that of Petersson, but I enter with my own professional artisanal knowledge in the field of ceramics/art and link that to my practical-theoretical knowledge in the field of prehistoric archaeology.

A European archaeologist who in the same way as Johanna Bergqvist bases his research on theories concerning embodied knowledge and artisanal skill is Maikel Kuijpers, who in his research has worked with early Bronze Age craftsmanship from the northern Alpine region.[25] Kuijpers discusses levels of skill on different planes, the embodied as well as the social and intentional planes.

Because my own artisanal skill is used as a tool in this thesis, the thesis is *interdisciplinary*[26] in contradistinction to the three *intradisciplinary* theses described above.

From a philosophy of science perspective on the field of tacit knowledge, which is to me obvious, I will in the following section present a philosophy that considers the position of a human being in the world and a human being's relationship to objects (things) in themselves. This, I maintain, represents a traversable path in the task of building up perspectives that contribute to archaeological interpretations.

2.1.3 Hannah Arendt: Vita Activa or 'an Active Life'

Hannah Arendt (1906–75) was a European philosopher. She dedicated her entire life to philosophy and was during her student years a pupil of Martin Heidegger (from 1924) at the University of Marburg. There

23 See Molander, *Kunskap i handling*.

24 Petersson, *Djurhållning*, 15 (translation from the original Swedish).

25 Maikel Kuijpers, 'Early Bronze Age Metalworking Craftmanship: An Inquiry into Metalworking Skill and Craft Based on Axes in the North-Alpine Region' (PhD dissertation manuscript, March 2014), 29.

26 The two academic subjects that influence each other and that are woven together to produce new knowledge are the ceramics craft and archaeology.

Arendt encountered a lively intellectual environment and developed into an independent thinker. In 1928 Arendt presented her thesis, *Love and Saint Augustine*, at the University of Heidelberg. Just before the Second World War she was forced to leave Germany. Arendt then developed her political philosophy over the years, and she became a highly political person in her time. The work that will be used in the present text is *The Human Condition* (*Vita activa oder vom tätigen Leben*) from 1958. It was originally written in German and then translated into English.[27] My idea is to use the point of departure that lies in Arendt's Latin title of the original work, 'vita activa', which can be translated from Latin into 'an active life'.[28] Arendt herself writes, 'with the term *vita activa*, I propose to designate three fundamental human activities: labor, work, and action. They are fundamental because each corresponds to one of the basic conditions under which life on earth has been given to man'.[29]

In my text I will support myself on the sections of her book in which Arendt defines and discusses the practical aspects of life. This is especially true of Chapters III, 'Labor', and IV, 'Work', but also the passages that concern *Homo Faber*[30] and theory and practice (passim). Hannah Arendt's thoughts about human beings and their ability to communicate are basic to my thinking about the abilities of prehistoric humans to develop sustainable systems in which they could live. In these systems humans can understand and deal with the practical world. Hannah Arendt's thoughts work well, in my opinion, in archaeology since they can be used across time and space.

Additional theories are needed to investigate how knowledge and *expertise* can be clarified and broadened further. For this reason, I proceed here to present the *third wave of science studies* and with it a number of concepts that will make it possible to explain how I can claim to adopt an artisanal perspective on the subject of archaeology.

27 Arendt, *Människans villkor*, 7–12. For the English edition, see Hannah Arendt, *The Human Condition*, 2nd ed. (Chicago: University of Chicago Press, 1998).

28 *Oxford Latin Dictionary*, 2nd ed., s.v.v. 'actiō', 'actīuus'.

29 Arendt, *The Human Condition*, 7.

30 Hannah Arendt's definition of *Homo Faber* is the doing and manufacturing human being who fabricates things. A number of different entries and locations of *Homo Faber* into time are described on pages 378–400 in *Människans villkor*.

2.1.4 The Third Wave: A New Approach in Science Studies

According to philosophers of science such as H. M. Collins and Robert Evans, there is at present (since 2000) an increasingly great interest in interdisciplinarity and in what takes place between the academy and the practical sphere. In their article from 2002, 'The Third Wave of Science Studies: Studies of Expertise and Experience', the authors see a future for all science which they refer to as *the third wave*. They begin by explaining how science has changed from *authoritarian* science, the *first wave*, where decision-making is top-down (*a single* professor in all disciplines who provides a judgement on everything) to a democratised science, the *second wave*, where so-called facts are determined by negotiation (numerous professors provide judgements within their respective disciplines where these agreed-upon facts are situated). Within the second wave can be found research such as positivism, processual science, or post-processual science, and these areas determine what is to be considered true or probable. The *democratisation* of science provides the multitude of specialisations and multi-disciplinary projects that are being put forward in science today; the authors also include these in the second wave of democratised science studies.[31]

In order to bring the third wave into a discussion concerning archaeological methods of interpretation and tools, I will in what follows describe Collins and Evans's thinking and theories. I will use their examples in order to later reconnect these to the archaeological context in a discussion about expertise and experienced-based knowledge.

In summary one can, according to the authors, describe the first wave of science as a time when science had no problems with legitimacy (a claim of validity). According to the authors, the second wave inherited this way of thinking, which also enabled the second wave to accept the claims of validity established earlier. There was a certain criticism of the top-down model, which was criticised because it was believed to be based on authoritarian leadership, but by expanding the expertise and increasing the number of those active within the disciplines and allowing experts to present positivist arguments based on facts and interpretations that offered legitimacy to the research, it was believed that a democratic science had been created. The authors, who are philosophers of science, think that *if* third-wave science can formulate and arrive at a conclusion that involves an acceptance of second-wave theories, the foundations for a third wave can become visible. In this third wave, science will then be able to, while

31 Collins and Evans, 'The Third Wave', 235–96.

maintaining its knowledge base, identify and formulate itself regarding a group of experts who have become *technically-qualified-by-experience*. It is then possible to choose to *include* these persons in third-wave science. This can be done by offering this category of knowledge bearers a kind of participation (within third-wave thinking) in which theorists and practitioners together will develop a democratic *process of decision-making* regarding the *new criteria* that will be implemented in science. Science will then regard these practitioners as experts on the basis of their *tacit knowledge*. In this article Collins and Evans present a way of constructing a normative theory regarding expertise and how it can become important for technical foundations and for decisions (for example, artisanal-technological interpretations within archaeology). The three waves of science and the connection to the concept of an expert that the authors describe will be given a more detailed presentation in the following section.

2.1.4.1 The Concept of an Expert According to Collins and Evans

The fact that an expert who has a acquired practical knowledge does not have formal qualifications outside regular schooling means that these people can be found in small groups with special competencies (within alternative systems such as the master-apprentice system, autodidacts or people educated within the family, sports training, etc.). This knowledge is not something *everyone* possesses. *Uncertified specialists* (with experienced-based expertise)[32] refers to people who have knowledge that is more advanced than that represented by the more general concept of *knowledge* (experienced-based knowledge).[33]

Here, Collins and Evans mean that as soon as an analyst or a researcher turns to a person with *practical knowledge* in their research, the concept of *experience-based expertise* or *expert* should be used in order to bridge the gap that has arisen between forms of knowledge following the emergence of what the authors call *boundary problems* between various kinds of expertise.[34]

32 Ibid., 238.
33 Ibid., 251.
34 Ibid., 254.

2.1.4.2 Wave One: The Age of Authorities (–1960s)

Collins and Evans call the first wave of science studies *the age of authority*. At that time expertise, according to the authors, was fairly uncomplicated. People simply wanted to understand, explain, and enhance a scientific claim of legitimacy. Here the basis for the legitimacy was not questioned. The authority of the science or the expert was a given. This kind of confidence resulted in society awarding the scientist (the expert) high credibility, which means that the scientist could emphatically provide an opinion on, and defend, his/her own research and his/her own field. This deep and, according to the authors, almost esoteric confidence in science provided the authority that later came to characterise positivism. Thomas Kuhn (who was himself a positivist) kept up with his time during the 1960s and created the theory of paradigm shifts.[35] His contributions, together with those of other researchers, meant that science itself began to change. At the end of the 1970s the development of positivism as an *academic movement* had come to a definitive end.[36]

2.1.4.3 Wave Two: The Age of Democracy (1970s–)

The period of the second wave is described in the text as the age of social constructivism. The authors place the time for its starting point in the later 1970s and claim that it is still ongoing; one of its variants, the sociology of scientific knowledge (SSK), has extended the stage so that 'extra-scientific' factors have been introduced into the field with the goal of being able to continue with research that can be considered scientifically correct. This idea of social constructivism, which exists and can move within all departments and subjects, to some extent creates uncertainty. Scientific

35 Revolutionary changes that create a new order within various fields; set against these revolutions there is what we call normal science, which is the science that is dominant at the time in question, science that remains within the current paradigm. Kuhn claims that a paradigm shift always emerges from a scientific crisis that cannot be explained on the basis of that paradigm. Legitimacy claims are different for different paradigms. That which finally determines what becomes a paradigm shift is, among other things, the number of people who accept the new paradigm. See, e.g., Mats Alvesson and Kaj Sköldberg, *Tolkning och reflektion: vetenskapsfilosofi och kvalitativ metod* [Interpretation and reflection: Philosophy of science and qualitative methodology], 2nd updated ed. (Lund: Studentlitteratur, 2008), 32–46.

36 Collins and Evans, 'The Third Wave', 239. Positivism as a mainstay of scientific methodology and a point of departure lives on and is an integral part of science. For a more detailed explanation of this term, see http://www.ne.se/uppslagsverk/encyklopedi/lång/positivism (accessed 24 September 2015).

methods, experiments, observations, and theories are not enough. Today philosophers of science must be so certain of what is expressed within the framework of the sector in which they work that the very deconstruction and disintegration of the construction prevent them from building up new knowledge. The authors argue that these theorists are themselves *experts* and should not be afraid of constructing new knowledge on the basis of their own expertise within the specific subject areas they represent. If one cannot in science studies differentiate between experts and non-experts, who will then take responsibility for the development of science and its construction into the future? Here Collins and Evans mean that philosophers of science must prepare themselves for constructing the categories necessary for developing a 'knowledge science' that uses knowledge and expertise as analytic categories. The third wave, *Studies of Expertise and Experience*—SEE—is, according to the authors, advancing.[37]

2.1.4.4 Wave Three: The Age of Expertise? (21st Century)

During the transitional period between the second and third waves, with respect to their contents relating to the philosophy of science, there is much that of necessity was taken apart, examined, and studied. This only became possible with the new, anti-authoritarian, and democratic research approaches of the second wave. With the second wave, science was opened up. An important line of argumentation for Collins and Evans is to show that the approach of the second wave is not wrong, but that the third wave is now forging a new time and can be applied to a number of specific problems that the second wave cannot deal with alone in a coherently intellectual way. The authors make clear that this would be 'to hammer a piton into the ice wall of relativism' that they feel exists.[38] The change must, in spite of this, be effected with 'enough delicacy not to shatter' or splinter what has been achieved by earlier theoretical constructions.[39] The authors feel that it is not necessary to destroy everything that has been built up in order to move on. A desire to move forward means creating a logical foundation—and a special place for science and technology to work together.

Now that parts of science have been deconstructed, this line of thought rather means that the goal is to *re*construct science.[40] Third-wave

37 Collins and Evans, 'The Third Wave', 239–42.
38 Ibid., 240.
39 Ibid.
40 Ibid.

science must emphasise *expertise* and bring out the role of the expert in the context, and then as an analytic possibility (not as a specific individual). Here the authors want to emphasise an *analyst's category* on the same basis as *actor's categories* are now used. Thus, this wave will allow for a prescriptive normative knowledge, which means that it is different from knowledge that is only used to make descriptive pronouncements (by experts) in the public sphere. The transition to a prescriptive normative expertise can seem inconsistent with what the authors have identified as a problem; it may seem to indicate a desire to steer towards an older view—authoritative science.[41]

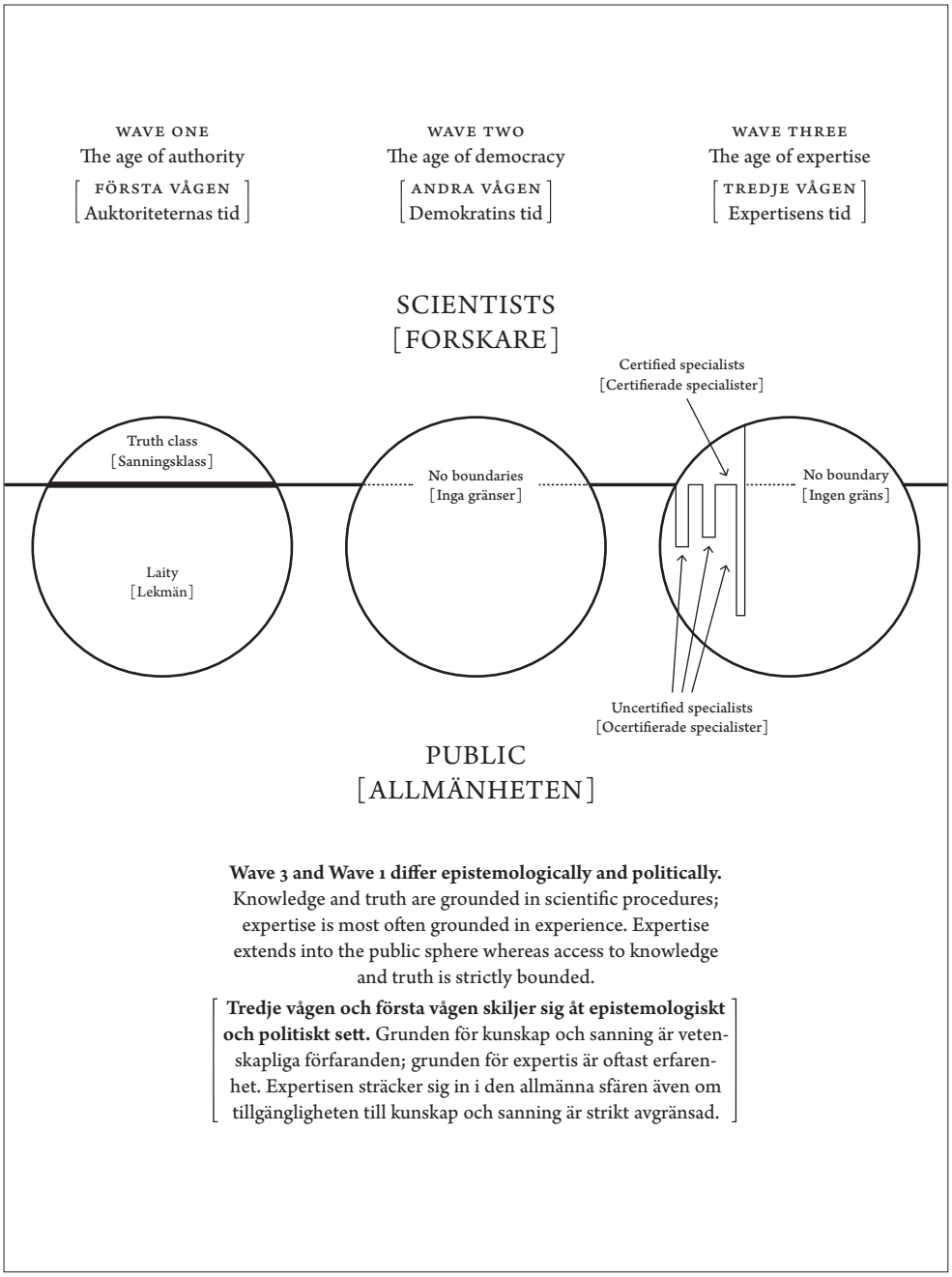
In the figure below (Figure 1) the various waves in science are compared and placed in relation to each other. Researchers within various disciplines can in this schematic arrangement follow in what manner and where their own science is in line with the thoughts of Collins and Evans.

2.1.5 The Concept of the Expert According to Collins and Evans: a Definition

An expert, in the presentation of these researchers and as I interpret it and will use the concept, is not an individual per se but a *category*. What Collins and Evans present here is completely conclusive for the results of an investigation. When I operationalise the thought of third-wave science, I see new possibilities for interdisciplinary cooperation. Cooperation that I feel would follow this third wave can be communicated in accordance with the following: The investigation begins when a group of individuals wish to conduct a scientific study and reflect together on what categories should be included in their work. In this way the group will see what competencies are required and can decide who should be considered as expert(s), actor(s), or analyst(s). Subsequent to this reflection, decisions can be made and the participants in the scientific work will receive their respective roles (be assigned their roles).

Here the idea is not to replace, but to expand, widen, and develop research that is already being conducted. Collins and Evans describe the results of the new wave of science, which I support and now wish to contribute to, as the creation of an interaction between groups of experts, one with and the other without formal schooling. Proposals that involve *interactive expertise* and *contributory expertise*, combined with the role of a 'translator' who has *interdisciplinary expertise*, should be able to communicate knowledge between the practical and theoretical fields. This would

41 Ibid., 249–50.



Wave 3 and Wave 1 differ epistemologically and politically. Knowledge and truth are grounded in scientific procedures; expertise is most often grounded in experience. Expertise extends into the public sphere whereas access to knowledge and truth is strictly bounded.

[**Tredje vågen och första vågen skiljer sig åt epistemologiskt och politiskt sett.** Grunden för kunskap och sanning är vetenskapliga förfaranden; grunden för expertis är oftast erfarenhet. Expertisen sträcker sig in i den allmänna sfären även om tillgängligheten till kunskap och sanning är strikt avgränsad.]

FIGURE 1. Schematic survey of the three waves discussed by Collins and Evans which shows how the role of expertise is distributed and conveyed over time. From Collins and Evans, 'The Third Wave.'[42] (Swedish direct translation in square brackets).

mean that it will be very difficult for schooled experts to disregard the knowledge that comes via the translators from these, often small, groups with *very specific knowledge* (unschooled practitioners or schooled practitioners with explicit knowledge). The authors suggest that institutions should be designed to be able to make use of all the knowledge that in principle just sits there waiting to be used in research. Collins and Evans argue that the few such institutions already in existence tend to be regarded as 'campaigning organizations'.[43]

2.1.6 The Use of the Concept of the Expert in This Thesis

In my thesis I work with promoting a broader knowledge base for archaeology. Here the subject is broadened by way of cooperation with experts from outside the formal scientific field of archaeology. This may be work with bringing together archaeologists and artisans for discussions about crafts, the interaction between tacit and explicit knowledge that creates an interdisciplinary opportunity and a particular role.[44] I consider my role in this work to be as a *translator*, a person with an opportunity to create communication between schooled and unschooled experts; in my case this can be between archaeologists and ceramists with a particular speciality. Unschooled experts should not here be confused with persons given the designation 'amateurs'; they are instead persons with *very advanced knowledge* within a specific artisanal field that cannot be learned within a formal system of schooling. Schooling is the acquisition of knowledge that occurs in the educational system that society's governing and regulatory system constructs, including also master-apprentice-systems and vocational training. Unschooled experts have profound and extensive knowledge within areas that are not taught through educational programmes within the framework of the educational system.[45] A position as a *translator* between artisans and archaeologists now leads to a Swedish

42 Ibid., 250.

43 Ibid., 271.

44 See Collins, 'A New Programme of Research?', 615–620. This article describes positions taken regarding this research programme and all the roles from the chosen theoretical perspective (SEE: Studies of Expertise and Experience). Through this, my own possible positions that can be linked to my dual roles as a ceramist and an archaeologist, and as a practitioner and a theorist, are made clear. These roles can be used in different contexts depending on specific research issues.

45 See the discussion of the concept of *contributory expertise* in H. M. Collins and Robert Evans, *Rethinking Expertise* (Chicago: University of Chicago Press, 2007), 23–28.

researcher who has worked with the concept of the expert from a didactic point of view. This expansion of the theory section can indicate how the role of an expert can be defined from a perspective of knowledge development and didactics, which will prove useful in issues regarding the attainment of knowledge and the understanding of how practical knowledge is constructed and valued.

2.1.6.1 The Expert: A Brief Description of Experts and Expertise within Cognition and Didactics

In the thesis *Från novis till expert: förtrogenhetskunskap i kognitiv och didaktisk belysning* (2008) by Lars-Erik Björklund, the concepts of expert and expertise are carefully explained. Björklund gradually works his way through previous research in the area, historical as well as contemporary. Even if his thesis is in the field of educational science, more specifically the didactics of the natural sciences and technology, it is nevertheless useful also for the discipline of prehistoric archaeology. Björklund's categories, which are based on implicit memory and learning systems, show that the ability to use complex combinations of these systems is what we can consider as expertise. The categories are as follows: *the ability to see and discover*, *the ability to assess, make choices, and make decisions*, and *the ability to act*.[46] In this description the implicit structures are not designated as *thinking* but have a strong connection to—and with—working memory.[47] The intelligent attention that is intended here is used, in the same way I interpret the ideas of Polanyi, to refer to a kind of *pre-linguistic* quality. From this inexpressible attention comes information that an actor absorbs and then is able to think and only thereafter to *verbalise* (express in words).

The ability of experts to make quick decisions and deliberations (seemingly automatically)[48] has been designated *intuition*. 'In these moments the expert does not think consciously, and finds it difficult to explain how and why she has acted in a certain way'.[49] Björklund also claims that different ways of acting are governed by how we as individuals 'add to a library of tried and tested experiences that all the time are enlarged

46 Björklund, *Från novis till expert*, 95.
47 Ibid., 96.
48 Regarding automatic actions that have been learned, see the chapter 'Förmågor beroende av implicita system' [Abilities that depend on implicit systems], which in an accessible and scholarly manner explains and develops these cognitive connections to expertise, in Björklund, *Från novis till expert*, 95–101.
49 Ibid., 97 (translated from the original Swedish).

and refined'.[50] In learning a craft, these discussions regarding experts are of value because an artisan from the beginning constructs knowledge in contact with a material: By *seeing and discovering* the characteristics of the material, *the ability to assess* how it would work in a given situation *is awakened*, and eventually the artisan in the tacit pre-linguistic state *chooses and makes the decisions* the material allows.[51]

When the artisan then acts in using the material, this can be done with the skill previous practical and theoretical knowledge make possible.

2.1.6.2 The Translator: A Brief Description of the Communication between Fields of Research

In this section I will present how I believe that Collins and Evans's concepts of expertise can be used in the discipline of archaeology; the starting point is the basis or platform from which the concentration in the thesis on communication between fields of research will proceed.

In this section the roles of *translator*, *expert*, *researcher*, and *analyst* are generalised and simplified in order to make up the various interacting categories, something that makes the communication among them clearer. A single individual can have one or more roles in this communication. The role of a translator becomes clear if or when we assume that, for example, subjects like archaeology and crafts should be able to share an *empirical source* and gain more information from archaeological finds. This suggestion implies that we should be able to extract new knowledge from sources, from both the actual physical materials (the artefacts) and the texts and observations made during excavations. In these sources there is hidden knowledge that the *knowledge bearers* (including also artefacts and texts) have (contain) and that other people can receive. This dialogue creates the *communication* that can provide additional new opportunities for archaeological interpretation. It is my contention that researchers and experts, as well as translators, learn new things. When they first embark on a collaboration, there is something new and difficult about the situation, but after multiple attempts a 'routine' is created that enables the representatives of the respective fields to understand how the work itself should be done. If two parties are too far apart, I believe that Collins and Evans's suggestion about *translators*, i.e., persons who

50 Ibid., 123 (translated from the original Swedish).

51 See also 'intuitive decision making', in Gary Klein, *The Power of Intuition: How to Use Your Gut Feelings to Make Better Decisions at Work* (New York: Currency/Doubleday, 2004). Quoted in Björklund, *Från novis till expert*, 120.

have their own interdisciplinary knowledge or an engagement with both subjects, are what can *enhance the communication* between, for instance, a practitioner and a theorist.[52] One example can be an archaeologist or an ethno-archaeologist who wants to understand how a craft is executed (in a technological sense) and what social aspects accompany this craft in a location where a craft is carried out with a historical or prehistorical technology in the present. If the researcher who wants to answer a specified research question also brings in experience-based experts (artisans) who have knowledge about the craft that is studied, in addition to archaeologists, new and different possibilities are created. The craft that is carried out, on which the study is to be conducted, is then performed by a local artisan (the informer) who has knowledge of the same craft as the accompanying expert (artisan within the same craft as the informer).

The composition of the group thus creates opportunities for the information to *be understood* by an individual who *knows* the craft as a practising artisan. This external expert can then understand artisanal information with *or* without words. The accompanying artisan (expert) can, by studying the craft itself, gather a lot of technological (and social) information through a *silent study*. The silent study is a common occurrence in artisanal circles. The individual sees and learns from the perspective of knowledge already attained, and sees the variations or choices colleagues make. Thereafter such an individual can, for instance in an archaeological investigation, make descriptive assertions about how the artisan (the informer) has performed an action or manufactured something. Here communication occurs on several levels, which provides *more* information about the artisanal technology and possible new answers to questions that have been introduced into the research. The information from the analysis of the artisanal expert is communicated to the archaeologist via a translational dialogue; here one can turn once again to the informer if

52 Here Collins and Evans's concept of *interactional expertise* would also be useful, and my thought is that it is *possible* for a person who has a very great understanding of the specific language of two subjects to be a part of a research effort. However, I interpret this position as a position that conveys knowledge, with great scholarly competence and understanding, *from* the team of researchers *to* the people around them (for instance, within the third mission, in which science is conveyed to the general public) rather than among the people who carry out the research (the experts). For this reason, I have here chosen the position of translator. My point of origin is that a *translator* has *at least one* of the competencies that can be considered to be useful expert knowledge in the collaboration. The fact that a person requires linguistic ability and an understanding of other people's areas of expertise in order to be a translator resembles the requirements demanded of an individual holding *interactional expertise* (examples of people holding clear *interactional expertise* can be science journalists, sociologists, psychologists, or ethnologists).

there is information that needs explanation or clarification. The archaeologist can, through the translation of the artisanal technology, contextualise the information and give it an archaeological interpretation. This approach is a point of entry to new discoveries. The roles can be created from the need a researcher has for different analyses, depending on how detailed a research question is. The above theoretical approaches make up, as was mentioned in the introduction to this section, the basis or platform which the perspective of the thesis will take as its starting point.

2.2 The Methodology of Artisanal Interpretation

The methodology I now present is my point of departure in developing an opportunity to study *skill* in crafts over time (archaeological and historical). In the emerging artisanal perspective, new methodologies that take as their foundation the experience-based expertise[53] that is described within SEE (Studies of Expertise and Experience) will be developed further. To be clear, the methodologies in question are under development and include a number of ways in which to study archaeological material. The methodology of *artisanal interpretation* has been developed and described in my previous works,[54] and it builds on the theories of *tacit knowledge* that have been clearly described in the theory section above. As is made clear in the theory section, the knowledge is in many instances *non-verbal*. There are also other designations for various elements of practical knowledge that can be useful to keep in mind, so a selection is presented here: instrumental knowledge, practical knowledge, knowledge in action, tacit knowledge, and embodied knowledge.[55] The concepts describe various elements of the physical and intellectual competence that can result in objects.[56] In order to embody knowledge, time and practice is required. The objects with their various characteristics and signs of artisanal production can be placed into hierarchical orders[57] and be assessed by an artisan who has expertise in the artisanal area in which the artefact was fabricated (an expert through experience, see the above theoretical concepts).

53 See Collins and Evans, *Rethinking Expertise,* 24ff regarding the concept of *contributory expertise*, and Harry Collins, *Are We All Scientific Experts Now?* (Cambridge: Polity, 2014), 64 regarding *experience-based expertise*.

54 Botwid, 'Från skärva till helhet'; Botwid, 'Offrad keramik'; and Botwid, 'Evaluation of Ceramics', 32–34.

55 Gustavsson, *Kunskapsfilosofi*, 137–38; Molander, *Kunskap i handling*, 33–56; Pye, *The Nature and Aesthetics of Design*, 4–8.

56 Björklund, *Från novis till expert*, 24.

57 Botwid, 'Evaluation of Ceramics', 37–40.

2.2.1 The Three Levels of Artisanal Interpretation

It is important to think about how much time and effort various artisanal technologies have been allocated in different periods and intervals of time. My experience of archaeological material shows that different artisanal techniques have been at the centre of artisanal interest during certain times. Artisans developed significant skills in working with a raw material that was used in particular prehistoric periods only to then move their focus to another or a 'new' material and other material expressions during other periods. There are many examples of this, and one idea is that a new material can attract artisans who are curious and interested in new technologies, and that they then push their craft as far as they are able during their lifetimes. How and whether these innovators have been given any scope for their material expression is difficult to say; my interpretation is that completely new technologies can be met with suspicion only to later become part of the artisanal repertoire and then eventually be experienced as self-evident.

The assessment of the various levels of skill is based on the fact that it is possible to tell both the difference between various manufacturing methods and whether an artisan has managed to attain a certain result. The levels do *not* represent assessments of individuals even though it is the work and artefacts of individuals that artisanal experts study.[58]

It is possible to see how *artisanal skill* is distributed within various contexts. As an expert in a craft *and* an archaeologist, I saw an opportunity for creating a tool for studying artisanal skill in the archaeological material. Interdisciplinary competence is *one* possibility, but because the levels only interpret skill (coupled to the possibilities of the body to perform actions through tacit knowledge/knowledge in action) the methodology is open to all archaeologists who want to conduct analyses *together* with various artisanal experts, depending on the material and the specific research questions.

The methodology of *artisanal interpretation* indicates only the *artisanal-technical* levels, but can after the assessment be connected to contextual and social contexts by an archaeologist.

The methodology comprises and places *artefacts* in the following *levels of knowledge*:

58 See Collins, 'A New Programme of Research?', 615, where the author summarises characteristics of expertise that are and can be common for works within SEE. When it comes to the assessment of levels, I concur with item 4, 'It is useful to classify different types of expertise into different types and levels'.

– *Professional artisanal skill:* The artisan has long experience and a very high level of knowledge. This individual is particularly skilful in her/his craft and can, in addition, move unhindered within the relevant field of expertise. An artisan who has attained a professional skill level takes risks and is able to completely resolve new problems by using the assembled knowledge s/he possesses.

– *Good artisanal knowledge:* The knowledge that most artisans possess is traditional knowledge. The bearer of tradition is not particularly inclined to take risks even if very skilled at the craft in question. Though not willing to deepen or proceed in knowledge development, such an individual is secure at a lower level of practical knowledge, a knowledge that s/he possesses and refines.

– *Artisanal knowledge:* The lowest level of artisanal-technical knowledge displays craft that is performed by a beginner or by someone who cannot perform on an independent level. This individual can only work step by step on the basis of instructions, or proceed by trial and error without guidance. The execution shows clear technological deficiencies.

The methodology creates an opportunity to see whether particular crafts have been performed by certain specialists or groups. Here archaeology can get closer to individuals and groups. The crafts that I have examined through this methodology so far, and through my and other people's expertise (see Paper 3), have provided evidence of various expressions (signatures) through their respective levels of knowledge, something that indicates that it would be possible to trace individual artisans in the finds. This methodology can be transferred to *all crafts* because the levels are based on what the body can perform and the opportunity an individual has of acquiring practical knowledge.[59] Each craft has its own parameters for assessment that can be used by experts when they assess skill, and thus an artisanal interpretation in various crafts can be accomplished.

59 Cf. the five steps of acquiring skill in the chapter 'Five Steps from Novice to Expert' in Hubert L. Dreyfus and Stuart E. Dreyfus, *Mind over Machine: The Power of Human Intuition and Expertise in the Era of the Computer* (Glasgow: Basil Blackwell, 1986), 19–36, which deepens the knowledge of how skill is developed. These five levels can be coupled to my three levels in the following way: *Professional artisanal skill* corresponds in *acquired* tacit knowledge to Dreyfus's skill level 5: *Expert. Good artisanal knowledge* corresponds in *acquired* tacit knowledge to Dreyfus's skill levels 3: *Competent* and 4: *Proficient*, and the level *Artisanal knowledge* corresponds in *acquired* tacit knowledge to Dreyfus's skill levels 1: *Novice* and 2: *Advanced beginner.*

2.2.2 Ceramic Artisanal Interpretation

To make an artisanal interpretation of ceramics provides in many ways an unusually clear opportunity for interpretation. Ceramics show signs of direct human actions and carry direct and clear traces of human hands, something that contributes to the methodology of *artisanal interpretation* being well-suited to an interpretation of ceramics.[60] Because one interprets using one's sensory perceptions and visual impressions in the tacit part of an interpretation, it is then possible to convey, via text and possibly through images, the information acquired (see the section on tacit knowledge above). Indirectly, tools, textiles, and adaptations of tools (scrapers, etc.) become visible in ceramic mass material. Also traces of seeds and other organic material (wickerwork, cords, etc.) leave impressions in wet clay, something that creates opportunities for reaching beyond the direct horizon of ceramic knowledge. These opportunities for interpretation will be discussed later in the extended field which my thesis work opens up.

In ceramic artisanal interpretation the artisanal expert uses the senses, primarily vision, hearing, and feeling. An individual's senses, together with personal experience of the craft, are used interactively in order to, by way of the experiences of one's own body, mirror and experience and thus decode the manner in which the artefacts have been fabricated. The parameters that are included (depending on the nature of the finds) in investigations of ceramics are the following: weight, balance, strength of form, size, wall thickness, percentage of temper, manufacturing technique, manufacturing level, choice of material, firing technique, firing temperature, finishing, decoration, and preconditions for the work.[61] Next, the prehistoric ceramist's *work* that has now been made visible is matched to one of the three defined knowledge levels by the ceramics expert. The three levels are possible to determine by way of the methodology of artisanal interpretation, and the various parameters, described above, have been 'fired into' the artefact and can be seen as a series of so-called frozen moments that are readable to an expert.

I now leave the theory and methodology section in order to proceed to a presentation of the current state of research before the case studies that were carried out will be presented. The results of the case studies

60 Botwid, 'Från skärva till helhet'.

61 Botwid, 'Från skärva till helhet'; Botwid, 'Offrad keramik'; and Botwid, 'Evaluation of Ceramics'; Sandy Budden and Joanna Sofaer, 'Non-Discursive Knowledge and the Construction of Identity: Potters, Potting and Performance at the Bronze Age Tell of Százhalombatta, Hungary', in *Cambridge Archaeological Journal* 19 (2009): 10.

will be presented and discussed. After this, I will return to a discussion concerning how the methodology can be used within an interdisciplinary opportunity to unite theory and practice.

3

Multidisciplinarity or Interdisciplinarity in the Discipline of Archaeology: Review of Research

Scientific areas are sometimes called *multidisciplinary*,[62] meaning that several scholarly disciplines are included in the research model. The concept of *interdisciplinarity*, which I want to explain here, is incredibly complex and cannot be described in simple terms. In Chapter Three I therefore wish to describe the range that can be encompassed by inter- and multidisciplinary scholarship and with respect to theory and practice. The communication between theory and practice will stay in focus throughout the texts I have chosen as my points of departure. The texts come both from fields relating to science studies and from the practice of archaeology and crafts. Crafts and the academisation of crafts have, in relation to the discipline of archaeology, been given more space in the following section because this process has not previously been described in the discipline of archaeology. When it comes to the brief description of the theory and practice of archaeology, I feel that what can emerge from this description is only an explanatory background to the content that the scholarly disciplines can be said to encompass.[63] The observations refer to Swedish circumstances but can be applied more broadly.

My explanation in this sweeping description is both simplistic and generalising but may capture something important for the *interdisciplinary* perspective that I call for, and it forms the basis for the concluding discussion.

3.1 Crafts and the Academy: Background and Review of Research

Artisanal knowledge is the kind of knowledge that is described as tacit knowledge. Through practical action, it is transferred by a person who has artisanal knowledge to a beginner in a social situation that has been differ-

62 Multidisciplinary activities are a collaboration—an interaction—among various fields of knowledge around a common problem area, but in which *each researcher remains* within the framework of his or her own field. (See *Att utvärdera tvärvetenskap – reflektioner utifrån Högskoleverkets utvärderingar 2001–2005* [Evaluating interdisciplinarity: Reflections on the basis of evaluations made by the Swedish National Agency for Higher Education], Högskoleverkets rapportserie [Swedish National Agency for Higher Education report series], report no. 2007:34 R, 9.)

63 For a more detailed historical background, see Bruce G. Trigger, *A History of Archaeological Thought*, 2nd ed. (Cambridge: Cambridge University Press, 2006); in this volume one can see how the three waves of science studies (see Chapter 2, 'Theory and methodology', of the present work) become visible within the discipline of archaeology.

ent in different times.[64] In the western world practical knowledge is conveyed in an educational situation similar to a regular school but with an emphasis on practical knowledge; theory is only included in certain parts of the education. In addition to the more common school system, there are still apprenticeships in certain crafts. The apprenticeship education in Sweden comprises seventy crafts with a teacher and a student, a so-called master-apprentice education.[65] In this form of learning, passing a test by means of a qualifying piece of work (a so-called 'gesällprov' ['journeyman test']), thereby obtaining a practical degree, is integral to the education. When the apprentice has completed a qualifying piece of work it is possible, after seven years of full-time employment in one's own business, to pass the formal requirements for the master craftsmanship diploma.

Another school form is the independent adult education college (the so-called 'folk high school'), which hires skilful artisans as teachers in a master-apprentice-like education where groups of ten to twelve students work together with the teacher. They *see*, *do*, and *practise*, and can learn a craft through a number of different practical steps. Within the independent adult education college there is no evaluation of the artisanal skill attained other than the confirmation given to the student by the teacher. The skill that is acquired more often becomes apparent in how a further development of the craft in question turns out. At the independent adult education college, with its broad knowledge base and its very specialised courses,[66] a significant number of the individuals who move on to the various fine arts faculties of the universities receive their training, but so do artisans who start up and run their own businesses in the form of companies or cooperatives. Arts and crafts as well as design can be studied up to the master's level at Swedish universities.[67] All Nordic and several European universities have master's-level educations in arts and crafts.

A more natural science-based foundation course in crafts and handicraft can be found at Linköping University, where several crafts are studied with an orientation to tourism, museums, and exhibition studies, and

64 Lave and Wenger, *Situated Learning*, 121–23; Dreyfus and Dreyfus, *Mind over Machine*, 16–21. See also Marchand, *Making Knowledge*—this anthology focuses on practical knowledge and artisanal knowledge in ten self-contained chapters; and Birger Arvas, 'Hur man utbildas till hantverkare' [How to train as an artisan] in *Sveriges hantverk: en bok om dess förflutna och nutid, om dess utövare i hem och arbete, samhälle och organisationer* [Swedish crafts: A book about their past and present, and their practitioners at home and at work, in society and in organisations], edited by Nils Niléhn (Malmö: Litterära verk/Bernces, 1956), vol. 2, 677–713.

65 http://www.hantverkslarling.se/larlingsyrken/ (accessed 24 September 2015).

66 http://www.folkhogskola.nu/Kurser/Amnesomraden/Estetiska-kurser/ (accessed 30 October 2015).

certain practical elements are combined with essay-writing. This education can be studied at the bachelor's level.[68] In Linköping the basis is not artisanal knowledge that has already been attained, but the idea is that it is possible to learn several different crafts within the scope of three years of academic studies in place. In this the Linköping education differs completely from other Swedish artisanal educations.

Practical knowledge within the subject of cultural heritage conservation and gardening can now be studied in Sweden under the auspices of the Craft Laboratory, which is a national centre for crafts in conservation at the University of Gothenburg. In cooperation with the Faculty of Science at the University of Gothenburg there are programmes in the practical maintenance of buildings and garden design at Da Capo in Mariestad.[69]

Here there is a clear difference in the construction of identity for academisation despite the fact that the various practical artisanal subjects have much in common. The Craft Laboratory emerged from an idea of conservation that developed in a way similar to the development of the schools of the societies of crafts and design during the mid-nineteenth century (see below). Within the cultural sciences there is a concern that artisanal skills could be forgotten because they are not practised, documented, or transferred to the next generation. Bengt O. H. Johansson, emeritus professor of conservation, writes in the book *Hantverkslaboratorium* [Crafts laboratory] about how architecture, experimental archaeology, and contemporary research within the subject of crafts have been provided with new insights into wood and construction crafts by genuinely investigating how something *is made* from a purely artisanal perspective. Knowledge that has been forgotten is rediscovered, and understanding translated into words can make that knowledge usable again, this time without its being forgotten.[70] In all the educational programmes mentioned above there is

67 School of Design and Crafts (HDK) at the University of Gothenburg; University College of Arts, Crafts and Design in Stockholm. Stenebyskolan [Steneby school] in Dals-Långed both provides higher education preparatory courses in a crafts school operated by a foundation and runs HDK Steneby, which is a collaborative venture for certain arts and crafts at university level in cooperation with the University of Gothenburg.

68 http://www.liu.se/utbildning/program/slojd/beskrivning?l=sv (accessed 30 October 2015).

69 The Department of Conservation at the University of Gothenburg is responsible for the programmes in construction crafts, gardens, and landscape maintenance that are taught at Trädgårdens skola [the Garden school]. In cooperation with the Faculty of Science at the University of Gothenburg a person can today study these three-year educational programmes leading to a bachelor's degree.

70 Bengt O. H. Johansson, 'Hantverk och byggenskap i backspegeln' [Crafts and construction in the rear-view mirror], in Löfgren, *Hantverkslaboratorium*, 29.

now underway, to varying extents, an academisation of practical knowledge. In *Hantverkslaboratorium*, which describes the activities of the Craft Laboratory, Gunnar Almevik and Lars Bergström write the following:

> Previously, institutions and persons who have never practised a craft have represented *the field of artisanal knowledge and become qualified through research in crafts*. *Our* academisation of crafts provides an opportunity for:
> - artisans training artisans
> - artisans themselves exploring advanced theories and practices
> - artisans to be given positions of power to affect the conditions for the practice of crafts.[71]

This historiography is a starting point for collecting and constructing theories and academic knowledge about crafts and artisanal skills in a specifically chosen research environment. This environment is in itself in continuous contact with tacit knowledge. Workshops and work sites, both indoors and outdoors, make it possible for applications to practical work to occur continuously with documentation and reflection. The apprentice/student can work outdoors one day, and write down, photograph, and discuss the following day. In this idea the authors argue that it is important that crafts find their own way of describing what is performed tacitly. Emphasis is placed on how important it is that this knowledge not be lost by being textualised; knowledge must not end up in the bookcase but should be practised.[72] This entire academisation is nevertheless controlled through text and other documentation, resulting in a somewhat contradictory message. By positioning themselves completely intradisciplinarily these researchers run a risk of not progressing in their quest for legitimacy. Certain crafts are represented in the university, primarily within arts and crafts and other artistic activities such as filming, documentary filming, and documentation technology. Within artistic areas artisans such as mask makers, puppet makers, draughtsmen, wig makers, scene painters, carpenters, smiths, scenographers, photographers, and tailors can be mentioned as examples of artisans who are active in collaboration with members of artistic academic core disciplines. In addition, there are a number of artisans who have an academic education, thereby creating interdisciplinary opportunities. Sometimes research and

71 Gunnar Almevik and Lars Bergström, 'Hantverkslaboratoriet: Ett nationellt centrum for kulturmiljöns hantverk' [The Craft Laboratory: A national centre for crafts in conservation], in Löfgren, *Hantverkslaboratorium*, 13 (translation from the original Swedish; italics added).

72 Almevik and Bergström, 'Hantverkslaboratoriet', 9–23.

research questions end up in situations where a researcher could have benefited from the opportunities provided by third-wave science studies in finding cooperation with theoreticians and practitioners or philosophers who could shoulder the role of experts in 'thinking about' crafts. The risk would thus be reduced that the research be marginalised in the way that Collins and Evans suggest (see previous section).[73]

A process similar to that of the Craft Laboratory is taking place in the academisation of arts and crafts. Arts and crafts have a practical tradition dating back to the creation of the art industry schools in the mid-nineteenth century, when the guild system was discontinued. Contemporary arts and crafts can be defined as the production of objects that have an artistic or individual expression, which are not primarily intended for commercial mass production but are a unique personal and therefore linguistic form of expression for an individual artisan and her or his own artisanal skill (a language of design). The object is displayed and assessed in an artistic context, that is to say it is displayed, described, and located in the artistic scene that the period in question decides is legitimate.[74] The art industry schools, which are now part of the university and university college system, were founded in the mid-nineteenth century. The School of Design and Crafts (HDK) at the University of Gothenburg was founded in 1848, and the University College of Arts, Crafts and Design (a state-run Swedish university college within art and design) in Stockholm was founded in 1844. The art industry schools of that time trained students under mottoes such as, 'konst och lära ger gunst och ära' ('art and learning provides favour and honour').[75] During their education the students were expected to learn to design and execute crafts of a high quality. However, these crafts were limited to the crafts that were industrialised after the guild system was discontinued in 1846, and what remained were the societies of crafts and design, which wished to preserve artisanal knowledge and design in spite of there no longer being a requirement for professional knowledge in order to be allowed to start up workshops

73 Collins and Evans discuss having to construct institutions that can be truly interdisciplinary and have the opinion that the few institutions (that pursue a single line) still belong to second-wave science studies and create deadlocks in progress; thus these institutions tend to be regarded as 'campaigning organizations' (Collins and Evans, 'The Third Wave of Science Studies', 271).

74 This description is my own view; I feel that what is displayed in arts and crafts galleries and other arenas for arts and crafts *should be regarded* as arts and crafts in a social sense.

75 This text can be found painted on the wall above the entrance portal (from the inside) at HDK – the School of Design and Crafts, Chalmersgatan 12, 411 35 Gothenburg.

or factories.[76] What was previously called in Swedish 'formgivning' ['shaping' or 'forming'] is now known by the English term 'design', and industry often employs Swedish designers, but the production, the actual crafting, is often located outside of Sweden in countries where labour is cheaper. Design can be defined as knowledge that is primarily intended for mass-production; the work of the designer becomes visible in the market-controlled commercial present. Over time, the work of a good designer can acquire status and antique value, and the work of certain designers with very small production runs will quickly be regarded as unique, and in such cases the boundary between arts and crafts and design can become blurred.[77] Here both the artisanal and industrial production processes become part of the knowledge that the designer knows well and of which he or she has great knowledge, but usually does not master in a purely practical sense.

The arts and crafts programmes offer advanced courses in crafts within a university education, something that provides an advanced level of practical knowledge. The student's final examination consists of completing a practical final work that is assessed by an external professor who publicly discusses and examines the work. At the end of the 1990s this education underwent a change from a four-year to a five-year degree at the master's level, and completing a theoretical element in the form of a report has been a requirement since 1997. During the twenty-first century an academic paper-like theoretical project has been developed where one of the parts results in a practical project with a materials-based[78] work that can be assessed, together with a text that follows academic rules and regulations. During recent years the arts and crafts educations have gone through a change through an academisation of their subjects. Within the scope of this academisation, arts and crafts in this case seek, in comparison to culture-preserving crafts, a theorisation rather than an explanation or a documentation of *tacit knowledge* (cf. the Craft Laboratory). Artistic intention and one's own need for expression is placed in a theoretical historical-philosophical perspective; often the value of specific knowledge within the cultural area is discussed, and issues regarding language and

76 HDK was founded already in 1848, more than a hundred years before the establishment of the University of Gothenburg. The reason for this was that during the transition from crafts to industry it was discovered that a need arose for a completely new professional category. http://www.hdk.gu.se/sv/om-hdk/historia (accessed 17 January 2015).

77 This description is my own view but describes in a very concise way what I believe is how design is regarded today.

78 Arts and crafts are often executed in various materials, e.g., metal, textile, ceramics, glass, wood, paper, and combinations of these, and also in combination with other, less traditional materials, for instance rubber, concrete, etc.

status as well as human needs beyond a utilitarian aspect are elucidated. Since 2000 it has been possible to get a doctorate in design, and since 2010 in arts and crafts.[79] Also here (cf. the Craft Laboratory) an independent definition is sought of how arts and crafts should be researched, academised, and theorised. HDK and the University College of Arts, Crafts and Design have third-cycle (doctoral) programmes in the discipline of arts and crafts, and third-cycle activities are in the course of being developed. This development involves building up so-called complete environments (kompletta miljöer) that incorporate all three educational cycles, including third-cycle programmes and research. Here the idea is to work for cooperation among these activities. With the academisation, artisans have become concerned that it is not enough to become very skilful and *communicate via their practical knowledge*. Certain people in the area fear that theory and descriptions of methodology will take a lot of time from the development of practical skills.

Master-apprentice seminars within arts and crafts are in principle completely silent: the students watch a skilled artisan work, and learn from studying visually how the work is accomplished, which is an irreplaceable knowledge transfer which I designate *silent study*. According to critics, this knowledge transfer risks being replaced by, for instance, the philosophy of science and contemporary debate.[80] Here the process is important, and because the academisation is in the process of being shaped, it becomes increasingly important to show that artisanal knowledge is living knowledge that *is* its own entity. How these circumstances should be described is, like everything within the academy at large, an ongoing development.

3.2 Archaeology and the Academy: Background and Review of Research

Archaeology is a discipline that from the beginning has consisted of the study of prehistoric material culture. The discipline was defined in Swed-

79 The arts and crafts educations consist of, on the basic level, the programmes Ceramic Art, Jewellery Art, and Textile Art, and on the master's level the programme Crafts, which has orientations in ceramic art, jewellery art, and textile art. http://www.konstfack.se (accessed 1 August 2015), http://www.hdk.gu.se (accessed 1 August 2015).

80 Here there are no available written references at present, but during various forms of discussions at conferences and other gatherings within trade unions such as KRO/KIF (KRO, the Swedish Artists' National Organization and KIF, the Association of Swedish Craftsmen and Industrial Designers) issues surrounding educational paths and demands for textualisation are often discussed. I refer here to my own participation on such occasions.

ish universities around the time when the art industry schools emerged during the nineteenth century, which is when archaeology became a discipline studied at university. Early on, natural scientific methods were used to discuss or make understandable various archaeological problems.[81] In Sweden the discipline emerged between the mid-nineteenth century and 1914–19, the time at which the first professorships in archaeology were created. Now the discipline of archaeology is represented at universities and university colleges all over the country. How the discipline of archaeology is represented nationally and what the current situation is within education can be seen in an evaluation report from 2009 by the Swedish National Agency for Higher Education.[82]

In contemporary archaeology, material culture is studied from many different perspectives. The subject is multidisciplinary with various orientations, theories, and methods. Because material culture in today's archaeology also consists of human remains, animal bones, botanical remains, traces of land use, and constructions of houses, graves, and other visible structures such as early dry-stone field boundaries and palisades, a strong connection to various areas of expertise is required. Building archaeology, osteology, and palaeoecology are areas that have been incorporated into the discipline of archaeology and that hold an obvious position in the intradisciplinary structure.

Objects that have been made by people in order to fill all manner of needs for tools, household implements, clothes, textiles, jewellery, hygiene articles, furniture, etc., represent many different techniques and materials. The study of these is to a great extent intradisciplinary, and has, traditionally speaking, not included the artisanal expertise that could have been utilised. Here it is evident that artisanal expertise is an underutilised source of advanced knowledge. The study of archaeological subjects is intimately linked to describing and interpreting how people have lived in various periods of time, and different periods are studied in different archaeological sub-disciplines.[83] The various sub-disciplines and delimitations[84] sometimes make it difficult to see that certain types of artefacts exist in many periods of time. Continuity related to the shapes of certain objects is very long and can thus have completely

81 Trigger, *A History of Archaeological Thought*; see Chapter 3, 95ff for a detailed description in terms of the history of ideas concerning how the first scientific and systematic science of archaeology developed in Scandinavia.

82 Högskoleverket [Swedish National Agency for Higher Education], *Granskning av utbildningarna inom arkeologi* [Evaluation of the educational programmes within archaeology], Högskoleverkets rapportserie [Report series of the Swedish National Agency for Higher Education], report no. 2009:9R (Stockholm: Högskoleverket, 2009).

different boundaries than what the present subdivisions of the discipline permit. There are objects from prehistoric periods that have the same shapes and that have also been interpreted to have had the same functions as historical and contemporary objects. One example of this is the discovery and interpretation of a toolbox that was discovered in 1936 at Mästermyr on the island of Gotland. In the box were tools that were initially judged to be from the twentieth century, but which were later dated to the Viking Age.[85] In archaeological contexts, multidisciplinarity is still the governing approach when it comes to cooperation. This circumstance leads us to the next section, where I discuss how a communicative science can be described. This picture is presented in order to introduce the idea of communication before the results of my case studies are presented. With this section I want to show in what context the results can be understood.

3.3 Communicative Science?

Interdisciplinarity is not a scientific area for which the boundaries can be delimited. Here, a definition proposed by the Swedish National Agency for Higher Education can form the basis for continued discussion:

> According to this view, the activities become *interdisciplinary* when the researchers move in the border regions between various disciplines and together create a new field. In contradistinction to multidisciplinarity, the participants then contribute to something new, beyond their own disciplines. Compared to multidisciplinarity there is a higher ambition when it comes to integrating the various disciplines.
>
> When the degree of integration becomes sufficiently high, new disciplines or subjects can be created. There is a possible chronology in these

83 Archaeology, historical archaeology, classical archaeology, historical osteology, classical archaeology and ancient history, numismatics, laboratory archaeology and osteoarchaeology, contemporary archaeology, archaeology of the future, digital archaeology, mediatory archaeology, experimental archaeology.

84 See the so-called three-age system that divides human prehistory into the following periods: the Stone Age, the Bronze Age, and the Iron Age. http://www.ne.se/uppslagsverk/encyklopedi/lång/treperiodsystemet (accessed 24 September 2015).

85 Greta Arwidsson and Gösta Berg, *The Mästermyr Find: A Viking Age Tool Chest from Gotland* (Stockholm: Vitterhets-, historie- och antikvitetsakad. [The Royal Swedish Academy of Letters, History and Antiquities], 1983), http://www.historiska.se/press/friapressbilder/foremal/pressbilder_hallare/verktygskista/ (accessed 31 August 2015).

relations that can be expressed as follows: multidisciplinarity—interdisciplinarity—discipline.[86]

In the interdisciplinarity to which I wish to belong, it is this defined and shared attitude to which I aspire in my scholarly work. Being part of an integrated science that is interested in contributing to common progress is for me absolutely necessary.

Communication between practice and theory, with a focus on a higher ambition of creating new knowledge that in future will contribute to the emergence of new disciplines and the integration of all kinds of knowledge, is a high aim. This aim is not naïve; we see how many disciplines dare to choose communication instead of guarding their own disciplinary and subject boundaries. Because it becomes possible in third-wave science to move more freely, great responsibility is required. There will be many *trial-and-error and new learning* situations[87] that must be accepted because an attempt cannot immediately be expected to succeed. All new science that gains ground has been tested (and has sometimes failed) repeatedly in qualitative or quantitative research before finding its form. This is a process for developing new ways of communication as well as for developing new research. In the research I imagine as the future of the discipline of archaeology, the process has already begun in various research groups that strive to explore paths together. We various researchers within archaeology try to partake of research from different fields (often in the natural sciences), but may be puzzled about the ways in which our various subjects produce knowledge. My experience of being part of an artisanal community is that within a *group* of artisans (all crafts) people prefer to focus on what *unites* rather than what separates the various subjects (or materials). The artisans who communicate and share with other people are rewarded with higher status within the group. This attitude regarding aims that are common to multiple subjects would create extensive and important research in the future. In the next section I describe academic dissertations that have been presented during the twenty-first century and are based on the author's own artisanal knowledge. Here I

86 Högskoleverket [Swedish National Agency for Higher Education], *Att utvärdera tvärvetenskap – reflektioner utifrån Högskoleverkets utvärderingar 2001–2005* [Evaluating interdisciplinarity: Reflections on the basis of evaluations made by the Swedish National Agency for Higher Education, 2001–2005], Högskoleverkets rapportserie [Report series of the Swedish National Agency for Higher Education], report no. 2007:34R (Stockholm: Högskoleverket, 2007), 9–10 (translated from the original Swedish).

87 Situations where those who try something new repeat the attempt again and again until they are more and more successful. Eventually these attempts succeed and then new knowledge is created.

use one dissertation from within the discipline of archaeology and one from outside it, that demonstrate how dissertations based on artisanal knowledge would be able to expand the reference base and knowledge regarding (in this example) carpentry in archaeological interpretations. The dissertations are described in greater detail below.

3.3.1 Practice: Doing and Interpreting

Within the subject of crafts in Sweden two dissertation have, to my knowledge, been published that have the authors' *own practical artisanal knowledge* as their empirical basis and methodological points of departure. One is the interdisciplinary dissertation (between archaeology and crafts) by the textile artisan and archaeologist Annika Larsson, 'Klädd krigare: skifte i skandinaviskt dräktskick kring år 1000', from 2007.[88] The other is by artisan Ulrik Hjort Lassen, who graduated in 2014 (in the intradisciplinary subject of timber and carpentry) with the dissertation *The Invisible Tools of a Timber Framer.*[89]

Annika Larsson's text is based on her own practical knowledge in the subject of textile crafts; she is a trained textile engineer and archaeologist. Larsson draws her own conclusions from what she sees in archaeological textile materials. Larsson describes her archaeological aim in this way: 'I want to make the artefacts tell me about the society that created them.'[90] The dissertation attracted attention, and it is, to my knowledge, the first Swedish dissertation that has been written by an artisan who has used her tacit knowledge of crafts[91] as an empirical basis for the archaeological interpretations that are presented. In spite of the attention, the outcome was that Larsson's research was called into question on archaeological

88 Annika Larsson, *Klädd krigare: skifte i skandinaviskt dräktskick kring år 1000* [Dressed as a warrior: Social shift in Scandinavian costume in the vicinity of the year 1000], Occasional Papers in Archaeology 39 (Uppsala: Uppsala University, Department of Archaeology and Ancient History, 2007).

89 Ulrik Hjort Lassen, *The Invisible Tools of a Timber Framer: A Survey of Principles, Situations and Procedures for Marking*, Gothenburg Studies in Conservation 32 (Gothenburg: University of Gothenburg, Department of Conservation, 2014). Available online at http://www.gu.se/english/research/publication/?publicationId=217556 (accessed 1 August 2015).

90 http://www.arkeologi.uu.se/Forskning/Forskningspresentationer/annikalarsson/ (accessed 15 August 2015).

91 Pye, *The Nature and Aesthetics of Design*, 4–8; Molander, *Kunskap i handling*, 33–56; Bernt Gustavsson, *Vad är kunskap?: en diskussion om praktisk och teoretisk kunskap* [What is knowledge? A discussion on practical and theoretical knowledge] (Stockholm: Statens skolverk [The Swedish National Agency for Education], 2002), 88–90.

grounds, but it was regarded as a good provocation for breaking down some given truths in intradisciplinary archaeological research.[92]

Ulrik Hjort Lassen's dissertation attracted a great deal of attention, and he was presented in various media as the first artisan doctoral student who had based his thesis entirely on his own knowledge of the craft and presented his entire research *within* the subject of crafts, but adapted to academic *rules and regulations*.[93] The dissertation was presented at the Department of Conservation, the Craft Laboratory, at the University of Gothenburg, and has been called the first dissertation in crafts. In the dissertation, Lassen works with his own crafts-based text and image communication regarding older techniques which he, via the dissertation, also applies and describes in constructing a gazebo. Practical geometry and carpenter's marking are part of the knowledge preservation approach of the dissertation. A licentiate thesis based on the writer's own knowledge as a craftsman has also been published at the Craft Laboratory, Thomas Karlsson's *Ramverksdörr – en studie i bänksnickeri*.[94]

In 2007 in Great Britain the ceramist and archaeologist Sandy Budden presented the dissertation 'Renewal and Reinvention: The Role and Learning Strategies in the Early to Late Middle Bronze Age of the Carpathian Basin'. The methodology of this thesis is entirely based on knowledge Budden gained in the ceramics profession.[95] Similarly, Heide W. Nørgaard will soon publish 'Tracing the Hand that Crafted: How Individual Working Traces Make Bronze Age Ornaments Talk' (forthcoming dissertation) based on her own artisanal knowledge and her knowledge as an archaeologist.[96]

92 Lise Bender Jørgensen, review of *Klädd krigare: Skifte i skandinaviskt dräktskick kring år 1000*, by Annika Larsson, *Fornvännen* (*Journal of Swedish Antiquarian Research*) (2008): 313–15.

93 http://www.lararnasnyheter.se/slojdforum/2011/11/23/varldens-forsta-hantverksdoktorand-aterupptacker-gamla-tekniker (accessed 14 October 2015); http://sverigesradio.se/sida/avsnitt/45817?programid=412 (accessed 15 October 2015).

94 Tomas Karlsson, *Ramverksdörr – en studie i bänksnickeri* [Manufacturing a door using frame construction: A study of bench work in wood] (Gothenburg: University of Gothenburg, Department of Conservation, 2013).

95 Budden presented a doctoral dissertation in 2007 entitled 'Renewal and Reinvention: The Role and Learning Strategies in the Early to Late Middle Bronze Age of the Carpathian Basin'. In Britain dissertations are not published in book form, but Budden has published a number of articles subsequent to the dissertation. As a researcher it is possible to gain access to British dissertations.

96 Heide W. Nørgaard, 'Tracing the Hand that Crafted: How Individual Working Traces Make Bronze Age Ornaments Talk' (forthcoming).

Experimental archaeology, which exists within the scope of the discipline of archaeology, has attracted many archaeologists who are interested in crafts. Institutet för forntida teknik [The institute for prehistoric technology] had, under the management of Tomas Johansson, a clear archaeological orientation.[97] In 1986 a symposium was held in Gällö, where experimental archaeology was discussed. The results and discussions were reported by Deborah Olausson in the periodical *Fornvännen* (*Journal of Swedish Antiquarian Research*) in 1988. In summary it can be said that one of the discussions concerned the issue of whether experiments should be conducted by archaeologists or by experts in the area under study, and here Olausson argued that researchers in *traditional archaeology* do not hesitate to rely on experts. She ends by pointing out that this should be possible also in *experimental archaeology*, simply because the results would have greater credibility.[98] Many of today's archaeologists who have an interest in crafts have a background at this institute, which was located at Bäckedal independent adult education college in the county of Jämtland. Under Johansson's management students worked with experimental archaeology that was reported on progressively. The institute published a periodical entitled *Forntida teknik* [Prehistoric technology] that published both descriptions of experiments and various prehistoric artisanal techniques, as well as discussions of archaeology and crafts. This periodical was published biannually until 1994.

Certain areas within archaeology already have stronger links to an artisanal perspective, and cooperation and research that have textile studies as a basis are becoming increasingly common. Textile artisans who work as experts (analyses of weaving techniques relating to prehistoric material) or recreators and reconstructors of textiles for research can be found within the framework of the discipline of archaeology. One example is textile engineer Lena Hammarlund, who is a Swedish handweaver, trained in Borås. Hammarlund uses her own artisanal knowledge as a basis for handweaving. She participates in several different collaborations with archaeologists in order to work out valid interpretations and reconstructions of archaeological textiles.[99] Hammarlund's knowledge

97 Archaeology students from Umeå University worked with prehistoric techniques, a collaboration that lasted for a few years. The activities were later moved to Bäckedal independent adult education college, which still offers courses with an orientation towards prehistory.

98 Deborah Olausson, 'Symposium Report: Experimental Archaeology – Method and Future: Gällö 24–25 September 1986' in *Fornvännen* (*Journal of Swedish Antiquarian Research*) 83 (1988): 112–14.

99 The Danish National Research Foundation's Centre for Textile Research (CTR), the University of Gothenburg, and the Norwegian University of Science and Technology (NTU) in various collaborations.

of practice serves as an empirical starting point for several archaeological publications.[100]

Throughout the entire development of the discipline, archaeologists have studied crafts from many different theoretical perspectives, such as the ethnoarchaeological, social, cognitive, biological, artisanal-technological, statistical, and artistic.[101] Knowledge that has been gained from the work of these researchers is invaluable from an artisanal perspective. These are good examples of how topical artisanal research is. Because the constraints from which I proceed are *tacit knowledge* and how it is communicated, I have no space for discussions of the above research within the scope of the present thesis.

However, in this context can be mentioned older works in which a writer's own artisanal knowledge has been the guiding principle concerning the knowledge that is presented in the text, and the writer is the person who has researched and written about the subject. An example of this form of knowledge transfer outside the academy is cabinet-maker Thomas Tempte's *Lilla arbetets ära*, in which the author discusses carpentry and shows reconstructions of tools and artefacts such as the chair of Tutankhamun and a lathe from the fifth century AD, and also discusses the status of crafts.[102] The ceramist and glass artist Finn Lyngaard, in his *Jydepotter og ildgrave*, writes about ceramists who work in a historical crafts tradition on Jutland which, according to the author, could be typologically attributed to the Roman Iron Age. Lyngaard also describes and discusses the purely technological deficiencies and advantages of the tradition.[103]

Also surveys such as *Sveriges hantverk – en bok om dess förflutna och nutid, om dess utövare i hem och arbete, samhälle och organisationer* by Nils Niléhn, William Karlsson, and Henning Persson describe all contempo-

100 Kathrine Vestergaard Pedersen and Lena Hammarlund, 'Textile Appearance and Visual Impression: Craft Knowledge Applied to Archaeological Textiles' in *Archäologische Textilfunde – Archaeological textiles: NESAT IX*, ed. Antoinette Rast-Eicher and Renata Windler (Ennenda: ArcheoTex, 2007), 173; Lise Bender Jørgensen, 'The Introduction of Sails to Scandinavia: Raw Materials, Labour and Land' in *N-TAG-TEN: Proceedings of the 10th Nordic TAG Conference at Stiklestad, Norway 2009*, ed. Ragnhild Berge, Marek E. Jasinski and Kalle Sognnes (Oxford: Archaeopress, 2012).

101 A few researchers whom I have to thank for my own understanding of how archaeology *and* crafts can be studied include, in a strictly limited selection, Barbara Ambruster, Dean Arnold, Eva Andersson, Jan Apel, Sophie Bergenbrant, Berit Valentin-Eriksen, Olivier P. Gosselain, Ian Hodder, Anders Högberg, Maikel Kuijpers, Åsa M Larsson, Anders Lindahl, Edward Matenga, Deborah Olausson, and Marie-Louise Stig Sørensen.

102 Tempte, *Lilla arbetets ära* [A little book on the honour of work].

103 Finn Lyngaard, *Jydepotter og ildgrave* [Jutland pots and firing pits] (Copenhagen: Clausens forl., 1972), 34.

rary crafts from both the technical practical and social perspectives of its time, Sweden of the 1950s. In this anthology artisans also talk about their work and their skills.[104] This type of literature is also useful for research from an artisanal perspective. There are countless publications within all crafts subjects that are step-by-step do-it-yourself descriptions that are intended to function as direct transfers of knowledge so that a reader will learn a certain technique. Some of these can be an entry point to an understanding of archaeological or historical technologies, such as basket-weaving, flax retting, spinning, nalbinding (single-needle knitting), weaving, carving, working with birch bark (näverslöjd), etc. To this can also be added a large volume of literature on cultivation, utility plants, woodchopping, and older uses of materials for house construction.

3.3.2 Practice: Consulting and Interpreting

An archaeologist can, when knowledge about a certain issue is needed, use the option of consulting experts in certain specific areas. Here the point of departure for the archaeologist can be the one I myself am using when I consult artisans.[105] The archaeological material, the artefacts, that I work with in this case represent (see Paper 3) crafts that I do not myself master and, in accordance with my ideas about an artisanal perspective, I then base my interpretations on information provided by artisans whom I regard as experts in their respective areas. So far I have tried consulting a cabinet-maker, Per Brandstedt,[106] and an archaeologist who has a textile education in prehistoric textile techniques, Linda Eva Olofsson.[107] I believe that the interpretation provides a more correct picture than if I myself (or other archaeologists) perform an artisanal interpretation and assess the knowledge and artisanal situation of a prehistoric artisan.[108]

104 Nils Niléhn, William Karlsson, and Henning Persson, eds., *Sveriges hantverk – en bok om dess förflutna och nutid, om dess utövare i hem och arbete, samhälle och organisationer* [Swedish crafts: A book about their past and present, and their practitioners at home and at work, in society and in organisations] (Malmö: Litterära verk/Bernces, 1955–56).

105 Botwid, 'Visible Craft' (Paper 3).

106 Per Brandstedt is an internationally renowned Swedish woodworker in the area of arts and crafts. His experience of his craft is extensive and he has worked full-time for over thirty-five years, achieving the level of master in the guild of master craftsmen. As a master he has taught woodworking to apprentices, both nationally and internationally.

107 See ibid.

108 An example of this is Eva Andersson at CTR in Copenhagen, who does research on textile crafts in cooperation with the Saxo Institute at the University of Copenhagen.

Using the knowledge of skilled artisan experts in the discipline of archaeology can be linked to the attitude quoted earlier (in the section on crafts) regarding the experience-based expert who is positioned *within* instead of *outside* the academic sphere. Almevik and Bergström write that 'people who have never practised a craft have represented the artisanal knowledge field of artisans and become qualified through research in crafts';[109] my view is that it is important that Almevik and Bergström's opinion is discussed. I do not completely agree with their picture. There are good examples that are built into the disciplines of archaeology, art history, and the history of style. There are people who are incredibly knowledgeable and interested in crafts and who become experts on entire groups of objects, styles of art, and design. My view is that their knowledge is useful as expert participation within archaeology if the questions are directed in such a way that people who hold this type of knowledge have the relevant expertise. In my image of the research I wish to see in future, it is increasingly interesting and exciting the greater the number of experts who become qualified within crafts, since this means that the interest in crafts increases. This will then increase the relevancy of research being done by practitioners, by those of us who have knowledge of crafts.

I am becoming qualified right now, in the same manner as has been described above by the representatives of the Craft Laboratory. As an archaeologist and a ceramist I have expertise in these areas but will turn, if I need to know more, to the person (for instance an artisan or a geologist) who knows most about that which I need to know at the moment. I use experts to support my research and make it valid and reliable.

In my other position, as an artisan, I can make artisanal interpretations myself because I am a trained ceramist with, at present, twenty-five years of daily experience of the ceramics craft. I do what other artisans do, I still practise mastering the material I have chosen, which is a life-long process. In my archaeological essays I made my first attempts to academise this practical knowledge, and have since then developed a methodology to make use of artisanal knowledge for the benefit of the discipline of archaeology.[110]

Communicating between scholarly branches is not something that can be forced; my view is that this has to be 'worked' into existence when there is a need for interaction. Within the field of crafts, artisans reach out to the natural sciences in a manner similar to that of archaeologists. Co-operation concerns, for instance, the development of materials, strength,

109 Almevik and Bergström, 'Hantverkslaboratoriet', 13, translated from the original Swedish.

110 Botwid, 'Från skärva till helhet'; Botwid 'Offrad keramik'.

knowledge about materials, measurement techniques, the creation of new materials for public configurations, weatherproofing, silicate chemistry, and pyrotechnical qualities.

It is easy to understand the fact that representatives of the natural sciences and archaeology have incentives to reach across their disciplinary boundaries because these disciplines developed during the same period of time and in contact with each other. This was at a time when individuals began to be able to observe themselves and thus to look both backward and forward.[111] Earlier, during the early modern age, there was no need to delimit things (objects) and human beings in the manner it would later be done in a modern academic context.[112] Because it could not yet be designated, tacit knowledge in some sense remained in the earlier idea. Tacit knowledge was conveyed only through knowledge in action.[113] Sometimes the topic of artisanal skill was raised in a discussion about quality,[114] and more often about the status of crafts in earlier times. There were rarely any references to knowledgeable experience-based experts in the craft under discussion. These circumstances may be decisive for how tacit knowledge came to be marginalised as a resource for the discipline of archaeology.

3.3.3 Theory: Thinking and Interpreting

Encountering an unfamiliar subject area is trying. How then could stronger communication be built between crafts and archaeology? Entering on an analytical task based on my own acquired artisanal knowledge within a craft that has formed the basis of a strong typological research tradition was my first step. Here I could see that the artisanal interpretation of ceramics implied a very different archaeological interpretation.[115] To then show how anomalies can be foregrounded and form new categories of finds was my next step.[116] After this, in the third paper of my thesis

111 Ola W. Jensen and Björn Magnusson Staaf, 'Between Body and Artefacts: Merleau-Ponty and Archaeology', in *Philosophy and Archaeological Practice: Perspectives for the 21st Century*, ed. Cornelius Holtorf and Håkan Karlsson (Gothenburg: Bricoleur Press, 2000), 57.

112 Ibid., 60–61.

113 Molander, *Kunskap i handling*, 15–19.

114 See Ulla Isabel Zagal-Mach Wolfe, *Grasping Technology, Assessing Craft: Developing a Research Method for the Study of Craft-Tradition*, Acta Archaeologica Lundensia Series altera in 8° 63 (Lund: [Lund University], 2013), 96 and Kuijpers, 'Early Bronze Age Metalworking Craftmanship', 30.

115 Botwid, 'Evaluation of Ceramics'; see Paper 1.

116 Botwid, 'The Colour of Life'; see Paper 2.

work, I tried out what I myself have suggested: I consulted people who are experts in their respective areas.[117] My experiences from these trials make it clear that as an archaeologist one is not automatically suited for working with one's research questions with the aid of consultants. It becomes very important to plan and prepare in the right way. My intention was that it would be very clear to a participating artisan that s/he was the person who possessed the expertise that I needed. This was difficult, in spite of careful preparation, because I did not myself possess as much knowledge about the crafts I wanted to know more about, and I often ended up with archaeological arguments instead of going deeper into an artisanal interpretation. In my paper 'Visible Craft: Tracing Skill, Knowledge and Invisible Tools through the Artisanal Perspective' I discuss how the interview method works and can be developed.[118]

The fear of making mistakes and of not being able to communicate are two of the most difficult facets when it comes to working across disciplines. The stable foundation on which one stands in one's primary discipline is very easy to lose if one does not feel secure. My experience is that interdisciplinarity often becomes intradisciplinary or multidisciplinary because it becomes too painful to venture out onto uncertain paths. One rather sticks to those paths that are familiar. The well-trodden tracks provide security.

My knowledge as a ceramist is a significant part of my identity; I possess the knowledge of the hand. Embarking on an academic career was a path that was totally alien to me when I commenced my studies in archaeology. After my master's degree (120 credits) I became an archaeologist, but I felt like a beginner because I did not have twenty-five years of archaeological experience, nor was I skilled at relating to academic rules and regulations. It has taken a lot of time and strength to acquire a certain security within the academic discipline of archaeology. Explaining artisanal facts without being able to refer to written texts has been a challenge. It is easy to find yourself in a situation where you protect yourself and limit yourself to speaking defensively and arguing for your own position. After a couple of years I realised that it is a pedagogical challenge to bring in tacit knowledge in the context of a spoken and written archaeological and historical disciplinary world. I quite simply had to explain myself. I am doing that now.

To speak about one's own *language*, as Mårten Medbo (PhD student in ceramic arts and crafts at HDK) does in his thesis text 'Lerbaserad

117 Botwid, 'Visible Craft'; see Paper 3.
118 Ibid.

språklighet', verbalises the tacit knowledge of the ceramics craft.[119] My own point of departure is the same knowledge, tacit knowledge, when I with my hands *read* the skills of my prehistoric colleagues.[120] The question that usually arises is *how* I do it. The knowledge of the hand is tacit but it can be verbalised. Like Medbo, I am a schooled ceramist; we both possess practical artisanal knowledge that has been learned within the scope of the master's programmes in ceramics/art of HDK and the University College of Arts, Crafts and Design (see above under heading 3.1). Like all schooling, this provides standardisation; we would probably both read vessels with similar results. Texts would become unbearably long if I were to describe *how* I read or how I experience the vessels I examine with respect to the artisanal skill that has been crafted into them.

Polanyi writes the following: 'Meticulous detailing may obscure beyond recall a subject like history, literature, or philosophy. Speaking more generally, the belief that, since particulars are more tangible, their knowledge offers a true conception of things is fundamentally mistaken'.[121] I agree with Polanyi, and instead talk about the skill the vessels represent on the basis of my interpretation.[122] This possibility is also mentioned by Mårten Medbo in the manuscript of his thesis: 'Every historical or prehistorical wheel-thrown object was made by a colleague and can be read like a document about throwing'.[123] Testing a path where this different method of analysis is used as a basis for archaeological interpretation requires persistence. Convincing another researcher that what I see and observe is scientifically sound can be a pedagogical challenge.

In her thesis, archaeologist and ceramist Sandy Budden uses artisanal knowledge as a tool for her analysis. She writes the following: 'Given that material objects are understood to play a central role in the constant

119 Mårten Medbo, PhD student at HDK with a thesis project on 'Lerbaserad språklighet' [Clay-based speaking] (2013).

120 There is a discussion within archaeology that takes up things as texts; for a more detailed explanation, see Anders Andrén, *Mellan ting och text: en introduktion till de historiska arkeologierna* [Between thing and text: An introduction to the historical archaeologies] (Eslöv: B. Östlings bokförl. Symposion, 1997).

121 Polanyi, *The Tacit Dimension*, 19; *Den tysta dimensionen*, 44.

122 Botwid 'Evaluation of Ceramics', 32–35; Katarina Botwid, 'Från hand till hand – arkeologisk forskning ur ett hantverksperspektiv' [From hand to hand: Archaeological research from an artisanal perspective], in *Att befolka det förflutna: fem artiklar om hur vi kan synliggöra människan och hennes handlingar i arkeologiskt material* [Populating the past: Five articles on how to make visible people and their actions in archaeological material], ed. Anne Carlie (Kalmar: Riksantikvarieämbetet [Swedish National Heritage Board], 2014), 59–61.

123 Medbo, 'Lerbaserad språklighet', 13, translated from the Swedish original.

negotiation of cultural and social dynamics, understanding the nature of skill acquisition and skill deployment may be considered to be an important enterprise.'[124]

Herein lies the crux of the matter: How can we find trust in each other's professional honour or competence in interdisciplinary cooperation?

Practitioners and theorists may need to get used to each other in order to later understand what ground-breaking cooperation might look like.

124 Sandy Budden, 'Skill Amongst The Sherds: Understanding the Role of Skill in the Early to Late Middle Bronze Age in Hungary' in *Breaking the Mould: Challenging the Past through Pottery*, ed. Ina Berg (Oxford: Archaeopress, 2008), 1.

4

The Papers of the Thesis and a Summary of Results

Each of the four papers that form the foundation of this thesis is presented separately. In the thesis text they are used as a basis for the ideas I present and the theoretical positions I assume. Working with interdisciplinary investigations has developed my theoretical understanding of what I myself and other people do in practice. Here I have tested and developed methods and tools of analysis that will be described in brief and be followed by a summary of results. In the section on synthesis and discussion, a more detailed discussion will be presented regarding the positions assumed by philosophers of science when it comes to being able to bring together the participation of several experts in a process.

4.1 Paper 1: Evaluation of Ceramics: Professional Artisanship as a Tool for Archaeological Interpretation[125]

Paper 1 builds on an investigation of a limited amount of archaeological ceramic material. The ceramics were deposited in graves from a minor grave field from the Roman Iron Age, dated to the fourth century AD, situated in Sjogersta parish south of Skövde in the county of Västergötland. The ceramic material formed the foundation for the development of the methodology of artisanal interpretation, which assesses the skill of prehistoric artisans. In this paper the methodological bases are presented. Here are shown the ways in which artisanal interpretation can contribute to the archaeological interpretation of artefacts. The investigation produced several results that made it possible to establish that *artisanal interpretation* can provide additional opportunities for the interpretation of ceramics in the discipline of archaeology. In addition to showing the validity of the method, it turned out to be possible to create new questions for future in-depth study. The ceramics in the two investigated stone circles consisted of so-called fine ceramics that was judged to have been shaped by artisans whose skill only reached the level of *artisanal knowledge*, which indicates that the burial ceramics were perhaps not created by a ceramist, but can be interpreted as a *representation* of vessels in this context. The vessel that was assessed to have been executed on the level of *professional artisanal skill* was a vessel that sat in the open between the two stone circles. It contained a cremated individual and a belt buckle in bronze, decorated using chip carving, depicting a bearded male figure and two inverted bird ornaments. In this case the modified interpretation contributed to new interpretations of the archaeology of burial customs and of the craft of ceramics as a cultural bearer of meaning.

125 Botwid, 'Evaluation of Ceramics', 32–44.

4.2 Paper 2: The Colour of Life: An Artisanal Perspective on Ceramic Anomalies During the Scandinavian Roman Iron Age[126]

Paper 2 discusses a find from an Iron Age farm (Gustavslund) that was inhabited during the Early Iron Age into the Roman Iron Age. Gustavslund is situated in Scania within the boundaries of the present-day city of Helsingborg. This investigation, which was conducted by Riksantikvarieämbetet UV Syd [Swedish National Heritage Board investigative activities south],[127] was the first to include an *artisanal interpretation* of ceramics as part of a final comprehensive investigation. All ceramics had been examined in the customary way in archaeology:[128] dating, object identification (refers to an interpretation of how the objects were used), and the development of a local typology in comparison with other Scanian materials.[129] After finishing the first analysis I, in the role of an experienced-based expert, was given an archaeological assignment that meant that I compared three farms in the area with respect to the supposed artisanal skill in the various farm locations.[130] During the analysis of the finds, a particular find different from the others was discovered. It was categorised as 'burnt clay',[131] and was, according to what I could see, an oxide crayon. It turned out that this category of finds did not exist among the archaeological categories of finds. Oxide crayons occur commonly within both the historical and the contemporary ceramics craft. The paper discusses how the path through archaeology to *artisanal interpretation* in cooperation with laboratory archaeology can result in completely new

126 Botwid, 'The Colour of Life'.

127 The archaeological investigation activities in Lund of the present-day National Historical Museums.

128 The ceramics were reported, sorted, analysed, and the finds were registered by Torbjörn Brorsson, Kontoret för Keramiska Studier (Ceramic Studies).

129 Torbjörn Brorsson, 'Den förromerska och romerska keramikens kronologi och funktion – exempel från Gustavslund i Helsingborg' [The chronology and function of pre-Roman and Roman ceramics: Examples from Gustavslund in Helsingborg], in Håkan Aspeborg, Bo Strömberg, and Katarina Botwid, *Gustavslund: en by från äldre järnålder: Skåne, Helsingborgs stad, Husensjö 9:25 (Gustavslund), RAÄ 184: arkeologisk undersökning 2010* [Gustavslund: A village from the Early Iron Age: Scania, the city of Helsingborg, Husesjö 9:25 (Gustavslund), RAÄ [Swedish National Heritage Board] 184: Archaeological investigation 2010] (Lund: Arkeologiska uppdragsverksamheten (UV Syd) [Archaeological project activities (investigative activities south)], Riksantikvarieämbetet [Swedish National Heritage Board], 2014).

130 Aspeborg, Strömberg, and Botwid, *Gustavslund*.

131 Burnt clay is, according to my interpretation, a category of finds that can be said to include a broad class of ceramics or other clay that has, intentionally or unintentionally, been burnt and that cannot directly be distinguished as recognisable artefacts.

interdisciplinary conclusions in the way that I argue interdisciplinarity will be able to function. The conclusion is that there were artistic materials during the Roman Iron Age in Sweden. Earlier research had seen traces of colour but not whole crayons. The crayon is dated to 180–20 BC. We see before us an increasingly colourful prehistory.

4.3 Paper 3: Visible Craft: Tracing Skill, Knowledge and Invisible Tools Through the Artisanal Perspective[132]

In the third paper I test interdisciplinary opportunities by working together with two artisans in areas that I do not master, carpentry and textile crafts. In addition to this, the possibility of discussing issues relating to crafts with a specialised archaeologist and a farmer is tested. The results and the modes of procedure are an important part of the development of an artisanal archaeology that can be said to belong to the artisanal perspective. In the paper I take as my starting point my earlier artisanal interpretation of ceramic artefacts in the bog of Lake Käringsjön north of Halmstad, where people have deposited artefacts during the period between AD 200 and 400. My earlier investigation of the ceramic artefacts,[133] together with the new artisanal interpretations, resulted in a broadened picture of the artisanal community at the site, of life as an artisan. Here issues relating to the amount of time required and the transfer of knowledge in the craft could also be interpreted. These interpretations indicate a population that had a specific understanding of certain crafts and a general understanding of the significance of crafts for the group. A strict use of an artisanal perspective through all the crafts encountered in the find showed that a new empirical basis for interpretation was possible.

4.4 Paper 4: Understanding Bronze Age Life at Pryssgården (LBA) in Sweden – from an Artisanal Perspective[134]

The fourth and most substantial publication in the thesis is a minor monograph (Paper 4). The investigation in focus is Pryssgården in present-day

132 Botwid, 'Visible Craft', (submitted).
133 Botwid, 'Offrad keramik', 27–33.
134 Paper 4: Understanding Bronze Age Life at Pryssgården (LBA) in Sweden – from an Artisanal Perspective, Acta Archaeologica Lundensia report series 8°, (forthcoming).

Norrköping. Pryssgården was investigated archaeologically in 1993–94 and then aroused great archaeological interest nationally. All the archaeological methods that then existed were used on the site, various natural scientific analyses and environmental and landscape analyses. It has been possible to test the artisanal perspective on a more extensive archaeological material by way of my investigation of the 7,100 find items. On the basis of the artisanal interpretation, which has been linked to earlier investigations, a broadened picture of Bronze Age society and its organisation of crafts has been created. The emphasis for the archaeological interpretation is the Late Bronze Age, because the largest proportion of finds has been dated to this period. Crafts-based methods such as *artisanal interpretations* and *archaeological experiments* have been used, together with typology and other comparative archaeological methods. The learning of crafts and artisanal knowledge is described on the basis of a platform of practical, tacit knowledge by putting into words actions that can be discerned in the archaeological artefacts and contexts that can be linked to this site in the county of Östergötland. Investigations of artisans' knowledge of the craft of ceramics are described, and reinterpretations of finds and anomalies (unusual finds) from Pryssgården are presented.[135] The site is in the synthesis tied to the greater Bronze Age context. The finds from Pryssgården and other archaeological circumstances are contextualised through the interdisciplinary approach of the artisanal perspective. Here Paper 4 contributes new scientific results.

4.5 The Combined Results of the Investigations

Understanding but not being able to prove something is one of the challenges of archaeology. An archaeologist wishes to understand great as well as small events in prehistory. Excavations partly destroy the evidence. Largely, the investigation becomes non-reproducible after it has been concluded. This fact makes the archaeologist dependent on a number of various options to try and explain what s/he sees and interprets. An

135 Katarina Botwid, 'From Figurine To Tuyère: Re-Interpretation of a Goddess Figurine Using Artisanal Interpretation of a Find from the Bronze Age Site of Pryssgården in the Southeast of Sweden'. Contribution originally presented on 8 March 2013 and, after additional archaeological experiments, on 2 June 2014, and the final interpretation during the 21st annual meeting of EAA (European Association of Archaeologists), Glasgow, 3 September 2015. Katarina Botwid, 'Skilled Children in Ceramic Craft: Artisanal Interpretation of a Bronze Age Pot from the Bronze Age Site of Pryssgården in the South-East of Sweden' and 'Craft and Climate', both at XV Nordic TAG 2015, Copenhagen, 16–18 April 2015.

archaeologist is to a certain extent an artisan in the excavation situation; tacit knowledge and experience are part of the archaeologist's tools.[136] Archaeology has, in itself, developed methods for describing, documenting, and collecting the necessary information that can be obtained in the excavation situation. How then can this information be secured? Reports and documentation are here completely dependent on the knowledge and meticulousness of the archaeologist. How meticulous one can be is weighed against the time and opportunities provided by the assignment in the context in question. Is it a preliminary investigation, a commissioned excavation, or a research excavation? What budget do the archaeologists have at their disposal? All parameters are weighed in, and the archaeologist must make choices on the basis of these. One choice might be to use experts in order to reinforce the flow of information. Many experts and laboratories can be involved in an excavation that has significant claims of legitimacy. Samples can be taken and sometimes experts are called to the excavations in order to supervise or look for information that is relevant to their own areas of expertise. All this happens during a certain period of time, and then the excavation is discontinued and reported on. Hopefully all the reports from experts come in before the excavation report is published. The stored reports and artefacts are kept for a future that will pose different questions to the material. In the context, these can be regarded as the concluding results of an archaeological excavation.

I have built my case studies on such concluding results. I have taken out both the finds and the documentation from earlier investigations. In the investigation that is presented in Paper 2, I participated in the discussion from the beginning and had an opportunity to contribute with an artisanal interpretation in the report. This, together with an interpretation of the ceramic knowledge of the prehistoric artisan, has created a new category of finds, *oxide crayons*, which shows that artistic materials have existed (made for the purpose) on site.[137]

The expert can, as has been discussed earlier, be found in many fields, and a clear theoretical discussion is included at the end of the thesis. If the work process of a prehistoric craft is analysed and described for the purpose of showing how these activities are reflected at the dig site, a clearer picture of prehistoric activities will emerge. Analyses of how an object was made and an assessment of the degree of skill that the arte-

136 See the discussion in Michael Shanks and Randall H. McGuire, 'The Craft of Archaeology' in *American Antiquity* 61, no. 1 (1996): 75–88.

137 Katarina Botwid, 'Hantverkstolkning av keramik – en undersökning av forntida keramikers hantverksskicklighet' [Artisanal interpretation of ceramics: An investigation of the artisanal skill of prehistoric ceramists], in Aspeborg, Strömberg, and Botwid, *Gustavslund*.

fact represents can be conveyed to the archaeologist. An artisan can in turn also explain the circumstances and resources that are required for the craft to be carried out. The artisan can see traces of, or have an understanding of, several different parameters, such as knowledge intensive actions that describe actions where several artisans participate in a work process that includes them all together in one embodied and common action carrying out a stage of the craft. These stages lead towards an end result or an important stage that cannot be carried out in any other way (e.g., the erection of roof trusses, large ceramic firings, the work flows of metal casting, glass-blowing, etc.). Such processes require that each participant possesses tacit knowledge and can contribute to the work of the group using his or her embodied and learned knowledge. This option requires participation in which the artisan has learned (or is in the process of learning) through peripheral or situated learning.[138] First the artisan looks on, and thereafter participates in the 'simplest' actions, which gradually increases the understanding and knowledge until finally the individual is capable of leading such a process.

The knowledge of the expert makes it possible to show or describe artisanal processes and explain what they might look like during various periods, because materials behave, technically speaking, in similar ways over time. This can provide an understanding of what an artisanal process may have looked like and leads to an *artisanal technological decoding*. An archaeologist can then use this for her/his own understanding and combine it with an archaeological interpretation.

Not all information regarding crafts is tied to the dimension of tacit knowledge, even though its origins may have been. For instance, mixtures of raw material in glazes, a good composition of metal or colour mixtures, can quickly be understood and captured by an expert. This information can easily be conveyed to the archaeologist.

In the same way as with natural scientific analyses, an archaeologist can contextualise the information and with new insight interpret archaeologically the sites on which s/he works.

138 Via ethnological investigations Lave and Wenger have observed certain patterns of learning in social situations. They see how a person who wishes to learn often observes for a time only to draw ever nearer to active participation. See Lave and Wenger, *Situated Learning*.

5

An Artisanal Perspective in Practice

It is now possible to speak about an emerging theoretical perspective. Through the results presented above, which establish the legitimacy of the methodology and of the development of perspective, it becomes clear that it is possible to add a theoretical framework regarding both practical and theoretical expertise to all parts of the discipline of archaeology. It becomes necessary to relate to the role of the expert, regardless of the discipline in which one feels one's foundational knowledge lies. On the basis of this knowledge regarding how a methodology is operationalised and developed, an approach that has been theorised through the topic of this thesis is produced through the case studies of the thesis. Before the synthesis and discussion about the large picture is conducted, it is now appropriate to determine for whom an artisanal perspective is important and how it can be open to everyone.

5.1 For Whom Is the Artisanal Perspective Important?

The person who is looking for knowledge about things (objects) will find that everything belonging to the world of objects has been made by *someone*, and the person who investigates these things and phenomena will wonder about that. *How* was the thing made, *who* made it, and *how* was the work (skill) performed? An archaeologist who feels that it is not possible to describe *what* people do and *how* they do it in practical artisanal work during prehistory and history can look for this proposed qualitative information and find this opportunity within the framework and methodology of an artisanal perspective.

Those who now think that it is sufficient to read *texts* about the performance, quality, or material will lack one important factor, that is the *testimony* of the concrete practical intellectualised knowledge about the objects, the physical materials, the work, and the world.

Even persons who feel that it is difficult to expand their view and define human actions if they are not *directly measurable* can, within the framework of this perspective, find new solutions.

5.2 How Can an Artisanal Perspective Be Open for Everyone?

Because the artisanal perspective does not demand more expert knowledge from an individual but an *interactional communication* across disciplinary boundaries and an ability to partake of other people's knowledge

(also unschooled experts in praxis), all researchers who are interested in expanding their view of knowledge can be part of the theoretical framework to which third-wave science opens the door. We have not found all forms for this yet, but within the discipline of archaeology there are infinite opportunities for inviting contemporary professional groups who deal practically with many categories of human affairs. This can result in completely new and unexpected research efforts that proceed from an individual who asks a research question and looks for the answers through interactions.

6

Synthesis and Discussion

Talking about crafts is difficult: there are many opinions about crafts and artisans, both outside and within the artisanal community. There is sometimes a difficulty in the contact itself, as I will describe here. The idea is not to evaluate but to describe the picture I see. Within archaeology and in my role as an archaeologist I feel that the artisan can be seen both as a bearer of knowledge and as a threat.

In my other role as an artisan I can, with my practical knowledge, contribute to providing more detailed and new knowledge and to verifying and falsifying certain hypotheses. When I myself examine ceramics, it is my own results that I present, both in my capacity as an archaeologist and as an artisanal expert.

Speaking from different points of origin, such as theoretical and practical ones, can be just as difficult as speaking different languages. People cannot understand one another. Linguistic usage itself can present an obstacle. The encounter between different knowledge traditions works very well in some cases and in other cases not at all.

Linguistic usage can determine how different participants in various interdisciplinary studies view their participation. The importance of changing one's attitudes and creating interdisciplinary alternatives can be seen as far too arduous a task. Being a living knowledge bearer should in practice be an asset.

When it comes to changing the language, something that at present is topical in social debate, it becomes clear that language is important for successfully reaching out. It doubtlessly arouses feelings.[139]

To give an example: within the discipline of archaeology this can become clear when we speak about *traditional Swedish crafts*. The concept can be received positively or negatively depending on which artisanal community we are in. *Should* archaeologists know that Sami, Jewish, Roma,[140] or certain women's crafts do not count as traditional Swedish crafts? The concept of *traditional Swedish crafts* was formulated within the crafts and design movement in the late nineteenth century and could, for example, in addition to the earlier mentioned crafts, exclude crocheting, which was considered lax and devastating for a person's morals, in

139 See the social debate regarding older linguistic usage: 'Intersectionality, concept within the social sciences that is meant to make visible specific situations of oppression created in the intersections of power relations based on race, sex, and class. The concept has its background in anti-racist feminism' (*Nationalencyclopedin* [The national encyclopaedia], s.v. 'intersektionalitet', translated from the original Swedish). http://www.ne.se/uppslagsverk/encyklopedi/lång/intersektionalitet (accessed 15 October 2015).

140 Anneli Palmsköld, 'Hantverkskunskap som immateriellt kulturarv' [Artisanal knowledge as an immaterial cultural heritage] in Löfgren, *Hantverkslaboratorium*, 101.

opposition to lace-making, in which the person performing the craft sat up straight and worked diligently.[141]

If I now change perspectives, another example is when an artisan or craftsperson speaks of *primitive* artisanal techniques and an archaeologist reacts with mistrust because the concept *primitive* is regarded as depreciatory and colonial. Within arts and crafts and in crafts the concept to some extent retains the meaning of *original*, and it is therefore considered to have a *higher status* than work performed with advanced modern technology. The above example and short discussion indicates how linguistic usage and understanding can hamper interdisciplinary cooperation. It can be easy to find oneself at linguistic dead ends and in misunderstandings, which in their turn create difficulties for communication.

6.1 A Possible Interdisciplinary Archaeology

In my own attempts to work with consulting artisans I wanted to test whether the differences that many archaeologists and artisans had described to me could be bridged. I began by asking questions during seminars about how archaeologists have cooperated with artisans during their time as archaeologists with a pronounced interest in crafts. What had the process looked like, and in which way had the artisan participated?[142] Here knowledge was gathered, and I had the chance to test how a *semi-structured* interview guide[143] was received. After comments and changes I have used the guide in my interviews and artisanal interpretations of crafts that I have not mastered. An important factor has been the positioning of the level of knowledge between an artisan I consult and myself. Here my questionnaire has been helpful. In the beginning of the interview, the artisan places his or her own experienced artisanal skill in the ten-grade *Visual Analogue Scale (VAS)*.[144] The archaeologist must then place him- or herself in his/her own VAS that shows his or her own artisanal skill when it comes to the craft under discussion. Here it is

141 Ibid., 98–103.

142 Artisanal seminar within the research group 'Hantverksgruppen' [Crafts group] at Lund University, spring 2014.

143 Semi-structured interview guide in accordance with Alan Bryman, *Samhällsvetenskapliga metoder*, 2nd ed. (Malmö: Liber, 2011), 412–445, published in English as *Social Research Methods*, 3rd ed. (Oxford: Oxford University Press, 2008).

144 The Visual Analogue Scale, abbreviated VAS, is part of a graphic method for measuring a person's perception or experience. See *Nationalencyklopedin*, s.v. VAS, http://www.ne.se/uppslagsverk/encyklopedi/lång/vas-(visuell-analog-skala) (accessed 29 Augusti 2015).

then possible to clarify who possesses knowledge and with whom you are speaking. The placing of both on the scale also functions as a way to break the ice. Here I feel that both the archaeologist and the artisan can be made to feel involved. When the examination itself is carried out, of objects or pictures and text, both parties will be more open to listening and understanding the other person's competence. To then allow the artisan to read and approve the summary text of the interview, the practical knowledge made understandable, so that misunderstandings or incorrect linguistic usage can be corrected, is very important. The archaeologist should be clear about the archaeological interpretation being her/his area and that the artisan's words here will sometimes form the basis for interpretations that the artisan would not her- or himself have made. The text that concerns empirical knowledge and the artisan's interpretation of how an object was made should be published as an experience-based expert opinion and the artisan should be presented and named so that other people can be made aware of the source that has been used. This management of sources can be likened to that of earlier oral sources, but here the artisanal knowledge is made visible and the source is known. It is my conviction that a clarification of sources makes archaeology more trustworthy.

The interaction between several actors requires time, and I maintain that careful preparation is important. My idea is that also artisanal interpretations, practical seminars, and artisanal reports in the form of texts or films could become a communicative and mediatory part of a scientific manner of expressing an artisanal perspective. There is well-developed research about how to capture and pass on practical knowledge that can immediately be made use of by filming crafts. In the project 'Silent Witness: Using Video to Record and Transmit Tacit Knowledge in Creative Practices' the British doctoral student Nicola Wood uses film in a clear and deliberate way in order to convey tacit knowledge from master to apprentice.[145] Strengthening the communication between crafts and archaeology adds weight to the discussion about how the various periods with their materials and practical methods can have developed. Through my thesis I have made visible how the *participation of experts* can create new knowledge about human beings as beings and artisans. This knowledge forms the basis for the entire technological development of society, prehistoric, historical, and contemporary.

145 Nicola Wood, 'Silent Witness: Using Video to Record and Transmit Tacit Knowledge in Creative Practices' in Gunnar Almevik, ed. *Hantverkare emellan* [Between artisans] (Mariestad: Hantverkslaboratoriet [The Crafts Laboratory], 2014), 57. This research has been conducted in consultation with Professor Chris Rust (Sheffield Hallam University, UK).

6.2 Communicative Archaeology: The Third Wave, a Utopia?

From here the road ahead looks very exciting: a flow of knowledge, practical and theoretical, rolls in from schooled and unschooled experts and translators who for every research question decide how and what should be done and by whom. The roles are filled and the desire to know more is what decides the cast for the particular research issue that is being foregrounded. Disciplinary affiliation is a remnant of earlier scientific paradigms. Knowledge, however it has been formed, is the main thing. No one remembers anymore why each person held on so tightly to their knowledge and did not share it. Into this third wave archaeology has bravely thrown itself, to prevail rather than perish. In this new science everyone must contribute to knowledge. Knowledge that has come from as many sources as possible is then regarded as reliable.

Bibliography

Almevik, Gunnar and Lars Bergström. 'Hantverkslaboratoriet: ett nationellt centrum för kulturmiljöns hantverk' in *Hantverkslaboratorium*. Edited by Eva Löfgren. Mariestad: Hantverkslaboratoriet [The Craft Laboratory], 2011.

Alsterdal, Lotte, Jonna Bornemark, and Fredrik Svenaeus, *Vad är praktisk kunskap?* [What is practical knowledge?]. Huddinge: Södertörn University, 2009.

Alvesson, Mats and Kaj Sköldberg. *Tolkning och reflektion: vetenskapsfilosofi och kvalitativ metod* [Interpretation and reflection: Philosophy of science and qualitative method]. 2nd ed. Lund: Studentlitteratur, 2008.

Andrén, Anders. *Mellan ting och text: en introduktion till de historiska arkeologierna* [Between thing and text: An introduction to the historical archaeologies]. Eslöv: B. Östlings bokförl. Symposion, 1997.

Arendt, Hannah. *The Human Condition*. 2nd ed. Chicago: University of Chicago Press, 1998.

Arendt, Hannah. *Människans villkor: vita activa*. Rev. ed. Gothenburg: Daidalos, 1998.

Arvas, Birger. 'Hur man utbildas till hantverkare' [How to train as an artisan] in *Sveriges hantverk: en bok om dess förflutna och nutid, om dess utövare i hem och arbete, samhälle och organisationer* [Swedish crafts: A book about their past and present, and their practitioners at home and at work, in society and in organisations], edited by Nils Niléhn, Vol. 2, 677–713. Malmö: Litterära verk/Bernces, 1956.

Arwidsson, Greta and Gösta Berg. *The Mästermyr Find: A Viking Age Tool Chest from Gotland*. Stockholm: Vitterhets-, historie- och antikvitetsakad. [The Royal Swedish Academy of Letters, History and Antiquities], 1983.

Aspeborg, Håkan, Bo Strömberg, and Katarina Botwid, eds. *Gustavslund: en by från äldre järnålder: Skåne, Helsingborgs stad, Husensjö 9:25 (Gustavslund), RAÄ 184: arkeologisk undersökning 2010* [Gustavslund: A village from the Early Iron Age: Scania, the city of Helsingborg, Husesjö 9:25 (Gustavslund), RAÄ [Swedish National Heritage Board] 184: Archaeological investigation 2010]. Lund: Arkeologiska uppdragsverksamheten (UV Syd) [Archaeological project activities (investigative activities south)], Riksantikvarieämbetet, 2014.

Bender Jørgensen, Lise. Review of *Klädd krigare: Skifte i skandinaviskt dräktskick kring år 1000*, by Annika Larsson. *Fornvännen* (*Journal of Swedish Antiquarian Research*) (2008): 313–15.

Bender Jørgensen, Lise. 'The Introduction of Sails to Scandinavia: Raw Materials, Labour and Land'. In *N-TAG Ten: Proceedings of the 10th Nordic TAG Conference at Stiklestad, Norway 2009*, edited by Ragnhild Berge. Oxford: Archaeopress, 2012.

Bergqvist, Johanna. *Läkare och läkande: läkekonstens professionalisering i Sverige under medeltid och renässans* ('Healers and Leechcraft. The Professionalization of the Art and Craft of Healing in Sweden during the Middle Ages and Renaissance'). Lund: Lund University, Department of Archaeology and Ancient History, 2013.

Björklund, Lars-Erik. *Från novis till expert: förtrogenhetskunskap i kognitiv och didaktisk belysning* (*From Novice to Expert: Intuition in a Cognitive and Educational Perspective*), Studies in Science and Technology Education, no. 17. Norrköping: Nationella forskarskolan i naturvetenskapernas och teknikens didaktik [The Swedish National Graduate School in Science, Mathematics and Technology Education Research] (FontD)/Linköping University, Department of Social and Welfare Studies 2008. http://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-17821.

Botwid, Katarina. 'Från skärva till helhet – keramisk hantverkskunskap som redskap för djupare förståelse av artefakter och arkeologisk kontext' [From a shard to a whole: Ceramic artisanal knowledge as a tool for a deeper understanding of artefacts and archaeological contexts]. Essay, supplementary course in archaeology. Visby: Gotland University, 2009.

Botwid, Katarina. 'Offrad keramik – mossfynd från romersk järnålder i Käringsjön i Halland' ('Sacrificed ceramics: Bog finds from the Roman Iron Age in Käringsjön in Halland'). Essay, advanced course in archaeology. Visby: Gotland University, 2009.

Botwid, Katarina. 'Evaluation of Ceramics: Professional Artisanship as a Tool for Archaeological Interpretations' in *Journal of Nordic Archaeological Science* (*JONAS*) 18 (2013): 31–44.

Botwid, Katarina. 'Från hand till hand – arkeologisk forskning ur ett hantverksperspektiv' [From hand to hand: Archaeological research from an artisanal perspective]. In *Att befolka det förflutna: fem artiklar om hur vi kan synliggöra människan och hennes handlingar i arkeologiskt material* [Populating the past: Five articles on how to make visible people and their actions in archaeological material], edited by Anne Carlie. Kalmar: Riksantikvarieämbetet [Swedish National Heritage Board], 2014.

Botwid, Katarina. 'The Colour of Life: An Artisanal Perspective on Ceramic Anomalies during the Scandinavian Roman Iron Age'. In *Technology and Change in History*. Leiden: Brill, forthcoming in 2015.
Botwid, Katarina. 'Visible Craft: Tracing Skill, Knowledge and Invisible Tools through the Artisanal Perspective'. Submitted to *Journal of Material Culture*.
Botwid, Katarina. 'From Figurine To Tuyère: Re-Interpretation of a Godess [sic] Figurine Using Artisanal Interpretation of a Find from the Bronze Age Site of Pryssgården in the Southeast of Sweden'. Contribution, 21st annual meeting of EAA (European Association of Archaeologists), Glasgow, 3 September 2015.
Botwid, Katarina. 'Skilled Children in Ceramic Craft: Artisanal Interpretation of a Bronze Age Pot from the Bronze Age Site of Pryssgården in the South-East of Sweden'. Contribution, XV Nordic TAG 2015, Copenhagen, 16–18 April 2015.
Botwid, Katarina. 'Craft and Climate'. Contribution, XV Nordic TAG 2015, Copenhagen, 16–18 April 2015.
Botwid, Katarina. *Understanding Bronze Age Life at Pryssgården (LBA) in Sweden – from an Artisanal Perspective*. Acta Archaeologica Lundensia report series 8° (forthcoming).
Botwid, Katarina. 'Hantverkstolkning av keramik – en undersökning av forntida keramikers hantverksskicklighet' [Artisanal interpretation of ceramics: An investigation of the artisanal skill of prehistoric ceramists]. In Aspeborg et al., *Gustavslund*, 223–46.
Brorsson, Torbjörn. 'Den förromerska och romerska keramikens kronologi och funktion – exempel från Gustavslund i Helsingborg' [The chronology and function of pre-Roman and Roman ceramics: Examples from Gustavslund in Helsingborg]. In Aspeborg et al., *Gustavslund*, 190–222.
Bryman, Alan. *Samhällsvetenskapliga metoder*. 2nd ed. Malmö: Liber, 2011.
Budden, Sandy. *Skill amongst the Sherds: Understanding the Role of Skill in the Early to Late Middle Bronze Age in Hungary*. In *Breaking the Mould: Challenging the Past through Pottery*, edited by Ina Berg. Oxford: Archaeopress, 2008.
Budden, Sandy and Joanna Sofaer. 'Non-Discursive Knowledge and the Construction of Identity: Potters, Potting and Performance at the Bronze Age Tell of Százhalombatta, Hungary', *Cambridge Archaeological Journal* 19 (2009): 203–20. doi:10.1017/S0959774309000274.
Collins, H. M. and Robert Evans. 'King Canute Meets the Beach Boys: Responses to The Third Wave'. *Social Studies of Science* 33, no. 3 (2003): 435–52.

Collins, H. M and Robert Evans. *Rethinking Expertise*. Chicago: University of Chicago Press, 2007.
Collins, H. M. and Robert Evans. 'The Third Wave of Science Studies: Studies of Expertise and Experience'. *Social Studies of Science* 32, no. 2 (2002): 235–96.
Collins, Harry. *Are We All Scientific Experts Now?* Cambridge: Polity, 2014.
Collins, Harry. 'A New Programme of Research?'. *Case Studies of Expertise and Experience*, special issue of *Studies in History and Philosophy of Science, Part A* 38, Issue 4 (2007): 615–20.
Collins, Harry, ed. *Case Studies of Expertise and Experience*, special issue of *Studies in History and Philosophy of Science, Part A* 38, Issue 4 (2007).
Dreyfus, Hubert and Stuart Dreyfus. *Mind over Machine: The Power of Human Intuition and Expertise in the Era of the Computer*. Oxford: Blackwell, 1986.
Gustavsson, Bernt. *Kunskapsfilosofi: tre kunskapsformer i historisk belysning* [Philosophy of knowledge: Three forms of knowledge in a historical light]. Stockholm: Wahlström & Widstrand, 2000.
Gustavsson, Bernt. *Vad är kunskap?: en diskussion om praktisk och teoretisk kunskap* [What is knowledge? A discussion on practical and theoretical knowledge] (Stockholm: Statens skolverk [The Swedish National Agency for Education], 2002). http://www.skolverket.se/publikationer?id=1840
Gustavsson, Bernt ed. *Kunskap i det praktiska*. Lund: Studentlitteratur, 2004.
Högskoleverket [Swedish National Agency for Higher Education]. *Att utvärdera tvärvetenskap – reflektioner utifrån Högskoleverkets utvärderingar 2001–2005* [Evaluating interdisciplinarity: Reflections on the basis of evaluations made by the Swedish National Agency for Higher Education, 2001–2005]. Högskoleverkets rapportserie [Report series of the Swedish National Agency for Higher Education],report no. 2007:34R. Stockholm: Högskoleverket, 2007.
Högskoleverket [Swedish National Agency for Higher Education]. *Granskning av utbildningarna inom arkeologi* [Evaluation of the educational programmes within archaeology]. Högskoleverkets rapportserie [Report series of the Swedish National Agency for Higher Education], report no. 2009:9R. Stockholm: Högskoleverket, 2009.
Ingold, Tim. 'Beyond Art and Technology: The Anthropology of Skill'. In *Anthropological Perspectives on Technology,* edited by Michael B. Schiffer. Albuquerque: University of New Mexico Press, 2001.

Jensen, Ola W. and Björn Magnusson Staaf. 'Between Body and Artefacts: Merleau-Ponty and Archaeology. In *Philosophy and Archaeological Practice: Perspectives for the 21st Century*, edited by Cornelius Holtorf and Håkan Karlsson, 53–67. Gothenburg: Bricoleur Press, 2000.

Johansson, Bengt O. H. 'Hantverk och byggenskap i backspegeln' [Crafts and construction in the rear-view mirror]. In Löfgren, *Hantverkslaboratorium*.

Karlsson, Tomas. 'Ramverksdörr – en studie i bänksnickeri' [Manufacturing a door using frame construction: A study of bench work in wood]. Mariestad: University of Gothenburg, Department of Conservation, 2013.

Kuijpers, Maikel. 'Early Bronze Age Metalworking Craftmanship: An Inquiry into Metalworking Skill and Craft Based on Axes in the North-Alpine Region'. Unpublished doctoral thesis, Cambridge University, 2014.

Larsson, Annika. *Klädd krigare: skifte i skandinaviskt dräktskick kring år 1000* [Dressed as a warrior: Social shift in Scandinavian costume in the vicinity of the year 1000]. Occasional Papers in Archaeology 39. Uppsala: Uppsala University, Department of Archaeology and Ancient History, 2007.

Lave, Jean and Etienne Wenger. *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press, 1991.

Lyngaard, Finn. *Jydepotter og ildgrave* [Jutland pots and firing pits]. Copenhagen: Clausens forl., 1972.

Löfgren, Eva, ed. *Hantverkslaboratorium*. Mariestad: Hantverkslaboratoriet [The Craft Laboratory], 2011.

Marchand, Trevor H. J., ed. *Making Knowledge: Explorations of the Indissoluble Relation between Minds, Bodies, and Environment*. Oxford: Wiley-Blackwell, 2010.

Medbo, Mårten. 'Lerbaserad språklighet' [Clay-based communication]. Unpublished dissertation. Gothenburg: HDK, University of Gothenburg, 2013.

Molander, Bengt. *Kunskap i handling* [Knowledge in action]. 2nd ed. Gothenburg: Daidalos, 1996.

Nørgaard, Heide W. 'Tracing the Hand that Crafted: How Individual Working Traces Make Bronze Age Ornaments Talk' (forthcoming).

Olausson, Deborah. 'Symposium Report: Experimental Archaeology – Method and Future: Gällö 24–25 September 1986'. In *Fornvännen* (*Journal of Swedish Antiquarian Research*) 83 (1988): 112–14.

Palmsköld, Anneli. 'Hantverkskunskap som immateriellt kulturarv'. In Löfgren, *Hantverkslaboratorium*.

Petersson, Maria. *Djurhållning och betesdrift: djur, människor och landskap i västra Östergötland under yngre bronsålder och äldre järnålder* [Animal husbandry and organised grazing: Animals, people, and landscape in western Östergötland during the Late Bronze Age and Early Iron Age]. Stockholm: Riksantikvarieämbetet [Swedish National Heritage Board]/Uppsala: Uppsala University, Department of Archaeology and Ancient History, 2006.

Polanyi, Michael. *The Tacit Dimension*. New York: Doubleday, 1966.

Polanyi, Michael. *Den tysta dimensionen*. Gothenburg: Daidalos, 2013.

Pye, David. *The Nature and Aesthetics of Design*. London: Herbert Press, 1978.

Selinger, Evan, Hubert Dreyfus, and Harry Collins. 'Interactional Expertise and Embodiment'. *Case Studies of Expertise and Experience*, special issue of *Studies in History and Philosophy of Science, Part A* 38, Issue 4 (2007): 722–40.

Shanks, Michael, and Randall H. McGuire. 'The Craft of Archaeology'. *American Antiquity* 61, no. 1 (1996): 75–88.

Tempte, Thomas. *Lilla arbetets ära: om hantverk, arbete, några rekonstruerade verktyg och maskiner* [A small book on the honour of work: On crafts, work, a few reconstructed tools and machines]. 2nd ed. Stockholm: Carlsson, 1997.

Trigger, Bruce G. *A History of Archaeological Thought*. 2nd ed. Cambridge: Cambridge University Press, 2006.

Vestergaard Pedersen, Kathrine and Lena Hammarlund. 'Textile Appearance and Visual Impression: Craft Knowledge Applied to Archaeological Textiles' in *Archäologische Textilfunde – Archaeological textiles: NESAT IX*, edited by Antoinette Rast-Eicher and Renata Windler (Ennenda: ArcheoTex, 2007): 173–80

Wood, Nicola. 'Silent Witness: Using Video to Record and Transmit Tacit Knowledge in Creative Practices' in *Hantverkare emellan* [Between artisans], edited by Gunnar Almevik. Mariestad: Hantverkslaboratoriet [The Craft Laboratory], 2014.

Zagal-Mach Wolfe, Ulla Isabel. *Grasping Technology, Assessing Craft: Developing a Research Method for the Study of Craft-Tradition*. Lund: Lund University, 2013.

Zivkovic, Zagorka. Preface to Martha Craven Nussbaum, *Känslans skärpa, tankens inlevelse: essäer om etik och politik* [The clarity of feeling, the feeling of thought: Essays on ethics and politics]. Stockholm: B. Östlings bokförl. Symposion, 1995.

Electronic Sources

http://www.universeum.se/

UR-Akademin [the UR academy]. Collected courses. [Electronic resource]: *Raku*, Utbildningsradion (the Swedish Educational Broadcasting company), 2001.

http://www.ne.se/uppslagsverk/encyklopedi/lång/positivism (accessed 24 September 2015).

http://www.hantverkslarling.se/larlingsyrken/ (accessed 24 September 2015).

https://www.folkhogskola.nu/kurser/amnesomraden/estetiska-kurser (accessed 30 October 2015).

http://www.liu.se/utbildning/program/slojd/beskrivning?l=sv (accessed 30 October 2015).

http://www.hdk.gu.se/sv/om-hdk/historia (accessed 17 January 2015).

http://www.konstfack.se (accessed 1 August 2015).

http://www.hdk.gu.se (accessed 1 August 2015).

http://www.ne.se/uppslagsverk/encyklopedi/lång/treperiodsystemet (accessed 24 September 2015).

http://www.historiska.se/press/friapressbilder/foremal/pressbilder_hallare/verktygskista/ (accessed 31 August 2015).

http://www.gu.se/english/research/publication/?publicationId=217556 (accessed 1 August 2015).

http://www.arkeologi.uu.se/Forskning/Forskningspresentationer/annika-larsson/ (accessed 15 August 2015).

http://www.lararnasnyheter.se/slojdforum/2011/11/23/varldens-forstahantverksdoktorand-aterupptacker-gamla-tekniker (accessed 14 October 2015).

http://sverigesradio.se/sida/avsnitt/45817?programid=412 (accessed 15 October 2015).

http://www.ne.se/uppslagsverk/encyklopedi/lång/intersektionalitet (accessed 15 October 2015).

http://www.ne.se/uppslagsverk/encyklopedi/lång/vas-(visuell-analog-skala) (accessed 29 August 2015).

The Artisanal Perspective in Action: An Archaeology in Practice

Swedish

Innehåll

1

Introduktion

Forntiden framträder sakta men säkert genom studier av kvarlevor. Kvarlevor som leder fram till vår samtid. Vi står här i samtiden och försöker förstå hur det levande livet har tett sig för människor under årtusenden. Vi försöker till och med förstå hur människan som varelse har formats av naturen. En stor uppgift som beror på vår otroliga och starka vilja att förstå världen.

Ordet kvarleva används ofta om döda människor, mänskliga kvarlevor, men kan också användas om allt människor har skapat som lever kvar. In i vår tid. Jag står här i denna tid och vill förstå hur den *skapande människan* levt sitt *hantverkande* liv från den första bevarade artefakten till den som skapas idag. Människan lever kvar genom sitt dagliga arbete, allra tydligast i den artefaktiska verkligheten, genom de spår och val som är synliga i det material som den skapande individen använt sig av.[1]

Det som är synligt går att observera. Vidgar vi synlighet till *att förnimma* kan alla våra sinnen observera. Då är det hörbara ljudligt. Det taktila kännbart. Lukterna förnimbara. Smakerna urskiljbara. Tillsammans och var för sig kan sinnena skapa information som är kommunicerbar.

Alla förnimmelser bildar grunden för att veta. Vi skapar från början vår uppfattning om vår egen värld genom vad vi ser, hör, känner, luktar och smakar. I olika tider är omgivningen en egen, vi kallar det kontext – ett ord som står för oändligt många omständigheter, som har anknytning till den plats vi befinner oss på.[2] Ofta förutsätts att alla, som tar del av observationer, känner till ett tillräckligt antal kontextuella omständigheter för att förstå helheten. I en vilja att förstå denna helhet ser jag att jag vill utreda kontexterna närmare.

I en avhandling som den jag lägger fram är utredningen av omständigheter det centrala. Jag menar att omständigheterna i sig skapar möjligheter att synliggöra det som är viktigt för att utveckla en ny tankegång. Min egen omgivning kommer att beskrivas för att ge en insikt i utgångspunkten jag valt och ger inblick i hur jag ställer mig i samspel med andra omgivningar. För att kunna arbeta vidare kommer jag att avgränsa antalet omgivningar som jag menar är relevanta för ämnet. Det är *min* syn på samspelande omgivningar som kommer att föras fram. Därmed kommer det att saknas omständigheter som andra hellre skulle vilja föra fram. Det kan i sin tur skapa nya diskussioner vilka jag menar är viktiga för en bredare syn på

1 Se: Hanna Arendt, *Människans villkor: vita activa*, rev. utg. (Gothenburg: Daidalos, 1998), särskilt kapitel tre, 117ff gällande arbete och ”Världens tingliknande karaktär”, 132–135, om att fördjupa sig i tanken om tingen. Arendts texter kommer att refereras till i flera stycken gällande hantverket i sig.

2 Se Zagorka Zivkovics förord till Martha Nussbaums *Känslans skärpa tankens inlevelse* (Stockholm: B. Östlings bokförl. Symposion, 1995), 12, där omständigheterna kring en människas placering i tid och rum berörs.

hur vi kan samspela. Avhandlingen har en tvärvetenskaplig ansats vilket av naturen är en balansakt.

1.2 Positionering – att definiera sin egen omgivning

Jag ingår i en omgivning som kommer av mina val i livet, mina utbildningar och mina erfarenheter. Min position *just nu* är relevant för den fortsatta beskrivningen av hur samspel inom mitt avhandlingsämne, arkeologi, kan ske. Min tanke är att göra hela uppbyggnaden synlig. Att lägga fram positionen och samtidigt beskriva många sidor av den ger en möjlighet för andra att förstå mina utgångspunkter. Jag väljer att ta utgångspunkten i den omgivning jag just nu befinner mig i, med återblickar till tidigare utgångspunkter. Idag är jag en forskare som arbetar med att binda ihop flera ämnesområden som gränsar till varandra och utforska hur de ser ut. Jag vill därefter skapa gemensamma utgångspunkter som kan leda till fler gedigna forskningsresultat, vilande i en förvissning om att både praktisk och teoretisk kunskap är värdefull och kan kommuniceras. Här är det viktigt att tro och våga påstå, att hinder är till för att övervinnas; inte för att ytterligare avgränsa och begränsa en vetenskaplig förståelse. Arbetet kommer därför främst att koncentreras på förståelse för olikheter och därigenom bidra till ökat samspel.

1.2.1 Författarens tvärvetenskapliga bakgrund

År 1989 påbörjade jag en grundläggande hantverksutbildning inom ämnet keramik. Efter avslutade studier 1992 hade jag praktiska och teoretiska kunskaper på en nivå som medgav att jag skulle kunna starta och driva en egen småskalig keramikproduktion inom en levande hantverkstradition. Utbildningen genomfördes i tät kontakt med den förmedlande arkeologin och den samtida konstscenen i Europa, museer besöktes för att skissarbete, inspiration och kunskapsöverföring skulle kunna ske. Visuell, skriftlig och muntlig information i kombination med undervisande lärares kunskaper inom hantverket och konstvetenskapen bildade kunskapsbasen.

Kunskapen användes sedan, för att arbetas vidare med, inom den pedagogiska verkstadsmiljön. Den praktiska pedagogiken bestod i att läraren visade en teknik genom att utföra alla handlingar samt att hen under tiden kommenterade sitt eget handlande. Därefter fick vi hantverksstuderande upprepa handlingarna tills vissa av momenten började fungera rent tekniskt. Varje studerande fastnade på olika moment och läraren korrigerade efter hand individuellt. Olika tekniker har sin inlärningskurva och

vissa moment anses svårare än andra. Det är ett personligt val att satsa tid och energi på olika grader av tekniska svårigheter i hantverket. Mitt personliga val var att öva med stor ambition på samtliga tekniker, för att förstå om jag ville arbeta med dem eller inte. Jag menade att det inte går att veta om man vill välja en teknik före en annan innan man kan den, då hade valet varit gjort på ett förenklat vis och kunskapen blivit alltför ensidig. Eftersom människor är olika gör de olika val, det är en fråga om personlig läggning. Det kan också vara en fråga om i vilket sammanhang kunskapen är tänkt att användas.

Efter den grundläggande utbildningen ansökte jag och blev antagen till Högskolan för Design och Konsthantverk (HDK) i Göteborg. Utbildningen antar fem studerande per år för att studera keramikhantverkets konstnärliga praktik. Mitt mål var att bli tillräckligt skicklig för att utföra ett examensarbete för konstnärlig magisterexamen[3] vilket tar fem år inom ramen för de konstnärliga fakulteterna i Sverige. Efter utbildningen arbetade jag heltid med konstnärlig praktik och undervisning inom keramikhantverket. Som expert och konsult hade jag uppdrag för Geovetarcentrum vid Göteborgs Universitet vid kunskapsfestivalen 1997 där jag verkade som idégivare vid planeringen av Universeums verksamhet[4] och utformning av kunskapsmiljöer. I början på 2000-talet genomförde jag uppdrag som expert och konsult för kursen *Raku* på uppdrag av UR/SVT (nuvarande kunskapskanalen).[5]

Min tekniska specialisering inom keramik/konst är förhistoriska och historiska brännteknikер.[6] Genom den här specialiseringen är min koppling till forntida teknik tydlig och ledde mig in på arkeologistudier vilka påbörjades under hösten 2002.[7]

Under mina studier i arkeologi förstod jag att min praktiska kunskap skulle kunna samspela med det, för mig nya, akademiska sättet att förklara världen med ord. Min konstnärliga praktik bar mening som kan uttryckas *utan* ord. Tidigt insåg jag att jag hade något att berätta om de forntida hantverkare som utfört hantverket före mig. Keramikhantverket har inte (som vissa andra materialbaserade tekniker) dött ut, det behöver

3 Master of Fine Arts (MFA) Högskolan för Design och Konsthantverk (HDK) vid Göteborgs Universitet 1998.

4 Vetenskapscentrum Universeum i Göteborg är en forskningsrelaterad förmedlingslänk till allmänheten. Ett samarbete mellan Göteborgs Universitet, Västsvenska Handelskammaren, Chalmers och Göteborgsregionens kommunalförbund (GR), http://www.universeum.se/

5 UR-Akademin. Samlade kurser. [Elektronisk resurs]: *Raku*, Utbildningsradion, 2001.

6 Bränning av tunnelugnar, gropugnar, öppna bål, saltbränningar, raku-ugnar, keramikbränningar i praktiken (byggnation av ugnar och bränning).

7 Högskolan på Gotland (HGO).

inte återuppfinnas. Kan en keramikers kunskaper då, i sammanhanget, användas för att återspegla olika tiders hantverkliga omgivningar? Den frågan drev mig att fortsätta de arkeologiska studierna, vid sidan om min dagliga undervisning inom konst och keramikhantverk. I kombinationen hantverkslärare- och arkeologistuderande kunde jag följa mina elevers hantverksutveckling på ett nytt sätt. Skulle deras försök att erövra ny kunskap i keramikhantverket säga något om hur skicklighet uppnås och erövras i flera tidsspann? Efter kandidat- och magisteruppsats i arkeologi[8] där samspelen mellan arkeologi och hantverk blev synliga fanns det bara en väg, jag ville beforska möjligheten att basera arkeologiska förklaringar på praktisk kunskap; ett *i-praktiken-perspektiv*.

1.2.2 Hantverksperspektivet – ett tvärvetenskapligt perspektiv

För att kunna studera arkeologi på det sätt som jag vill föra fram i avhandlingen menar jag att två kunskapstraditioner framträder tydligt i ett väl avgränsat hantverksperspektiv. Inom dessa områden, med allt vad de innehåller i form av *teoretisk akademisk* kunskap samt *praktisk kunskap*, finns det möjligheter som kan användas för att spåra kontexter som råder i olika tidsspann. Ur ett hantverksperspektiv kan ingen av de två kunskapstraditionerna uteslutas.

De arkeologiska perioderna är intressanta för den som arbetar *inom* en specifik arkeologisk period. Hantverkstolkningar och hantverksfrågor är inte beroende av en särskild avgränsning i tid utan kan fungera över hela den arkeologiska och historiska perioden. De fallstudier jag använt för att undersöka och bygga upp empiri för mitt resonemang är bearbetade i de artiklar och den monografi som nu publiceras inom ramen för avhandlingsarbetet. Fallstudierna är kopplade till hantverk och hantverksskicklighet inom flera arkeologiska tidsavsnitt.

1.3 Frågeställning

På vilka *olika* sätt kan ett hantverksperspektiv bidra till arkeologiska tolkningar?

Frågan besvaras genom att jag i avhandlingens fyra fallstudier prövar den bärande metoden och den tvärvetenskapliga ansatsen. Syftet är att undersöka hur denna integrerade kunskapssyn gör det möjligt för ett hantverksperspektiv att utvecklas.

1.4 Disposition

Hantverksperspektivet – en arkeologi i praktiken (The Artisanal Perspective in Action – an Archaeology in Practice) är en sammanläggningsavhandling. Kappan är den avhandlande texten (syntesen) som bygger på tre vetenskapliga artiklar och en kort monografi. Dessa fem texter utgör sammanlagda avhandlingen.[9] Dispositionen är upplagd enligt följande: den inledande delen, avsnitt 1 och 2 innehåller introduktionen samt teori- och metodavsnitt. Därefter beskrivs tidigare forskning och forskningsläget i avsnitt 3.

Det arkeologiska materialet som ligger till grund för avhandlingen (beskrivet i de tre artiklarna och monografin) presenteras och sammanfattas i avsnitt 4, de utgör tillsammans olika delar av resultatet som kommer att besvara frågeställningen. Artiklarna och monografin är bilagda i slutet av avhandlingen som appendix efter syntes och diskussion.[10] Därmed, och genom ett diskuterande avsnitt, utgör dessa resultat grunden för den vidare diskussionen i avsnitt 5. I avsnittet diskuteras en integrerad kunskapssyn för att klargöra giltigheten för ett praktiskt-teoretiskt arkeologiskt perspektiv. I avsnitt 6, syntes och diskussion, förs ett avslutande resonemang som låter praktik och teori sammanflätas till ett möjligt framtida och tydligt definierat *hantverksperspektiv*.

8 Katarina Botwid, examensarbeten från Högskolan på Gotland: ”Från skärva till helhet – keramisk hantverkskunskap som redskap för djupare förståelse av artefakter och arkeologisk kontext” (Visby: Högskolan på Gotland, 2009) och ”Offrad keramik – mossfynd från romersk järnålder i Käringsjön i Halland” (Visby: Högskolan på Gotland, 2009).

9 Paper 1: Katarina Botwid, ”Evaluation of Ceramics: Professional Artisanship as a Tool for Archaeological Interpretation”, *Journal of Nordic Archaeological Science*, 18 (2013): 31–44; Paper 2: Katarina Botwid, ”The Colour of Life: An Artisanal Perspective on Ceramic Anomalies during the Scandinavian Roman Iron Age” (in press), *Technology and Change in History*; Paper 3: Katarina Botwid, ”Visible Craft”, inlämnad till *Journal of Material Culture*, och Paper 4: *Understanding Bronze Age Life at Pryssgården (LBA) in Sweden – from an Artisanal Perspective*, Acta Archaeologica Lundensia report series 8°, (in press).

10 Appended Papers: Papers 1–4.

2

Teori och Metod

Ett samhälle av utforskare är ett samhälle som rör sig. Här i min avhandlingstext vill jag visa och förklara att utforskare kan röra sig på flera olika sätt. Vissa rör sig i den värld som sedan länge är definierad som en forskningsvärld, den teoretiska forskningsvärlden. Andra utforskare rör sig i den del av forskningen som innebär en forskning i – och ur det praktiska.[11] Att denna värld av utforskare i det praktiska ska förklara sina utgångspunkter är inte alltid nödvändigt. Däremot är det nödvändigt när man skriver en avhandling. I följande kapitel beskriver jag det teoretiska ramverk som jag förhåller mig till genom arbetet. Tanken är att skapa ett tvärvetenskapligt utrymme mellan teori och praktik, eftersom jag önskar vara en verksam utforskare som skulle kunna kallas för en praktisk teoretiker eller en teoretisk praktiker.

2.1 Avhandlingens teoretiska utgångspunkter

Det tycks finnas ett behov av att dela in människor i antingen praktiker eller teoretiker. Kanske är det fortfarande viktigt för oss att förstå *hur* en annan person ska förstås eller tilltalas. Människor definierar ofta sig själva som antingen praktiker eller teoretiker. Vilket av de två fälten skulle passa bäst in på arbetet som kock: den som visar upp den konstfärdiga tekniken att med enorm snabbhet skära ett nät ur en morot med en stor kockkniv utan att säga ett ord eller den som är dietist och kan förklara och känna till innehållet i ingredienserna.

Den stora fråga är då följande:

Hur bedömer och värderar vi kunskap?

Jag vill påstå att vi, på olika sätt, måste hantera begreppen praktik och teori. Just därför är exempel och metaforer viktiga. Hur ska vi förhålla oss till forskning som kräver att allt förklaras i ord? Kan vi skriva ner varje snitt i moroten för att sedan förstå hur handen rör sig? Kan vi lära oss att cykla med hjälp av en instruktionsbok? Eller kan vi laga mat genom att läsa innehållsförteckningar? I mitt teoretiska ramverk för avhandlingen använder jag olika sätt att *tänka kring*, alltså teoretisera över hur praktisk

11 H. M. Collins och Robert Evans, ”The Third Wave of Science Studies: Studies of Expertise and Experience”, *Social Studies of Science* 32, nr 2 (2002): 250–59; H. M. Collins och Robert Evans, ”King Canute Meets the Beach Boys: Responses to The Third Wave”, *Social Studies of Science* 33, nr 3 (2003): 446–49; Harry Collins, ”A New Programme of Research?”, *Case Studies of Expertise and Experience*, specialnummer av *Studies in History and Philosophy of Science, Part A* 38, nr 4 (2007): 615–20; och Evan Selinger, Hubert Dreyfus och Harry Collins, ”Interactional Expertise and Embodiment”, *Case Studies of Expertise and Experience*, specialnummer av *Studies in History and Philosophy of Science, Part A*, 38, nr 4 (2007): 734ff.

kunskap kan *operationaliseras* inom dagens forskning. Efter att ramverket är lagt kommer de olika teoretiska förståelserna att följa olika delar av avhandlingstexten beroende på i vilken del av texten vi befinner oss. Referenserna vidgas till fler tänkare som behandlar området tyst kunskap, för att bredda diskussionen, men huvudsakligen utgår arbetet från de teorier som beskrivs i följande stycke. Att jag väljer denna ram beror på att jag för in den *tysta kunskapen* som ett aktivt verktyg i min metod *hantverkstolkning* vilket jag återkommer till i metodavsnittet.

2.1.2 Tyst kunskap

Tyst kunskap inbegriper den del av verkligheten som ofta relaterar till den handlande människan. Tyst kunskap gäller dock inte bara handlingar utan även andra *förspråkliga* stadier av förståelse. Även tankar föregås av tyst kunskap. Hos en individ är den förspråkliga nivån vänd mot individens inre och är en respons på något; en känsla hen har, får eller förstår innan *handlingar* kan utföras och *ord* kan uttalas.

När vi gör tolkningar av en dold verklighet kan vi snarare *synliggöra* något än att bevisa en sanning. För mig personligen är det viktigt att inte uttala mig om en absolut sanning. Jag talar utifrån tankar som Michel Polanyi för fram.[12] Han menar att det först och främst är viktigt att slå fast giltigheten av tyst kunskap.[13] Min fråga blir då hur ska denna giltighet kunna få fäste i arkeologin?

Inom andra vetenskaper, främst utanför humanvetenskaperna, är tyst kunskap giltig som en egen auktoritet och studeras inom vetenskapsteoretiska,[14] vetenskapsfilosofiska och teknikinriktade vetenskapsområden. Inom medicin och omvårdnad studeras den tysta kunskapens dimension på alla nivåer, från hur den kirurg som handhar en skalpell kan känna skillnaden (i toppen av verktyget) på att skära i frisk eller sjuk vävnad[15] till *hur* en läkare som ägt tyst kunskap och skadat sig ska rehabiliteras då hen blivit novis på nytt och inte längre kan förnimma den förlängda förståelse hen har haft i sina fingertoppar.[16]

12 Michel Polanyi (1891–1976) är en viktig teoretiker inom beforskningen av *tyst kunskap* som efter sin karriär som forskare inom fysisk kemi i sjuttioårsåldern valde att göra det han kallar ”en sista intellektuell satsning efter min karriär som vetenskapsman” (se Michael Polanyi, *Den tysta dimensionen* (Göteborg: Daidalos, 2013), 25). Polanyi har kommit att bli den, som på ett filosofiskt plan fått stor betydelse för alla som vill komma åt den tysta kunskapens natur.

13 Polanyi, *Den tysta dimensionen*, 87.

14 Det svenska uttrycket *vetenskapsteori* kallas på engelska *science studies* och syftar till studier av vetenskapens *sociala aspekter*.

15 Polanyi, *Den tysta dimensionen*, 39–43.

Polanyi ger flera exempel på hur ett tryck mot handen, av det verktyg en individ håller i, med övning, kan ge mening i trycket så att den som använder verktyget (skalpellen, sonden, glättestenen) så att säga *förflyttar* sin *känsla* av att röra vid något till verktygets spets. Denna process skapar en medveten känsloförnimmelse via det verktyg vi använder och vi riktar därmed uppmärksamheten mot *det* som vi använder verktyget *på*. Polanyi kallar denna process den *semantiska aspekten* av tyst kunskap; när meningen förflyttas från oss själva till något utanför oss. Här utvecklar han två led i den tysta kunskapen, en inåtvänd och en utåtvänd, Polanyi använder begreppen *proximal* för första ledet av tyst kunskap och *distal* för det andra ledet.[17] Begreppen kommer att användas i samband med att jag tydliggör hur metoden hantverkstolkning fungerar på ett fenomenologiskt plan och jag använder även Polanyis fjärde aspekt, nämligen vad den tysta kunskapen *ger kännedom om*, det vill säga, den ontologiska aspekten.[18] Man kan säga att den *tysta kunskapen* är och har varit en faktor i vetenskaplig diskussion inom flera discipliner under en längre tid.[19]

Det finns sedan tidigare några få exempel där den tysta kunskapen studerats och operationaliserats inom det svenska arkeologiområdet, vilket innebär att denna avhandling kan fortsätta på den inslagna vägen.

16 Lars-Erik Björklund, *Från novis till expert: förtrogenhetskunskap i kognitiv och didaktisk belysning*, Studies in Science and Technology Education, nr 17 (Norrköping: Nationella forskarskolan i naturvetenskapernas och teknikens didaktik (FontD)/Linköpings universitet, Institutionen för samhälls- och välfärdsstudier, 2008), 39.

17 Polanyi, *Den tysta dimensionen*, 33–37.

18 Polyani, *Den tysta dimensionen*, 36–37. Polanyi skriver så här: ”Ur de tre aspekter av tyst kunskap jag hittills definierat – den funktionella, den fenomenella, och den semantiska – kan vi härleda en fjärde aspekt som säger oss vad tyst kunskap ger kännedom om. Detta utgör den ontologiska aspekten.”

19 Se bland andra Eva Löfgren, red., *Hantverkslaboratorium*, (Mariestad: Hantverkslaboratoriet, 2011); Lars-Erik Björklund, *Från novis till expert*; Lotte Alsterdal, Jonna Bornemark och Fredrik Svenaeus, red., *Vad är praktisk kunskap?* (Huddinge: Södertörns högskola, 2009); Bernt Gustavsson, *Kunskapsfilosofi: tre kunskapsformer i historisk belysning* (Stockholm: Wahlström & Widstrand, 2000); Bernt Gustavsson, red., *Kunskap i det praktiska* (Lund: Studentlitteratur, 2004); Jean Lave och Etienne Wenger, *Situated Learning: Legitimate Peripheral Participation* (Cambridge: Cambridge University Press, 1991); Trevor H. J. Marchand, red., *Making Knowledge: Explorations of the Indissoluble Relation between Minds, Bodies, and Environment* (Oxford: Wiley-Blackwell, 2010); Bengt Molander, *Kunskap i handling*, 2:a rev. uppl. (Göteborg: Daidalos, 1996); Tim Ingold, ”Beyond Art and Technology: The Anthropology of Skill” i *Anthropological Perspectives on Technology*, red. Michael B. Schiffer (Albuquerque: University of New Mexico Press, 2001); Polanyi, *Den tysta dimensionen*; David Pye, *The Nature and Aesthetics of Design* (London: Herbert Press, 1978); och Thomas Tempte, *Lilla arbetets ära: om hantverk, arbete, några rekonstruerade verktyg och maskiner*, 2 uppl. (Stockholm: Carlsson, 1997).

En av de senaste avhandlingarna som arbetar med denna utgångspunkt lades fram inom ämnet historisk arkeologi vid Lunds Universitet: Johanna Bergkvist har med sin avhandling *Läkare och läkande – Läkekonstens professionalisering i Sverige under medeltid och renässans* (2013)[20] på djupet studerat, såväl de materiella källorna (artefakter) som textartefakter (historiska texter och arkivmaterial) och hon har sedan resonerat sig fram till den tysta kunskapens användande och underliggande betydelse i den medeltida läkekonstens praktik. Bergkvist har kunnat använda dessa betydelser till att (i kapitel fem) arbeta fram teoretiska verktyg för att diskutera en professionalisering av läkaryrket. Avhandlingen är en av de få inom arkeologi som utgår från den *tysta kunskapen* som teoretisk grundval, vilket möjliggör att läkekonstens profession kan följas från en praktisk ”oskolad” förtrogenhetskunskap till en skolad kunskapstradition. Denna ickelinjära utveckling kom sedermera att utvecklas till det professionella läkaryrket.[21]

Arkeologen Maria Petersson, verksam inom svensk förhistorisk arkeologi, tar ett praktiskt teoretiskt grepp gällande fältarbetets roll när arkeologisk kunskap produceras i sin avhandling *Djurhållning och betesdrift – djur, människor och landskap i västra Östergötland under yngre bronsålder och äldre järnålder* från år 2006.[22] Hon använder sig av Bengt Molanders begrepp *kunskap-i-handling* som i sig bygger på den kunskap som riktas utåt och kan benämnas med ord.[23] Petersson kan använda Molanders begrepp och implementerar och förklarar den helhetssyn, översikt och erfarenhetsbaserade kunskap som hon finner i sin egen yrkesroll som fältarkeolog. Peterson menar att teori och praktik inom fältarkeologi är oskiljbara. Hon skriver: ”Den praktiska sidan av fältarkeologi ger ett självständigt bidrag till resultatet som är mer än bara en respons på teoretiska målsättningar.”[24] Här ser vi en direkt användning av teorier om praktisk kunskap som omsatts i en arkeologisk avhandling. Min teoretiska ingång har vissa likheter med Peterssons, men jag går in med min egen professionella hantverkskunskap inom ämnet keramik/konst och kopplar den till min praktiskt/teoretiska kunskap inom ämnet förhistorisk arkeologi.

20 Johanna Bergqvist, *Läkare och läkande – Läkekonstens professionalisering i Sverige under medeltid och renässans*, Lund Studies in Historical Archaeology, nr 16 (Lund: [Lunds universitet, Institutionen för arkeologi och antikens historia], 2013).

21 Ibid., passim.

22 Maria Petersson, *Djurhållning och betesdrift: djur, människor och landskap i västra Östergötland under yngre bronsålder och äldre järnålder* (Stockholm: Riksantikvarieämbetet/Uppsala: Uppsala universitet, Institutionen för arkeologi och antik historia, 2006).

23 Se Molander, *Kunskap i handling*.

24 Petersson, *Djurhållning*, 15.

Maikel Kuijpers är en arkeolog som på liknande sätt som Johanna Bergkvist bygger sin forskning på teorier om förkroppsligad kunskap och hantverksskicklighet. Han har i sin forskning arbetat med tidigt bronsåldershantverk från norra Alperna.[25] Kuijpers diskuterar nivåer av skicklighet på olika plan, såväl de förkroppsligade som sociala och intentionella nivåer.

Genom att min egen hantverksskicklighet används som ett verktyg i denna avhandling är den *tvärvetenskaplig*[26] i motsats till de tre *inomvetenskapliga* avhandlingarna som är beskrivna ovan.

Från den tysta kunskapens vetenskapsteoretiska område kommer jag i nästa stycke att presentera en filosofi som betraktar människans position i världen samt människans relation till föremålen (tingen) i sig. Vilket jag menar utgör en framkomlig väg i arbetet med att bygga perspektiv som bidrar till arkeologiska tolkningar.

2.1.3 Hanna Arendt – Vita Activa eller ”ett aktivt liv”

Hanna Arendt (1906–1975) var en europeisk filosof. Hon ägnade hela sitt liv åt filosofi och var elev till Martin Heidegger vid universitetet i Marburg. Hanna Arendt disputerade år 1928 med sin avhandling *Kärleksbegreppet hos Augustinus* vid universitetet i Heidelberg. Strax innan andra världskriget tvingades hon lämna Tyskland. Arendt utvecklade sedan sin politiska filosofi genom åren och blev en viktig person i sin tid. Den bok som kommer att användas i föreliggande text är (i den svenska översättningen) *Människans villkor* (Vita activa) från 1958. Den har i original skrivits på tyska, sedan översatts till engelska (The Human Condition).[27] Min tanke är att använda den utgångspunkt som ligger i Arendts latinska titel på ursprungverket: ”Vita activa”, vilket kan översättas från latin till *ett aktivt liv*.[28] Arendt skriver: ”With the term *vita activa*, I propose to designate three fundamental human activities: labour, work, and action. They are fundamental because each corresponds to one of the basic contions [sic!] under which life on earth has been given to man.”[29]

25 Maikel Kuijpers, ”Early Bronze Age Metalworking Craftmanship: An Inquiry into Metalworking Skill and Craft Based on Axes in the North-Alpine Region” (manus, doktorsavhandling, mars 2014), 29.

26 De båda akademiska ämnen som påverkar varandra och flätas samman till ny kunskap är keramikhantverk och arkeologi.

27 Arendt, *Människans villkor*, 7–12.

28 *Oxford Latin Dictionary*, 2 uppl., s.v.v. ‘actiō’, ‘actīuus’.

29 Hannah Arendt, *The Human Condition*, 2 uppl. (Chicago: University of Chicago Press, 1998), 7.

I min text kommer jag att använda de delar där Arendt definierar och diskuterar de praktiska aspekterna av livet. Särskilt kapitel *III Arbete* och kapitel *IV Tillverkning*, men även de passager som rör *homo faber*[30] samt teori och praktik (passim). Hanna Arendts tankar om människan och hennes kommunikationsförmåga är grundläggande för min tanke om den forntida människans möjlighet att utveckla bärkraftiga system att befinna sig i. I dessa system kan människan förstå och hantera den praktiska världen. Enligt min mening fungerar Hanna Arendts tankar väl inom arkeologin då de är användbara över tid och rum.

Ytterligare tankegods behövs för att reda ut hur kunskap och *expertis* kan förtydligas och breddas. Därför går jag vidare och presenterar den *tredje vågens vetenskapsteori* och därmed ett antal begrepp som gör det möjligt att förklara hur jag kan göra anspråk på att lägga ett hantverksperspektiv på ämnet arkeologi.

2.1.4 Den tredje vågen – en ny vetenskapsteoretisk ansats

Enligt vetenskapsteoretiker som Harry Collins och Robert Evans riktas nu (efter år 2000) ett allt större intresse mot tvärvetenskap som sker mellan akademi och praktik. I artikeln, *The third Wave of Science Studies: Studies of Expertise and Experience* från 2002, ser författarna en vetenskap som de benämner *den tredje vågen*. Först förklaras hur vetenskapen förändrats från en *auktoritär* vetenskap, *första vågen* som är toppstyrd (*en* professor i alla discipliner som uttalar sig om allt) till en demokratiserad vetenskap, *andra vågen*, där så kallade fakta förhandlas fram (flera professorer som uttalar sig inom respektive disciplin där dessa överenskomna fakta befinner sig). Inom den andra vågen finns forskning som positivism, processuell vetenskap, eller postprocessuell vetenskap och dessa områden avgör vad som är att betrakta som sant eller sannolikt. *Demokratiseringen* av vetenskapen ger den mångfald av inriktningar och mångvetenskapliga projekt som förs fram inom vetenskapen idag, författarna för också mångvetenskap till andra vågen av vetenskapsteori.[31]

För att lyfta in den tredje vågen i en diskussion om arkeologiska tolkningsmetoder och verktyg kommer jag att beskriva Collins och Evans tankar. Jag kommer att använda deras exempel för att sedan återknyta till det arkeologiska sammanhanget i en diskussion om expertis och erfarenhetsbaserad kunskap.

30 Hanna Arendts definition av ”homo faber” är den görande och tillverkande människan hen som fabricerar tingen. Ett flertal olika ingångar och placeringar av ”homo faber” i tiden beskrivs på sidorna 378–400 i *Människans villkor*.

Enligt författarna kan man kortfattat beskriva första vågen av vetenskap som en tid när vetenskapen inte hade några problem med legitimiteten (giltighetsanspråket). Den andra vågen har, enligt författarna, ärvt detta tankesätt vilket gjorde att även den andra vågen kunde acceptera giltighetsanspråken som fastslagits tidigare. Det fanns kritik mot toppstyrningen, som kritiserades eftersom den ansågs utgå från en auktoritär ledning. Genom att utvidga expertisen och låta fler experter inom ämnesområdena komma med faktaunderbyggda positivistiska resonemang och tolkningar gavs giltighet åt forskningen. Man ansåg sig ha skapat en demokratisk vetenskap. Författarna, som är vetenskapsteoretiker, tänker sig att *om* den tredje vågen vetenskap kan formuleras och komma fram till en slutsats som innebär en *acceptans* för den andra vågens teorier, kan underlaget för en tredje våg bli synlig. I denna tredje våg kan vetenskapen då, med bibehållen kunskapsbas, formulera sig om och ringa in gruppen *tekniskt-kvalificerade-genom-erfarenhet-lärda* personer. Man kan då välja att låta dem *ingå* i den tredje vågens vetenskap. Det sker genom att erbjuda denna kategori kunskapsbärare ett deltagande (inom tredje vågens tänkande) där teoretiker och praktiker gemensamt kommer att utveckla ett demokratiskt *beslutsfattande* gällande de *nya kriterier* som ska implementeras inom vetenskapen. Vetenskapen räknar då med dessa praktiker som expertis med utgångspunkt i deras *tysta kunskap*. Collins och Evans presenterar i artikeln ett sätt att bygga upp en normativ teori som gäller expertis och hur den kan bli viktig för tekniska underlag och för beslut (inom arkeologi för exempelvis hantverksteknologiska tolkningar). De tre vågor av vetenskap och kopplingen till de expertbegrepp författarna beskriver kommer att presenteras mer ingående i följande avsnitt.

2.1.4.1 Expertbegreppen enligt Collins och Evans

En expert som har en inlärd praktisk kunskap, utanför regelmässig skolning saknar betyg. Det innebär att den expertis man söker finns i små grupper med speciell kompetens (inom alternativa system som mäster-lärlingssystem, autodidakta, eller exempelvis upplärda inom familjen, idrotten eller andra grupper). Den kunskap som avses är inte något *alla* besitter. *Uncertified specialists* (erfarenhetsbaserade experter)[32] refererar till en kunskap som är djupare och mer utvecklad än det mer generella kunskapsbegreppet *knowledge* (erfarenhetsbaserad kunskap) representerar.[33]

31 Collins och Evans, "The Third Wave", 235–96.
32 Ibid., 238.
33 Ibid., 251.

Här menar Collins och Evans att så fort analytiker eller forskare använder en person med *praktisk kunskap* i sin forskning skall begreppet *erfarenhetsbaserad expertis* eller expert användas för att överbrygga det glapp som uppkommit mellan kunskapsformerna. Författarna benämner glappet som ett *gränsdragningsproblem* mellan olika former av expertis.[34]

2.1.4.2 Första vågen (Wave One) – auktoriteternas tid (–1960-tal)

Collins och Evans kallar den första vågen av vetenskapsteori (science studies) *auktoriteternas tid*. På den tiden var förhållandet till expertis, enligt författarna, ganska okomplicerat. Man ville helt enkelt förstå, förklara och förstärka det vetenskapliga giltighetsanspråket. Här ifrågasattes inte basen för giltigheten. Den auktoritet som vetenskapen eller experten hade var ”given”. Denna form av tilltro resulterade i att samhället tilldelade forskaren (experten) en hög trovärdighet vilket innebar att forskare kunde uttala sig om och försvara såväl sin egen forskning som sitt eget område med emfas. Denna djupa, enligt författarna, närmast esoteriska tilltro till vetenskapen gav dem den auktoritet som senare kom att prägla positivismen. Thomas Kuhn (som själv var positivist) kom att följa med i sin tid under 1960-talet, och skapade teorin om paradigmskiften.[35] Hans bidrag, tillsammans med flera andra forskares, var att vetenskapen kom att förändras. I slutet av 1970-talet hade positivismen nått sin definitiva slutpunkt som *akademisk rörelse*.[36]

34 Ibid., 254.

35 Revolutionerande förändringar som skapar en ny ordning inom olika områden, mot dessa revolutioner står det vi kallar normalvetenskapen, vilket är den vetenskap som för tillfället är rådande, vetenskapen håller sig kvar inom paradigmet. Kuhn beskriver att ett paradigmskifte alltid utgår ifrån en vetenskaplig kris, som inte kan förklaras utifrån paradigmet. Giltighetsanspråken är olika i olika paradigm. Det som slutligen avgör vad som blir ett paradigmskifte är bland annat hur många som ansluter sig till det nya paradigmet. Se bl.a. Mats Alvesson och Kaj Sköldberg, *Tolkning och reflektion: vetenskapsfilosofi och kvalitativ metod*, 2 uppdaterade uppl. (Lund: Studentlitteratur, 2008), 32–46.

36 Collins och Evans, ”The Third Wave”, 239. Positivismen som bärande i vetenskaplig metod och utgångspunkt lever kvar och är en integrerad del i vetenskapen. För en fördjupande ordförklaring, se http://www.ne.se/uppslagsverk/encyklopedi/lång/positivism (hämtad 24 september 2015).

2.1.4.3 Andra vågen – demokratins tid (Wave Two – the Age of Democracy) (1970-tal–)

Tiden för den andra vågen beskrivs i texten som den ”sociala konstruktionens” tid. Författarna placerar tiden vid en startpunkt i sent 1970-tal och menar att den fortfarande är i rörelse. En av riktningarna ”the sociology of scientific knowledge” (SSK) har vidgat scenen så att ”utomvetenskapliga-faktorer” har förts in i området med intentionen att kunna komma vidare med en forskning som kan anses vara vetenskapligt korrekt. Denna tanke om social konstruktion, som finns och kan röra sig inom alla institutioner och ämnen, skapar delvis osäkerhet. Vetenskapliga metoder, experiment, observationer och teorier är inte tillräckliga. Vetenskapsteoretiker måste numera vara så säkra på det som uttrycks inom ramen för den verksamhet de arbetar inom, att själva dekonstruktionen och upplösningen av konstruktionen hindrar dem från att bygga upp ny kunskap. Författarna menar att dessa teoretiker i sig själva är *experter* och inte ska vara rädda för att bygga upp ny kunskap utifrån sin egen expertis inom det specifika ämnesområde de omfattar. Om vetenskapsteorin *inte* kan skilja på experter och icke-experter; vem ska då ta ansvar för att vetenskapen utvecklas och byggs upp mot framtiden? Här menar Collins och Evans att vetenskapsteoretikerna måste göra sig redo att skapa de kategorier som behövs för att utveckla en ”kunskapsvetenskap” som använder kunskap och expertis som analytiska kategorier. Den tredje vågen, *Studies of Expertise and Experience* – (SEE) är enligt författarna på frammarsch.[37]

2.1.4.4 Tredje vågen – expertisens tid? (Wave Three – the Age of Expertise?) (2000-tal)

I övergången mellan andra och tredje vågens vetenskapsteoretiska innehåll är det mycket som av nödvändighet har plockats isär, granskats och studerats. Det blev möjligt först genom den andra vågens nya, antiauktoritära och demokratiska forskningsansats. Med den andra vågen öppnades vetenskapen. En viktig linje i Collins och Evans resonemang är att visa att andra vågens ansats inte är fel. Författarna menar att den tredje vågen nu möjliggör en ny syn på ett antal specifika problem som andra vågen inte ensam klarar att hantera på ett koherent intellektuellt sätt. De förtydligar att detta är ”att slå in en ringbult i relativismens isvägg”.[38] Förändringen måste trots det göras med tillräcklig finkänslighet för att inte krossa eller

37 Collins och Evans, ”The Third Wave”, 239–42.
38 Ibid., 240.

splittra vad tidigare teoretiska uppbyggnader åstadkommit.[39] Collins och Evans betonar att det inte är nödvändigt att riva ned allt som byggts upp för att komma vidare. Att vilja framåt är att skapa en logisk grund – och en speciell plats för vetenskap och teknologi att samverka.

Författarna menar att nu när delar av vetenskapen är dekonstruerad, betyder denna tankegång snarare att man vill *re*konstruera vetenskap.[40] Tredje vågens vetenskap måste betona *expertisen* och lyfta fram expertisens roll i sammanhanget och då som en *analytisk* möjlighet (inte som en specifik individ). Här poängteras *expertkategorin* på samma grund som *aktörskategorier* nu används. Denna våg kommer alltså att tillåta en hävdvunnen normativ kunskap, vilket betyder att den skiljer sig från den kunskap som enbart ägnar sig åt att göra deskriptiva (expert)-uttalanden i den offentliga sfären. Övergången till en hävdvunnen normativ expertis kan verka oförenlig med vad författarna pekat på som problemet; den kan verka vilja styra mot en äldre syn, den auktoritära vetenskapen.[41]

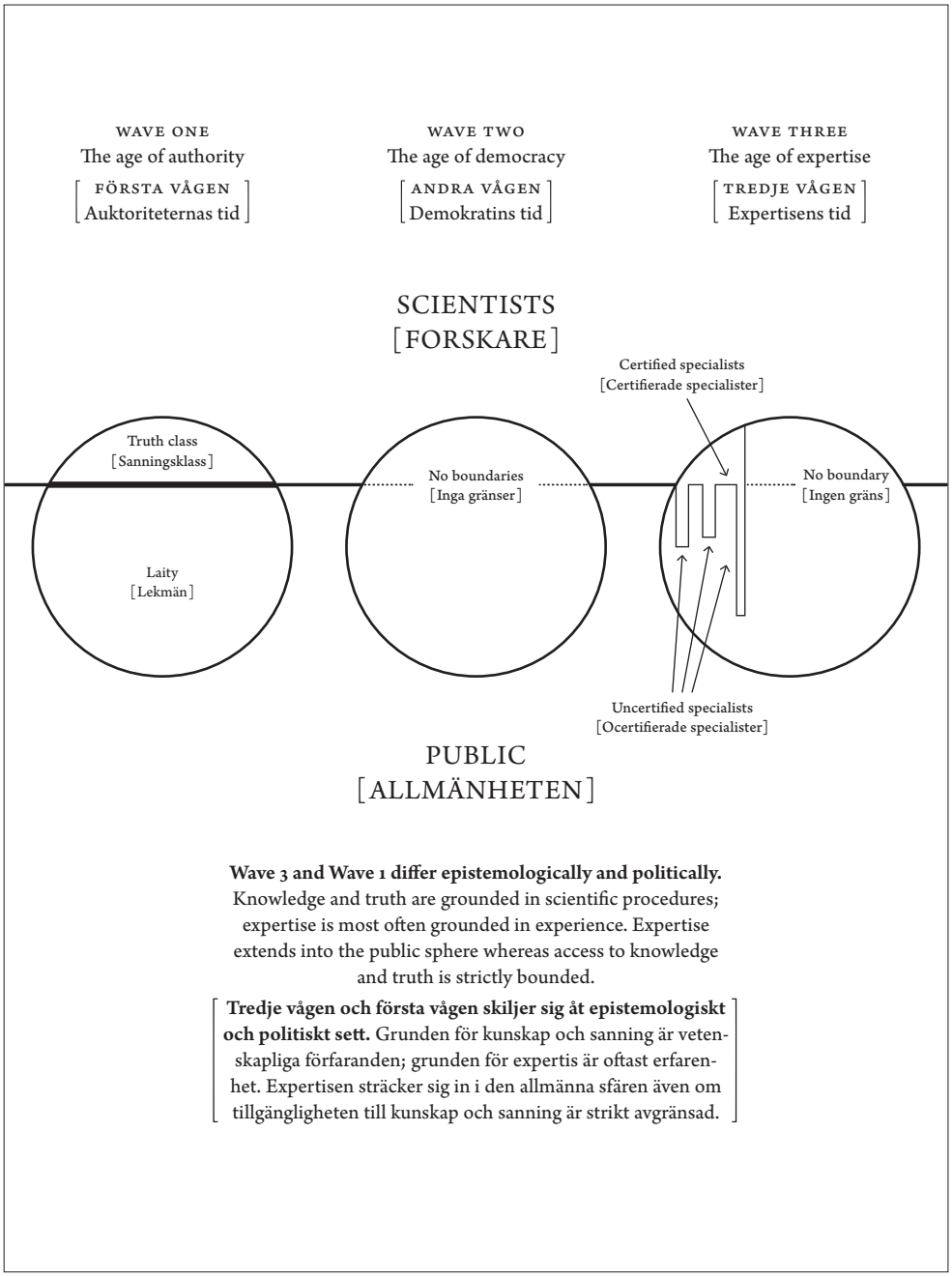
I figuren nedan (figur 1) sammanställs de olika vågorna inom vetenskapen och ställs i förhållande till varandra. Forskare inom olika discipliner kan i denna schematiska uppställning följa hur och var deras egen vetenskap ligger i förhållande till Collins och Evans tankar.

2.1.5 Expertbegreppet enligt Collins och Evans – en definition

Experten i dessa forskares framställning är, som jag tolkar och kommer att använda begreppet, inte en individ i sig utan en *kategori*. Det Collins och Evans framför här är helt avgörande för utfallet av en undersökning. När jag operationaliserar tanken om den tredje vågens vetenskap ser jag nya möjligheter för tvärvetenskapliga samarbeten. Samarbeten som jag menar följer den tredje vågen, kan kommuniceras enligt följande:

Undersökningen börjar genom att en grupp individer vill göra en vetenskaplig studie och tillsammans reflekterar över vilka kategorier som bör finnas med i arbetet. På så sätt får gruppen syn på vilken kompetens som krävs och kan avgöra vem – eller vilka som kan anses som expert, aktör eller ”den som analyserar” (eng. analyser). Efter denna reflektion kan beslut fattas och deltagarna i det vetenskapliga arbetet får sina respektive roller (tilldelas sin roll).

39 Ibid.
40 Ibid.
41 Ibid., 249–50.
42 Ibid., 250.



Wave 3 and Wave 1 differ epistemologically and politically. Knowledge and truth are grounded in scientific procedures; expertise is most often grounded in experience. Expertise extends into the public sphere whereas access to knowledge and truth is strictly bounded.

[**Tredje vågen och första vågen skiljer sig åt epistemologiskt och politiskt sett.** Grunden för kunskap och sanning är vetenskapliga förfaranden; grunden för expertis är oftast erfarenhet. Expertisen sträcker sig in i den allmänna sfären även om tillgängligheten till kunskap och sanning är strikt avgränsad.]

FIGUR 1. Schematisk översikt över de tre vågorna Collins och Evans diskuterar som visar hur expertisens roll är fördelad och förmedlad över tid. Efter Collins and Evans, ”The Third Wave”.[42] (De svenska översättningarna i figuren är direktöversatta och är inte synonyma med vetenskapsteoretiska svenska begrepp).

Här är det inte en tanke om att ersätta, utan om att utvidga, bredda och utveckla den forskning som redan pågår. Jag delar författarnas tankar kring en ny vetenskap av det här slaget. Collins och Evans beskriver utfallet av den nya vågen av vetenskap, som jag nu vill bidra till, genom att förklara hur den kan skapa en interaktion mellan grupper av experter, den ena med och den andra utan skolning. Förslag som innebär *interaktiv expertis* (interactive expertise) och *bidragande expertis* (contributary expertise) ska tillsammans med rollen som ”översättare” (translators) som har *tvärvetenskaplig expertis* kunna förmedla kunskap mellan praktiska och teoretiska områden. Det skulle innebära att det blir svårt för skolad expertis att bortse från den kunskap som kommer via översättare från dessa ofta små grupper med *mycket specifika* kunskaper (oskolade praktiker eller skolade praktiker med explicit kunskap). Författarna föreslår att institutioner ska byggas upp för att kunna ta tillvara all kunskap som i princip bara väntar på att bli omsatt inom forskningen. Collins och Evans menar att de få institutioner som finns tenderar att bli betraktade som ”campaigning organizations”.[43]

2.1.6 Expertbegreppets användning i avhandlingen

I min avhandling arbetar jag med att föra fram en bredare kunskapsbas för arkeologi. Här breddas ämnet genom samarbete med alla sorters experter som finns utanför det egentliga vetenskapsämnet arkeologi. Det kan handla om att föra samman arkeologer och hantverkare för diskussioner om interaktionen mellan tyst och uttalad kunskap, vilket skapar en tvärvetenskaplig möjlighet och en särskild roll.[44] Jag ser min roll i detta arbete som en *översättare*, en person med möjlighet att skapa kommunikation mellan skolade och oskolade experter. I mitt fall kan det vara arkeologer och keramiker med särskild specialitet. Oskolade experter ska här inte förväxlas med benämningen amatörer utan gäller personer med *avancerad kunskap* inom ett specifikt hantverksområde. Skolning är den kunskapsinhämtning som sker i det utbildningssystem som samhällets styrande och reglerande system bygger, alltså även mäster-lärlingssystem och praktiska utbildningar. Oskolade experter har en djup och stor kunskap inom äm-

43 Ibid., 271. (begreppet kan översättas med intresseorganisation eller lobbyorganisation)

44 Se Collins, ”A New Programme of Research?”, 615–620. Denna artikel beskriver ställningstaganden gällade deras forskningsprogram och alla rollerna ur det valda teoretiska perspektivet (SEE). Genom det framgår mina möjliga positioner som kan kopplas till min dubbla roll som keramiker och arkeolog och som praktiker och teoretiker. Rollerna kan användas i olika sammanhang beroende på forskningsfråga.

nen som *inte ges som utbildning* inom ramen för utbildningssystemet.[45] Positionen som *översättare* mellan hantverkare och arkeologer leder nu över till en svensk forskare som arbetat med expertbegreppet. Denna utvidgning av teoriavsnittet kan visa hur expertrollen kan definieras ur en kunskapsutvecklande och didaktiskt synvinkel vilket ska visa sig användbart i frågor gällande kunskapsinhämtning och förståelse av hur praktisk kunskap byggs och värderas.

2.1.6.1 Experten – en kortfattad beskrivning av experter och expertis inom kognition och didaktik

I avhandlingen *Från Novis till Expert: Förtrogenhetskunskap i kognitiv och didaktisk belysning* (2008) författad av Lars-Erik Björklund utreds begreppen expert och expertis noggrant. Björklund arbetar sig stegvis igenom tidigare forskning från området, historiskt och i samtiden. Även om hans avhandling ligger inom området utbildningsvetenskap och mer precist naturvetenskapernas- och teknikens didaktik är den användbar även inom ämnet förhistorisk arkeologi. Björklunds kategorier som är baserade på implicita minnes- och inlärningssystem, visar att den förmåga att använda komplexa kombinationer av dessa system är vad vi kan anse som expertis. Kategorierna är följande: *förmågan att se och upptäcka*, *förmågan att bedöma, göra val och ta beslut* samt *förmågan att agera*.[46] I denna beskrivning kallas de implicita strukturerna inte för *tänkande* utan har stark koppling till – och – med arbetsminnet.[47] Denna ”intelligenta uppmärksamhet” som här avses används på det sätt som jag tolkar Polanyis tankar, som en form av *förspråklighet*. Utifrån denna outsägbara uppmärksamhet kommer information som den handlande tar till sig och sedan kan tänka och först därefter *förspråkliga* (utsäga verbalt).

Experters förmåga till snabba beslut och överväganden (till synes automatiska)[48] har fått beteckningen *intuition*, i Björklunds avhandling, ”Experten tänker i dessa ögonblick inte medvetet och har svårt att berätta hur och varför hon agerat på ett visst sätt”.[49] Vidare skriver Björklund att

45 Se begreppet *contributory expertise* i H. M. Collins och Robert Evans, *Rethinking Expertise* (Chicago: University of Chicago Press, 2007), 23–28.

46 Björklund, *Från novis till expert*, 95.

47 Ibid., 96.

48 Angående automatisk inlärt handlande, se Björklund i kapitlen ”Förmågor beroende på implicita system” och ”Kognitiv teoretisk modell med tolkningar” i *Från novis till expert*, 95–101, som på ett tillgängligt vetenskapligt sätt förklarar och utvecklar dessa kognitiva samband med expertis.

49 Ibid., 97.

olika sätt att agera styrs av hur vi som individer ”bygger på ett bibliotek av beprövade erfarenheter som hela tiden utvidgas och förfinas”.[50] I inlärningen av ett hantverk är dessa expertdiskussioner av värde då hantverkaren från början bygger sin kunskap i kontakt med ett material: Genom *att se och upptäcka* materialets egenskaper *väcks förmågan att bedöma* hur det skulle fungera i en given situation, och slutligen kan hantverkaren i den tysta förspråkligheten *välja och ta de beslut* som materialet medger.[51]

När hantverkaren sedan agerar i sitt material kan hen göra det med den skicklighet som hens tidigare praktiska och teoretiska kunskap ger möjlighet till.

2.1.6.2 Översättaren – en kortfattad beskrivning av kommunikationen mellan forskningsfält

I avsnittet presenteras hur jag tänker mig att Collins och Evans begrepp för expertis kan användas inom ämnet arkeologi, ingångarna utgör den bas eller plattform som avhandlingens inriktning mot *kommunikation mellan forskningsfält* kommer att röra sig från.

I det här avsnittet är rollerna: *översättaren*, *experten*, *forskaren* och *den som analyserar* generaliserade och förenklade för att utgöra de olika samspelande kategorierna, vilket gör kommunikationen tydligare. En individ kan ha en eller flera uppgifter i kommunikationen. *Översättarens* roll blir tydlig *om* eller *när* vi utgår ifrån att ämnen som arkeologi och hantverk skulle kunna *dela empiri* och därmed få ut mer information av ett arkeologiskt fyndmaterial. Förslaget innebär att vi skulle kunna extrahera ny kunskap både ur de direkta fysiska materialen (artefakterna) och ur texter samt observationer från utgrävningar. I dessa källor finns dold kunskap som *kunskapsbärarna* (dit räknas även artefakt och text) har (innehåller) och som andra kan ta emot. Dialogen skapar den *kommunikation* som kan ge ytterligare nya möjligheter till arkeologisk tolkning. Jag menar att forskare och experter likaväl som översättare lär sig nya saker.

Första gången de utför ett samarbete är det något nytt och svårt med situationen, men efter flera försök skapas en ”rutin”. Vilket gör att företrädarna för de olika områdena med tiden förstår hur själva arbetet ska genomföras. Är två parter allt för långt ifrån varandra tänker jag att Collins och Evans förslag om *översättare* (det vill säga en person med egen tvär-

50 Ibid., 123.

51 Se även ”intuitive decision making” i Gary Klein, *The Power of Intuition: How to Use Your Gut Feelings to Make Better Decisions at Work* (New York: Currency/Doubleday, 2004). Citerad i Björklund, *Från novis till expert*, 120.

vetenskaplig kunskap eller engagemang i båda ämnen) är den som kan *öka kommunikationen* mellan exempelvis en praktiker och en teoretiker.[52] Ett exempel kan vara att en arkeolog eller en etnoarkeolog vill förstå hur ett hantverk utförs (teknologiskt) och vilka sociala aspekter som följer med hantverket på en plats som bedriver ett hantverk med historisk – eller förhistorisk teknologi i samtiden. Om forskaren, som ska svara på en formulerad forskningsfråga, också tar med erfarenhetsbaserad expertis (hantverkare) med kunskap om det hantverk som studeras skapas nya och annorlunda möjligheter. Hantverket som utförs, där studien ska genomföras, utövas då av en lokal hantverkare (informatören) som har kunskaper inom samma hantverk som den medföljande experten (hantverkare med kunskap i samma hantverk som informatören).

Sammansättning av gruppen skapar således möjligheter för informatören att *bli förstådd* av en individ som *kan* hantverket som hen själv bedriver. Den utomstående experten kan då uppfatta hantverks-informationer utan ord *eller* med ord. Den medföljande hantverkaren (experten) kan genom att studera själva hantverkandet dra många teknologiska (och sociala) slutsatser och få information genom *den tysta studien*. Den tysta studien är en vanlig företeelse inom hantverkskretsar. Hen ser och lär utifrån sin redan erövrade kunskap, och ser variationerna eller valen kollegan gör. Därefter kan hen, exempelvis i en arkeologisk forskning, göra deskriptiva utsagor över hur hantverkaren (informatören) utfört ett moment eller tillverkat något. Här befinner sig kommunikationen på flera plan vilket ger *mer* information om hantverksteknologin och eventuellt nya svar på frågor man burit med sig in i forskningen. Informationen från hantverksexpertens analys delges arkeologen i en översättande dialog, här är det möjligt att gå tillbaka till informatören om det finns information som behöver förklaras eller förtydligas. Arkeologen kan genom översättningen av hantverksteknologin kontextualisera informationen och ge den en arkeologisk tolkning.

52 Här skulle Collins och Evans begrepp *interactional expertise* också kunna vara användbart, min tanke är att det är *möjligt* att en person med mycket stora förståelser för två ämnens specifika språk skulle kunna vara en del av ett forskningsarbete. Jag tolkar dock denna position som en position som snarare förmedlar kunskap, med stor vetenskaplig kompetens och förståelse, *från* forskargruppen *till* omgivningen (exempelvis inom den tredje uppgiften där vetenskap förmedlas till allmänheten) snarare än mellan de forskande personerna (experterna). Därför har jag valt positionen översättare här. Min ingång är att en *översättare* har *minst en* av de kompetenser som kan anses vara en användbar expertkunskap i samarbetet. Att det krävs språklighet och förståelse för andras kompetensområde för att vara en översättare liknar de anspråk som kan ställas på en individ med *interactional expertise*, exempel på tydlig *interactional expertise* kan vara vetenskapsjournalister, sociologer, psykologer eller etnologer.

Detta tillvägagångssätt är en ingång till nya rön. Rollerna kan skapas utifrån det behov forskaren har av olika analyser beroende på hur fördjupad frågeställningen är. De ovanstående teoretiska ingångarna utgör, som jag nämnde i inledningen till stycket, den bas eller plattform som avhandlingens perspektiv kommer att röra sig från.

2.2 Metoden hantverkstolkning

Den metod jag nu presenterar är min utgångspunkt i att utveckla möjligheten att studera *skicklighet* i hantverk över tid (arkeologisk och historisk). I det framväxande hantverksperspektivet kommer nya metoder som utgår ifrån erfarenhetsbaserad expertis[53] som beskrivs inom SEE (Studies of Expertise and Experience) att utvecklas vidare. För att vara tydlig: Metoderna är under uppbyggnad, de inbegriper ett flertal sätt att studera arkeologiska material. Metoden *hantverkstolkning* är utvecklad och beskriven i mina tidigare arbeten[54] och bygger på de teorier om *tyst kunskap* som beskrivs i teoriavsnittet ovan. Som framgår i teoriavsnittet, är kunskapen i många stycken *ickeverbal*. Det finns även andra benämningar på olika delar av den praktiska kunskapen vilka kan vara bra att känna till. Ett urval presenteras här: förtrogenhetskunskap; handens intelligens; praktisk kunskap; kunskap i handling; tyst kunskap; tacit knowledge och embodied knowledge.[55] Begreppen beskriver olika delar av den kroppsliga och intellektuella kompetens som kan resultera i ting.[56] För att förkroppsliga en kunskap krävs övning och tid. Tingen med sina olika egenskaper och tecken på hantverksutförande kan placeras i hierarkiska ordningar[57] och bedömas av en hantverkare med *expertis* i det hantverksområde som artefakten är tillverkad inom (expert genom erfarenhet; se ovanstående teoretiska begrepp).

53 Se Collins och Evans, *Rethinking Expertise*, 24ff. rörande begreppet *contributory expertise*, samt Harry Collins, *Are We All Scientific Experts Now?* (Cambridge: Polity, 2014), 64 om *experience-based expertise*.

54 Botwid, ”Från skärva till helhet”; Botwid, ”Offrad keramik”; och Botwid, ”Evaluation of Ceramics”, 32–34.

55 Gustavsson, *Kunskapsfilosofi*, 137–38; Molander, *Kunskap i handling*, 33–56; Pye, *The Nature and Aesthetics of Design*, 4–8.

56 Björklund, *Från novis till expert*, 24.

57 Botwid, ”Evaluation of Ceramics”, 37–40.

2.2.1 De tre kunskapsnivåerna i hantverkstolkning

Det är viktigt att tänka kring hur mycket tid och insats som olika hantverksteknologier har fått sig tilldelat inom olika perioder och tidsintervall. Mina erfarenheter av arkeologiska material visar att olika hantverkstekniker har varit i fokus för hantverksintresset under vissa tider. Hantverkare har övat upp en hög skicklighet i ett råmaterial som använts i vissa förhistoriska perioder för att sedan flytta fokus till ett annat *eller* ett ”nytt” material och andra materiella uttryck under andra perioder. Det finns många exempel på det; en tanke är att ett nytt material kan locka till sig hantverkare som är nyfikna och intresserade av ny teknologi och att de sedan driver sitt hantverk så långt de kan under en livstid. Hur och om dessa nytänkare fått utrymme för sitt materiella uttryck är svårt att säga. Min tolkning är att helt nya tekniker kan mötas av misstänksamhet för att senare komma att ingå i hantverksrepertoaren för att till sist upplevas som en självklarhet.

Bedömningen av de olika nivåerna i skicklighet utgår ifrån att det går att se skillnad på tillverkningsmetod och om hantverkaren lyckats nå ett visst resultat. Nivåerna värderar *inte* individer även om det är individers arbete och artefakter som hantverksexperter studerar.[58]

Det är möjligt att se hur *hantverksskickligheten* fördelas inom de olika kontexterna. Som expert i ett hantverk *och* som arkeolog såg jag möjligheten att skapa ett redskap för att studera hantverksskicklighet i arkeologiska material. Tvärvetenskaplig kompetens är *en* möjlighet men genom att nivåerna endast tolkar skicklighet (kopplad till kroppens möjligheter att utföra moment genom tyst kunskap/kunskap i handling) är metoden öppen för alla arkeologer som vill genomföra analyser *tillsammans* med olika hantverksexperter beroende på material och frågeställning.

Metoden *hantverkstolkning* visar enbart de *hantverksteknologiska* nivåerna men kan efter genomgången (av arkeologen) kopplas till kontextuella och sociala sammanhang.

De *kunskapsnivåer* metoden omfattar och placerar *artefakter* i är följande:

– *Professionell hantverksskicklighet*: Hantverkaren har lång erfarenhet och en mycket hög kunskapsnivå. Hen är specifikt skicklig i sitt hantverk och kan dessutom röra sig obehindrat inom sitt kunskapsom-

58 Se Collins, ”A New Programme of Research?”, 615, där författaren sammanfattar punkter som är och kan vara gemensamma för arbeten inom SEE. I värdering av nivåer ansluter jag mig till punkt 4, ”It is useful to classify different types of expertise into different types and levels”.

råde. En professionellt skicklig hantverkare tar risker och kan lösa helt nya frågeställningar genom den sammansatta kunskap som hen äger.

– *God hantverkskunskap*: Den kunskap som innehas av de flesta hantverkare är den traditionella kunskapen. Traditionsbäraren är inte särskilt benägen att ta risker även om hen blir mycket skicklig i hantverket. Om hantverkaren inte heller är villig att fördjupa eller gå vidare i sin kunskapsutveckling är hen trygg på den lägre nivån av praktisk kunskap, en kunskap som hen äger och förfinar.

– *Hantverkskunskap*: Den lägsta nivån av hantverksteknologisk kunskap visar ett hantverk som är utfört av en nybörjare eller någon som inte kan prestera på en självständig nivå. Hen kan enbart arbeta efter instruktioner steg för steg eller prövar sig fram utan ledning. Hantverket visar tydliga teknologiska brister.

Metoden skapar en möjlighet att se om särskilda hantverk utförts av vissa specialister eller grupper. Här kan arkeologen komma närmare individerna och gruppen. Hantverk som jag hittills undersökt genom metoden och genom min eller andras expertis (se bilagda texter) har visat olika uttryck (handstilar) inom sina respektive kunskapsnivåer, vilket indikerar att det skulle vara möjligt att spåra individuella hantverkare i fyndmaterialen. Metoden går att överföra på *alla hantverk* då nivåerna utgår från vad kroppen kan utföra och vilken möjlighet individen har att tillägna sig praktiska kunskaper.[59] Varje hantverk har sina parametrar för bedömning och kan användas av experter när de bedömer skicklighet och därmed kan en hantverkstolkning i olika hantverk genomföras.

2.2.2 Keramisk hantverkstolkning

Att hantverkstolka keramik är på många sätt en ovanligt tydlig tolkningsmöjlighet. Keramik visar spår av direkt mänskligt handlande och bär direkta och tydliga spår av människors händer, vilket bidrar till att metoden *hantverkstolkning* lämpar sig bra för tolkning av keramik.[60] I det att man tolkar med hjälp av sina känselförnimmelser och synintryck i den tysta delen av tolkningen kan man sedan förmedla informationen i text och eventuellt bild (se avsnittet tyst kunskap ovan). Indirekt kan verktyg, textilier och omarbetningar till verktyg (exempelvis skrapor, putsverktyg, stämplar) bli synliga i keramiska massmaterial. Även spår av fröer och andra organiska material (synliga i flätverk, snoddar och rep) ger avtryck i den våta leran vilket skapar möjligheter att nå bortom den direkta keramikkunskapens

horisont. Dessa möjligheter till tolkningar kommer att diskuteras senare i det utvidgade fält som avhandlingsarbetet öppnar för.

I keramisk hantverkstolkning använder hantverksexperten sina sinnen, främst syn, hörsel och känsel. Sinnena tillsammans med erfarenheten av hantverket används interaktivt för att genom den egna kroppens erfarenhet spegla, uppleva och därmed avläsa på vilket sätt artefakterna är tillverkade. Parametrar som ingår (beroende på fyndens beskaffenhet) i undersökningar av *keramik* är följande: tyngd, balans, formstyrka, storlek, godstjocklek, magringsandel, tillverkningssätt, tillverkningsnivå, materialval, bränningsätt, bränningstemperatur, ytbehandling, dekor och förutsättningar för arbetet.[61] Därefter värderar keramikexperten den forntida keramikerns nu synliggjorda *arbete* till en av de tre definierade kunskapsnivåerna. De tre nivåerna är läsbara genom metoden *hantverkstolkning* och de olika parametrarna, som tidigare beskrivits, har ”bränts in” i artefakten och kan ses som en serie s.k. frusna ögonblick som är läsbara för experten.

Teori- och metoddelen lämnas nu för att gå över i en presentation av det rådande forskningsläget före presentationen av de fallstudier som genomförts. Resultaten av fallstudierna läggs fram och diskuteras. Sedan återkommer en diskussion om hur metoden kan användas inom den tvärvetenskapliga möjligheten för att förena praktik och teori.

59 Jfr de fem stegen i att *tillägna sig skicklighet* i stycket ”Five Steps from Novice to Expert” i Hubert L. Dreyfus och Stuart E. Dreyfus, *Mind over Machine: The Power of Human Intuition and Expertise in the Era of the Computer* (Glasgow: Basil Blackwell, 1986), 19–36, vilket fördjupar förståelsen för hur skicklighet utvecklas. Deras fem nivåer kan kopplas till mina tre nivåer på följande sätt: *Professionell hantverksskicklighet* motsvarar i *tillägnad* tyst kunskap Dreyfus kompetensnivå 5: *Expert*. *God hantverksskicklighet* motsvarar i *tillägnad* tyst kunskap Dreyfus kompetensnivåer 3: *Competent* och 4: *Proficient* och nivån *Hantverkskunskap* motsvarar i *tillägnad* tyst kunskap Dreyfus kompetensnivåer 1: *Novice* och 2: *Advanced beginner.*

60 Botwid, ”Från skärva till helhet”.

61 Botwid, ”Från skärva till helhet”; Botwid, ”Offrad keramik”; och Botwid, ”Evaluation of Ceramics”; Sandy Budden och Joanna Sofaer, ”Non-Discursive Knowledge and the Construction of Identity: Potters, Potting and Performance at the Bronze Age Tell of Százhalombatta, Hungary” i *Cambridge Archaeological Journal* 19 (2009): 10.

3

Mångvetenskap eller tvärvetenskap i arkeologiämnet – forskningsläge

Vetenskapsområden kallas ibland *mångvetenskapliga*[62] det vill säga att flera vetenskaper ingår i arbetsmodellen. Begreppet *tvärvetenskap* som jag här vill förklara, är oerhört komplext och låter sig inte med enkelhet beskrivas. I kapitel tre vill jag därför beskriva det utrymme som kan fångas inom tvär- och mångvetenskap samt inom teori och praktik. Kommunikationen mellan teori och praktik kommer att vara i fokus genom de texter jag valt att utgå ifrån. Texterna kommer både från vetenskapsteoretiska fält och från arkeologins och hantverkets praktik. Hantverket och akademiseringen av hantverk har, i förhållande till arkeologiämnet, fått större utrymme i följande avsnitt då denna process inte tidigare är beskriven inom ämnet arkeologi. När det gäller den kortfattade beskrivningen av arkeologins teori och praktik menar jag att det som kan komma fram i beskrivningen endast är en förklarande bakgrund till det innehåll som de vetenskapliga fälten kan sägas omfatta.[63] Observationerna omfattar svenska förhållanden men kan användas bredare.

Min förklaring är i denna svepande beskrivning både förenklande och generaliserande men kan fånga något som har betydelse för det *tvärvetenskapliga* perspektiv jag efterfrågar samt utgör grunden för den avslutande diskussionen.

3.1 Hantverk och akademi – bakgrund och forskningsläge

Hantverkskunskap är en kunskap som beskrivs som en tyst kunskap. Den överförs genom praktisk handling av en hantverkskunnig person till en nybörjare i en social situation som har sett olika ut över tid.[64] I den nuvarande västvärlden överförs den praktiska kunskapen i en skolsituation som liknar den vanliga skolan men med tyngdpunkten i praktisk kunskap,

62 Mångvetenskaplig verksamhet är ett samarbete – en interaktion – mellan olika kunskapsområden runt ett gemensamt problemområde, men där *respektive forskare stannar* inom ramen för sitt eget område. (Se *Att utvärdera tvärvetenskap – reflektioner utifrån Högskoleverkets utvärderingar 2001–2005*, Högskoleverkets rapportserie, rapport nr 2007:34 R, 9.)

63 För en fördjupad historisk bakgrund se Bruce G. Trigger, *A History of Archaeological Thought*, 2 uppl. (Cambridge: Cambridge University Press, 2006); i denna volym kan man se hur de tre vågorna av vetenskapsteori (se kapitel 2, ”Teori och metod” i föreliggande arbete) blir synliga inom arkeologiämnet.

64 Lave och Wenger, *Situated Learning*, 121–23; Dreyfus och Dreyfus, *Mind over Machine*, 16–21. Se även Marchand, *Making Knowledge* – i denna antologi ligger fokus på praktisk kunskap och hantverkskunskap i tio fristående kapitel – och Birger Arvas, ”Hur man utbildas till hantverkare” i *Sveriges hantverk: en bok om dess förflutna och nutid, om dess utövare i hem och arbete, samhälle och organisationer*, red. Nils Niléhn (Malmö: Litterära verk/Bernces, 1956), vol. 2, 677–713.

teori ingår endast i vissa moment. Det finns, trots det vanligare skolsystemet, fortfarande lärlingsplatser i vissa hantverk. Lärlingsutbildningen i Sverige omfattar sjuttio hantverk med en lärare och en elev, en så kallad mästar-lärlingsutbildning.[65] I denna läroform ingår att avlägga ett prov och därmed få en praktisk examen genom ett gesällprov. När lärlingen utfört ett gesällprov är det möjligt att efter sju år med egen heltidsverksamhet i företagsform avlägga ett mästarprov.

En annan skolform är folkhögskolorna som anställer skickliga hantverkare som lärare i en mäster-lärlingsliknande utbildning där grupper på 10–12 studenter arbetar tillsammans med läraren. Man *ser, gör och övar* och kan lära sig ett hantverk genom ett antal olika praktiska steg. Inom folkhögskolan finns ingen validering av den hantverksskicklighet som uppnås annat än den bekräftelse läraren ger studenten. Den skicklighet som uppnås visar sig oftare i hur en vidare utveckling av hantverket gestaltar sig. Folkhögskolan med sin breda kunskapsbas och sina djupt specialiserade kurser[66] utbildar till stor del de individer som går vidare till universitetens olika konstnärliga fakulteter, men även hantverkare som startar och driver egen verksamhet i företagsform eller kooperativ. Konsthantverk och design kan studeras till masternivå på svenska universitet.[67] Alla nordiska och flera europeiska universitet har masterutbildning inom konsthantverk.

En mer naturvetenskapligt baserad grundkurs i hantverk och slöjd finns vid Linköpings Universitet där flera hantverk studeras med inriktning mot turism, museer och utställningskunskaper. Vissa praktiska delar kombineras med uppsatsskrivande. Utbildningen kan studeras till kandidatnivå.[68] I Linköping utgår man inte från en redan erövrad hantverkskunskap utan menar att det går att lära sig flera olika hantverk inom ramen för tre års akademiska studier på plats. Här skiljer sig utbildningen helt från andra svenska hantverksutbildningar.

Praktiska kunskaper inom ämnet kulturmiljövård och trädgårdsdesign kan numera studeras i Sverige inom ramen för Hantverkslaboratoriet som är ett nationellt centrum för kulturmiljöns hantverk vid Göteborgs universitet (GU). I samarbete med naturvetenskapliga fakulteten vid GU finns utbildningar i praktisk byggnadsvård vid Da Capo i Mariestad.[69]

65 http://www.hantverkslarling.se/larlingsyrken/ (hämtad 24 september 2015).

66 http://www.folkhogskola.nu/Kurser/Amnesomraden/Estetiska-kurser/ (hämtad 30 oktober 2015).

67 Högskolan för Design och Konsthantverk i Göteborg (HDK), Konstfackskolan i Stockholm. Stenebyskolan i Dals-Långed som både bedriver högskoleförberedande kurser i en stiftelsedriven hantverksskola och HDK Steneby som är ett samarbete i vissa konsthantverk på universitetsnivå i samarbete med Göteborgs universitet.

68 http://www.liu.se/utbildning/program/slojd/beskrivning?l=sv (hämtad 30 oktober 2015).

Här finns en tydlig skillnad i identitetsbygget för akademiseringen trots att de olika praktiska hantverksämnena har mycket gemensamt. Hantverkslaboratoriet kommer ur en bevarandetanke som växer fram på ett liknande sätt som slöjdföreningarnas skolor (se nedan). Inom kulturvetenskapen finns en oro över att hantverkskunskaper ska falla i glömska då de inte praktiseras, dokumenteras eller traderas till nästa generation. Bengt OH Johansson, Professor emeritus i kulturvård, skriver i sitt förord till boken *Hantverkslaboratoriet* om hur arkitektur, experimentell arkeologi och samtida forskning inom ämnet hantverkskunskap kunnat få nya insikter i trä- och bygghantverk genom att verkligen utreda hur något *är gjort* rent hantverksmässigt. Kunskaper som fallit i glömska återupptäcks och förståelsen översatt i ord kan göra att kunskapen kan komma till användning på nytt och denna gång utan att glömmas bort.[70] På alla nämnda utbildningar sker nu i olika omfattning en akademisering av det praktiska kunnandet. I Hantverkslaboratoriets första utgåva *Hantverkslaboratorium* som beskriver verksamheten skriver Almevik och Bergström följande;

> Tidigare har institutioner och personer som aldrig utövat hantverk företrätt *hantverkarnas kunskapsfält och meriterat sig genom forskning om hantverk. Vår* akademisering av hantverk ger möjligheten:
> - att hantverkare utbildar hantverkare,
> - att hantverkare själva utforskar hantverkets avancerade teorier och praktiker,
> - att hantverkare ges en maktposition att påverka villkoren för hantverkets utövande.[71]

Denna historieskrivning är en utgångspunkt för att samla och bygga upp teori och akademisk kunskap om hantverk och hantverkskunnande i en egenvald forskarmiljö. Miljön i sig är hela tiden i kontakt med den tysta kunskapen. Verkstäder och arbetsplatser såväl utomhus som inomhus gör att tillämpning i det praktiska arbetet kan ske kontinuerligt med dokumentation och reflektion. Lärlingen/studenten kan arbeta utomhus ena dagen, skriva ner, fotografera och diskutera nästa dag. I den här tanken

69 Institutionen för Kulturvård vid Göteborgs universitet är ansvarig för utbildningarna inom bygghantverk, trädgård och landskapsvård som ges på Trädgårdens skola. I samarbete med den naturvetenskapliga fakulteten vid Göteborgs universitet, kan man idag studera dessa treåriga utbildningsprogram som leder till kandidatexamen.

70 Bengt O. H. Johansson, ”Hantverk och byggenskap i backspegeln” i Löfgren, *Hantverkslaboratorium*, 29.

71 Gunnar Almevik and Lars Bergström, ”Hantverkslaboratoriet: Ett nationellt centrum for kulturmiljöns hantverk” i Löfgren, *Hantverkslaboratorium*, 13 (min kursivering).

anser författarna att det är viktigt att hantverket finner sin egen väg i att beskriva det som utförs i det tysta. Man understryker att det är av vikt att dessa kunskaper inte går förlorade genom att de regleras i text. Kunskap får inte hamna i bokhyllan utan ska praktiseras.[72] Hela denna akademisering regleras ändå i text och annan dokumentation vilket medför ett något motstridigt budskap. Genom att förhålla sig helt inomvetenskapligt tar man risken att inte komma framåt i sin strävan efter giltighet.

Jag menar att vissa hantverk finns representerade inom universitetet och då inom ämnesområdena konsthantverk och annan konstutövning såsom film, dokumentärfilm och dokumentationsteknik. Inom konstområden kan hantverkare som maskmakare, dockmakare, tecknare, perukmakare, dekormålare, snickare, smeder, scenografer, fotografer och skräddare nämnas som exempel på hantverkare som är aktiva i samspel med konstnärliga akademiska huvudområden. Det finns dessutom ett antal hantverkare som har akademiska utbildningar som skapar en tvärvetenskaplig möjlighet. Ibland hamnar forskningen och frågorna i lägen där man med fördel kunnat arbeta inom den tredje vågens vetenskapsteoretiska möjlighet och hittat samarbeten med teoretiker och praktiker eller filosofer som kunnat bära en expertroll i att ”tänka kring” hantverk. Därmed blir risken mindre att forskningen blir marginaliserad på det sätt som Collins och Evans beskriver (se tidigare avsnitt).[73]

En process som liknar Hantverkslaboratoriets process pågår inom akademiseringen av konsthantverk. Konsthantverk har en praktisk tradition sedan konstindustriskolorna grundades i mitten av 1800-talet efter att skråväsendet lades ner. Konsthantverk kan definieras som ett hantverk som bär ett konstnärligt eller eget uttryck vilket inte främst är tänkt för en kommersiell massproduktion utan är en unik personlig och därmed språklig uttrycksform för den enskilda hantverkaren och hens egen hantverksskicklighet (ett formspråk). Konsthantverket visas och bedöms i en konstnärlig kontext, alltså visas, beskrivs och befinner sig inom den konstscen som samtiden för tillfället beslutar är giltig.[74] Konstindustriskolorna som nu är en del av universitet- och högskolesystemet startades i mitten av 1800-talet. Högskolan för Design och Konsthantverk

72 Almevik och Bergström, ”Hantverkslaboratoriet”, 9–23.

73 Collins och Evans diskuterar att man behöver bygga upp institutioner som kan vara sant tvärvetenskapliga och har åsikten att de få institutioner (som driver en ensam linje) fortfarande hör till andra vågens vetenskap och skapar låsningar i framåtskridandet, därmed tenderar dessa institutioner att bli betraktade som ”campaigning organizations” (Collins och Evans, ”The Third Wave of Science Studies”, 271).

74 Denna beskrivning är min egen syn, jag menar att det som visas på konsthantverksgallerier och andra arenor för konsthantverk *är att betrakta* som konsthantverk i samhällelig mening.

(HDK) i Göteborg startades 1848 och Konstfack (statlig svensk högskola inom konst och design) i Stockholm 1844.

De dåvarande konstindustriskolorna utbildade studenter under deviser som ”Konst och lära ger gunst och ära”.[75] Inom utbildningen skulle studenterna lära sig att formge och utföra hantverk av hög kvalitet. Dessa begränsades dock till de hantverk som industrialiserades efter att skråväsendet upphört 1846, kvar fanns slöjdföreningarna som ville bevara hantverkskunskap och formgivning trots att det inte längre krävdes yrkeskunskap för att starta verkstäder eller fabriker.[76] Formgivning benämns numera design och industrin söker sig ofta till svenska designers men produktionen, hantverket, läggs oftast utanför landets gränser där arbetskraften är billigare. Formgivning kan definieras som en kunskap som främst är tänkt att massproduceras vilket innebär att formgivarens verk främst blir synliga i den marknadsstyrda kommersiella samtiden. Med tiden kan en god formgivares arbeten få status och antikvärde och vissa formgivare arbetar med mycket små serier som snabbt kommer att betraktas som unika, där kan gränsen mellan konsthantverk och design bli otydlig.[77] Här blir både hantverks- och industriella tillverkningsprocesser en del av den kunskap som formgivaren (designern) känner väl och har stor kunskap om, men oftast inte behärskar rent praktiskt.

Konsthantverksprogrammen bedriver fördjupningskurser i hantverk inom universitetsutbildningen vilket ger en avancerad nivå av praktisk kunskap. Studenten examineras genom ett praktiskt slutarbete som bedöms av en extern professor som opponerar på arbetet. Utbildningen genomgick i slutet av 1990-talet en förändring från fyraårig till femårig examen på magisternivå och en teoretisk del i form av en rapport har varit ett krav sedan 1997. Under 2000-talet har ett uppsatsliknande teoretiskt arbete utvecklats där ena delen av arbetet resulterar i ett praktiskt projekt med ett materialbaserat[78] verk som kan examineras tillsammans med en text som förhåller sig till det akademiska regelverket. Under senare år genomgår konsthantverksutbildningarna en förändring med en akademi-

75 Texten kan läsas målad på vägen ut över entréportalen (från insidan) på HDK – Högskolan för design och konsthantverk, Chalmersgatan 12, 411 35 Göteborg.

76 HDK grundades redan 1848, mer än hundra år före Göteborgs universitets tillkomst. Anledningen var att man vid övergången från hantverk till industri upptäckte att det uppstod behov av en helt ny yrkeskategori. Se http://www.hdk.gu.se/sv/om-hdk/historia (hämtad 17 januari 2015).

77 Denna beskrivning är min egen uppfattning men beskriver på ett mycket kortfattat sätt det som jag menar är hur formgivning betraktas idag.

78 Konsthantverk utförs i olika material ex. metall, textil, keramik, glas, trä, papper och blandningar mellan dessa och även blandningar med andra mindre traditionella material exempelvis gummi, betong mm.

sering av de olika ämnena. Inom ramen för denna akademisering söker konsthantverket (i jämförelse med det kulturbevarande hantverket) i det här fallet en teoretisering snarare än en förklaring eller dokumentation av *tyst kunskap* (jfr Hantverkslaboratoriet). Den konstnärliga intentionen och det egna uttrycksbehovet sätts in i ett teoretiskt historiefilosofiskt perspektiv och ofta diskuteras värdet av en kunskap inom kulturområdet. Man belyser frågor om språk och status och människans behov utöver nyttoaspekten. Sedan år 2000 har det varit möjligt att doktorera i design och sedan 2010 i konsthantverk.[79] Även här (jfr Hantverkslaboratoriet) söker man en egen definition av hur konsthantverket ska beforskas, akademiseras och teoretiseras. HDK och Konstfackskolan har forskarutbildning i ämnet konsthantverk och forskningsverksamheten är under uppbyggnad. I denna utveckling ingår att bygga så kallade kompletta miljöer som inkluderar alla tre utbildningsnivåerna, inklusive forskarutbildning och forskning. Här tänker man sig att verka för samarbete mellan dessa verksamheter. I och med akademiseringen finns en oro bland konsthantverkare att det inte räcker att bli mycket skicklig och att *kommunicera via sin praktiska kunskap*. Här fruktar vissa inom området att teori och metodbeskrivningar ska ta mycket tid från utvecklandet av praktiska skickligheter.

Mästar-lärlingsseminarium inom konsthantverk är i princip helt tysta. Studenterna ser en skicklig hantverkare arbeta och lär sig av att studera visuellt hur hen går tillväga, vilket är en oersättlig kunskapsöverföring som jag benämner *den tysta studien*. Denna kunskapsöverföring riskerar enligt kritiker att bli *ersatt* av exempelvis vetenskapsteori och samtidsdiskussioner.[80] Här är processen viktig och eftersom man nu formar sin akademisering så blir det allt viktigare att visa att hantverkskunskap är levande kunskap som *är* en särskild entitet. Hur denna omständighet ska beskrivas är, som inom all akademi, en pågående utveckling.

79 Konsthantverksutbildningarna består på grundnivå av programmen keramikkonst, smyckekonst och textilkonst och på avancerad nivå av programmet Konsthantverk med inriktningar i keramikkonst, smyckekonst och textilkonst. Se http://www.konstfack.se (hämtad 1 augusti 2015), http://www.hdk.gu.se (hämtad 1 augusti 2015).

80 Här finns inte skriftliga referenser att tillgå i dagsläget, men i olika former av diskussioner under konferenser och andra samlingar inom kulturområdets fackliga verksamheter som KRO/KIF (Konstnärernas riksorganisation/Konstnärer och industriformgivare) diskuteras frågorna om utbildningsvägar och krav på textualisering ofta; jag hänvisar här till mitt deltagande vid sådana tillfällen.

3.2 Arkeologi och akademi – bakgrund och forskningsläge

Arkeologi är ett ämne som från början studerat materiell kultur från forntiden. Ämnet formulerades inom de svenska akademierna ungefär samtidigt som konstindustriskolorna växte fram under 1800-talet då det blev ett universitetsämne. Tidigt användes naturvetenskapliga metoder för att diskutera eller begripliggöra olika arkeologiska frågeställningar.[81] I Sverige utvecklas ämnet fram från mitten på 1800-talet och fram till de första professurerna i arkeologi inrättas mellan åren 1914–1919. Nu finns arkeologiämnet representerat vid universitet och högskolor över landet. Hur arkeologiämnet är representerat nationellt och hur dagsläget inom utbildning ser ut finns i att läsa i högskoleverkets utvärdering från år 2009.[82]

Inom dagens arkeologi studeras materiell kultur från många olika utgångspunkter. Ämnet är mångvetenskapligt med olika inriktningar, teorier och metoder. Eftersom materiell kultur i dagens arkeologi även består av mänskliga kvarlevor, djurben, botaniska lämningar, spår av markanvändning samt byggnationer av hus, gravar och andra synliga strukturer som stensträngar och palissader, så krävs en stark koppling till olika expertområden. Byggnadsarkeologi, osteologi och paleoekologi är områden som inlemmats i ämnet arkeologi och har en självklar plats i den inomvetenskapliga strukturen.

Föremål som utformats av människor för att fylla alla tänkbara behov av verktyg, husgeråd, kläder, textil, smycken, hygienartiklar och möbler mm. omfattar många olika tekniker och material. Studier av dessa är till stor del inomvetenskapliga och har traditionellt inte inkluderat den hantverksexpertis som skulle kunnat användas. Här är det tydligt att hantverksexpertisen är en underutnyttjad källa till fördjupad kunskap. Studierna i arkeologiämnena är intimt kopplade till att beskriva och tolka hur människor levt under olika tidsperioder och olika tider studeras inom de arkeologiska ämnesinriktningar.[83] Inriktningarna[84] och avgränsningarna gör att det ibland är svårt att se att vissa typer av artefakter finns

81 Trigger, *A History of Archaeological Thought*; se kapitel 3, 95ff för en ingående idéhistorisk beskrivning av hur den första vetenskapliga och systematiska arkeologin växer fram i Skandinavien.

82 Högskoleverket, *Granskning av utbildningarna inom arkeologi*, Högskoleverkets rapportserie, rapport nr 2009:9R (Stockholm: Högskoleverket, 2009).

83 Arkeologi, Historisk arkeologi, Klassisk arkeologi, Historisk osteologi, Antikens kultur och samhällsliv, Numismatik, Laborativ arkeologi och Osteoarkeologi, Samtidsarkeologi, Framtidsarkeologi, Digital arkeologi, Förmedlande arkeologi, Experimentell arkeologi.

84 Se det så kallade tre-periodsystemet som delar in människans förhistoria i perioderna stenålder, bronsålder och järnålder, http://www.ne.se/uppslagsverk/encyklopedi/lång/treperiodsystemet (hämtad 24 september 2015).

i många tidsrum. Den formmässiga kontinuiteten för vissa föremål är mycket lång och kan därmed ha helt andra gränser är den nuvarande ämnesindelningen medger. Det finns föremål från förhistoriska perioder som har samma form och även tolkas haft samma funktion som historiska och nutida föremål har. Ett exempel på detta är fyndet och tolkningen av verktygslådan från Mästermyr på Gotland som påträffades 1936. I lådan fanns verktyg som först bedömdes vara från 1900-talet men senare daterades till vikingatid.[85] I arkeologiska sammanhang är mångvetenskapen ännu styrande när det gäller samarbeten. Den omständigheten leder vidare till nästa avsnitt där jag tar upp hur en kommunicerande vetenskap kan beskrivas. Denna bild presenteras för att lyfta in tanken om kommunikation innan resultatet av mina fallstudier presenteras. Jag vill med detta avsnitt visa i vilket ljus resultaten kan förstås.

3.3 Kommunicerande vetenskap?

Tvärvetenskap är inte ett vetenskapligt område som går att ringa in. Här kan Högskoleverkets definition vara en utgångspunkt för fortsatt diskussion.

> *Tvärvetenskaplig* blir verksamheten enligt detta synsätt när forskarna rör sig i gränsområdena mellan de olika ämnesområdena och gemensamt skapar ett nytt område. Till skillnad från mångvetenskapen bidrar då deltagarna till något nytt, utöver sina ursprungliga discipliner. Det finns, jämfört med mångvetenskapen, en högre ambition när det gäller integrationen av olika discipliner. När graden av integration blir tillräckligt hög kan nya discipliner eller ämnen bildas. Det finns en möjlig kronologi i relationerna som kan uttryckas: mångvetenskap–tvärvetenskap–disciplin.[86]

I den tvärvetenskap som jag vill tillhöra är det detta definierade och delade *synsätt* jag i min vetenskapliga gärning eftersträvar. Att ingå i en integrerad vetenskap som är intresserad av att bidra till ett gemensamt framåtskridande är för mig helt nödvändigt.

Kommunikation mellan praktik och teori med betoningen på en högre ambition att skapa *ny kunskap*, som i en framtid bidrar till framväxandet

85 Greta Arwidsson och Gösta Berg, *The Mästermyr Find: A Viking Age Tool Chest from Gotland* (Stockholm: Vitterhets-, historie- och antikvitetsakad., 1983), http://www.historiska.se/press/friapressbilder/foremal/pressbilder_hallare/verktygskista/ (hämtad 31 augusti 2015).

86 Högskoleverket, *Att utvärdera tvärvetenskap – reflektioner utifrån Högskoleverkets utvärderingar 2001–2005*, Högskoleverkets rapportserie, rapport nr 2007:34R (Stockholm: Högskoleverket, 2007), 9–10.

av nya discipliner och integration av alla sorters kunskap, är ett högt satt mål. Målen är inte naiva, vi ser hur många vetenskaper vågar välja kommunikation istället för att bevaka sin egen disciplin och ämnesgräns. Genom att det i den tredje vågens vetenskap blir möjligt att röra sig friare krävs ett stort ansvar. Det kommer att finnas många *trial-and-error-and-learning*-situationer[87] som måste godtas eftersom ett försök inte omedelbart kan förväntas bli lyckat. All ny vetenskap som vinner mark har prövats (och ibland misslyckats) i en repeterande serie kvalitativ eller kvantitativ forskning innan den hittar sin form. Det är en process att utveckla nya kommunikationsvägar likväl som att utveckla ny forskning.

I den forskning jag tänker mig som framtiden för arkeologiämnet är processen redan igång i olika forskargrupper som strävar efter att utforska vägar tillsammans. Vi olika forskare inom arkeologi försöker ta del av forskning från olika områden (ofta naturvetenskapliga) men kan stå frågande inför våra olika ämnens sätt att producera kunskap. Min erfarenhet av att vara en del av en hantverksgemenskap är att inom *gruppen* hantverkare (alla hantverk) ser man hellre till det som *förenar* än till det som skiljer ämnena (eller materialen) åt. De hantverkare som kommunicerar och delar med sig får en högre status i gruppen. Detta synsätt gällande ämnesövergripande mål skulle skapa en stor och viktig forskning i framtiden.

I nästa avsnitt beskriver jag akademiska avhandlingar som kommit under tvåtusentalet och är baserade på den egna hantverkskunskapen. Här använder jag en avhandling inom arkeologiämnet och en utanför arkeologiämnet vilket visar på hur hantverkskunskapsbaserade avhandlingar skulle kunna vidga referensbasen och kunskapen gällande hantverk inom arkeologiska tolkningar. Avhandlingarna beskrivs mer ingående nedan.

3.3.1 Praktik – att göra och tolka

Inom hantverksämnet i Sverige har två avhandlingar, enligt vad jag känner till, publicerats med den *egna praktiska hantverkskunskapen* som empirisk grund och metodisk utgångspunkt. En är textilhantverkaren och arkeologen Annika Larssons tvärvetenskapliga avhandling (mellan arkeologi och hantverk) *Klädd Krigare: skifte i skandinaviskt dräktskick kring år 1000*[88] från 2007. Den andra är hantverkaren Ulrik Hjort Lassen som disputerade

87 Situationer där de som prövar något nytt gör det om och om igen tills de lyckas bättre och bättre. Till slut fungerar dessa försök och bildar då en ny kunskap.

88 Annika Larsson, *Klädd krigare: skifte i skandinaviskt dräktskick kring år 1000*, Occasional Papers in Archaeology 39 (Uppsala: Uppsala universitet, Institutionen för arkeologi och antik historia, 2007).

2014 med avhandlingen *The Invisible Tools of a Timber Framer* (inom det inomvetenskapliga ämnet timmer och trähantverk).[89]

Annika Larssons text utgår ifrån hennes egen praktiska kunskap i ämnet textilhantverk, hon är utbildad textilingenjör och arkeolog. Författaren drar egna slutsatser av vad hon ser i textila arkeologiska material. Larsson beskriver sitt arkeologiska mål så här: ”Jag vill få föremålen att berätta om det samhälle som skapade dem”.[90] Avhandlingen väckte intresse och är, den mig veterligen, första svenska avhandling som skrivits av en hantverkare som använt sin förtrogenhetskunskap[91] som empirisk[92] grund för de arkeologiska tolkningar som förs fram. Trots intresset blev resultatet att forskningen blev ifrågasatt på arkeologiska grunder, men ansågs som en god provokation för att slå hål på givna sanningar i den inomvetenskapliga arkeologiska forskningen.[93]

Ulrik Hjort Lassens avhandling väckte stort intresse och han presenterades i olika media som den första hantverksdoktoranden där hantverkaren själv helt utgår ifrån sin egen kunskap i hantverket och lägger hela sin forskning *inom* hantverksområdet, men har anpassat den till det akademiska *regelverket*.[94] Avhandlingen lades fram vid Institutionen för kulturvård, Hantverkslaboratoriet vid Göteborgs universitet och har kallats den första avhandlingen i hantverk. I avhandlingen arbetar Lassen med en egen hantverksbaserad text och bildkommunikation som gäller äldre tekniker som han genom avhandlingen också utför och beskriver i byggandet av ett lusthus. Praktisk geometri och ”timmermansmärkning” är delar av den kunskapsbevarande ansatsen i avhandlingen. En licentiatavhandling byggd på egen hantverkskunskap har också publicerats vid Hantverkslaboratoriet, Tomas Karlssons *Ramverksdörr – en studie i bänksnickeri*.[95]

I Storbritannien disputerade keramikern och arkeologen Sandy Budden med avhandlingen *Renewal and Reinvention: the role and learning strategies in the Early to Late Middle Bronze Age of the Carpathian Basin*

89 Ulrik Hjort Lassen, *The Invisible Tools of a Timber Framer: A Survey of Principles, Situations and Procedures for Marking*, Gothenburg Studies in Conservation 32 (Göteborg: Göteborgs universitet, Institutionen för kulturvård, 2014). Tillgänglig online på adressen http://www.gu.se/english/research/publication/?publicationId=217556.

90 http://www.arkeologi.uu.se/Forskning/Forskningspresentationer/annika-larsson/

91 Pye, *The Nature and Aesthetics of Design*, 4–8; Molander, *Kunskap i handling*, 33–56; Bernt Gustavsson, *Vad är kunskap?: en diskussion om praktisk och teoretisk kunskap* (Stockholm: Statens skolverk, 2002), 88–90.

92 *Norstedts svenska ordbok*, s.v. ”empiri”: (kunskap grundad på) erfarenhet. Se http://www.ord.se/oversattning/svenska/?s=empiri&l=SVESVE (hämtad 23 november 2015).

93 Lise Bender Jørgensen, recension av *Klädd krigare: Skifte i skandinaviskt dräktskick kring år 1000* av Annika Larsson, *Fornvännen* (2008): 313–15.

år 2007. Avhandlingens metod bygger helt på hennes kunskap inom keramikhantverket.[96] Liksom Heide W. Nørgaard som utifrån sin egen hantverkskunskap och kunskap som arkeolog snart publicerar *Tracing the Hand that Crafted: How Individual Working Traces make Bronze Age Ornaments Talk* (kommande avhandlingspublikation).[97]

Experimentell arkeologi finns inom ramen för arkeologiämnet vilket samlat många hantverksintresserade arkeologer. Institutet för forntida teknik[98] hade under ledning av Tomas Johansson en tydlig arkeologisk inriktning. År 1986 hölls ett symposium i Gällö där man diskuterade experimentell arkeologi. I tidskriften Fornvännen 1988 rapporteras resultat och diskussioner av Deborah Olausson. Sammanfattningsvis kan sägas att en av diskussionerna rörde frågan om experiment skulle utföras av arkeologer eller av experter inom det område man studerar. Här menade Olausson att man inom den *traditionella arkeologin* inte tvekar att lita till experter. Hon avslutar med att påpeka att detta borde vara möjligt även inom den *experimentella arkeologin*, helt enkelt därför att man skulle få mer trovärdiga resultat.[99] Många av dagens hantverksintresserade arkeologer har en bakgrund från institutet som var beläget inom Bäckedals folkhögskola i Jämtland. Under Johanssons ledning arbetade elever med experimentell arkeologi som avrapporterades efterhand. Institutet drev en tidskrift *Forntida teknik* som både gav ut beskrivningar av experiment och olika forntida hantverkstekniker och diskuterade arkeologi och hantverk. Tidskriften kom ut med två nummer per år fram till 1994.

Vissa områden inom arkeologi har redan en starkare koppling till hantverksperspektivet, samarbeten och forskning med textilkunskap

94 Se http://www.lararnasnyheter.se/slojdforum/2011/11/23/varldens-forsta-hantverksdoktorand-aterupptacker-gamla-tekniker (hämtad 14 oktober 2015), och http://sverigesradio.se/sida/avsnitt/45817?programid=412 (hämtad 15 oktober 2015).

95 Tomas Karlsson, *Ramverksdörr – en studie i bänksnickeri* (Göteborg: Göteborgs universitet, Institutionen för kulturvård, 2013).

96 Budden disputerade 2007 med avhandlingen "Renewal and Reinvention: The Role and Learning Strategies in the Early to Late Middle Bronze Age of the Carpathian Basin". I Storbritannien ges inte avhandlingen ut i bokform, men Budden har publicerat ett flertal artiklar efter avhandlingen. Som forskare kan man få tillgång till brittiska avhandlingar.

97 Heide W. Nørgaard, "Tracing the Hand that Crafted: How Individual Working Traces Make Bronze Age Ornaments Talk" (in press).

98 Arkeologistudenter från Umeå universitet arbetade i forntida tekniker, ett samarbete som varade under några år. Verksamheten kom senare att förläggas i anknytning till Bäckedals Folkhögskola som fortfarande driver kurser med förhistorisk inriktning.

99 Deborah Olausson, "Symposium Report: Experimental Archaeology – Method and Future: Gällö 24–25 September 1986" i *Fornvännen* 83 (1988): 112–14.

som grund blir allt vanligare. Textilhantverkare som arbetar som experter (analyser av vävtekniker på forntida material) eller återskapare och rekonstruktörer av textilier för forskning finns inom ramen för arkeologiämnet. Ett exempel är textilingenjören Lena Hammarlund som är svensk handvävare, utbildad i Borås. Hammarlund utgår från sin egen hantverkskunskap i handvävning. Hon arbetar i flera olika samarbeten med arkeologer för att få fram valida tolkningar och rekonstruktioner av arkeologisk textil.[100] Hammarlunds kunskap i det praktiska bildar empiriska utgångspunkter för flera arkeologiska publikationer.[101]

Arkeologer har under ämnets hela uppbyggnad studerat hantverk utifrån många olika teoretiska utgångspunkter, som exempelvis; etnoarkeologiska, sociala, kognitiva, biologiska, hantverksteknologiska, statistiska och konstnärliga.[102] Kunskaper som vunnits ur dessa forskares arbeten är ovärderliga inom hantverksperspektivet. De är goda exempel på hur aktuell hantverksforskning är; Men eftersom avgränsningen jag utgår ifrån är *tyst kunskap* och hur den kommuniceras, kommer jag inte att ha utrymme att diskutera ovanstående forskning inom ramen för avhandlingen.

I sammanhanget bör dock nämnas några äldre arbeten där den egna hantverkskunskapen varit styrande för den kunskap som förs fram i text och författaren själv är den som skrivit och beforskat ämnet.

Exempel på denna form av kunskapsöverföring utanför akademin är; finsnickaren Thomas Temptes *Lilla Arbetets ära* som behandlar trähantverket och visar rekonstruktioner av verktyg och artefakter som exempelvis Tutanchamons stol och en svarv från 400-talet e. Kr., Tempte diskuterar även hantverkets status.[103]

Keramikern och glaskonstnären Finn Lyngaards *Jydepotter & Ildgrave* skriver om keramiker som arbetar i en historisk hantverkstradition på

100 The Danish National Research Foundation's Centre for Textile Research (CTR), Göteborgs universitet och Norwegian University of Science and Technology (NTU) i olika samarbeten.

101 Kathrine Vestergaard Pedersen och Lena Hammarlund, "Textile Appearance and Visual Impression: Craft Knowledge Applied to Archaeological Textiles" i *Archäologische Textilfunde – Archaeological textiles: NESAT IX*, red. Antoinette Rast-Eicher och Renata Windler (Ennenda: ArcheoTex, 2007), 173; Lise Bender Jørgensen, "The Introduction of Sails to Scandinavia: Raw Materials, Labour and Land" i *N-TAG-TEN: Proceedings of the 10th Nordic TAG Conference at Stiklestad, Norway 2009*, red. Ragnhild Berge, Marek E. Jasinski och Kalle Sognnes (Oxford: Archaeopress, 2012).

102 Några forskare som jag har att tacka för min egen förståelse för hur arkeologi *och* hantverk kan studeras är, i ett mycket strikt begränsat urval, Barbara Ambruster, Dean Arnold, Eva Andersson, Jan Apel, Sophie Bergenbrant, Berit Valentin-Eriksen, Olivier P. Gosselain, Ian Hodder, Anders Högberg, Maikel Kuijpers, Åsa M. Larsson, Anders Lindahl, Edward Matenga, Deborah Olausson, Marie-Louise Stig Sørensen.

103 Tempte, *Lilla arbetets ära*.

Jylland som, enligt författaren, typologiskt skulle kunna föras till romersk järnålder.[104] Lyngaard beskriver och diskuterar också traditionens rent teknologiska brister och fördelar.

Även översikter som *Sveriges hantverk – en bok om dess förflutna och nutid, om dess utövare i hem och arbete, samhälle och organisationer* av Nils Nihlén, William Karlsson och Henning Persson beskriver alla samtida hantverk, både ur ett tekniskt/praktiskt och ett samhälleligt perspektiv i sin tid, 1950-talets Sverige, i antologin talar även hantverkare om sitt arbete och sin skicklighet.[105]

Denna typ av litteratur är också användbar för forskning inom hantverksperspektivet. Det finns ett otal publikationer inom alla hantverksämnen som är stegvisa gör-det-själv beskrivningar, som ska fungera som direkt kunskapsöverföring för att läsaren ska lära sig en viss teknik. Vissa av dessa kan vara en ingång till förståelse för arkeologiska eller historiska tekniker som exempelvis korgflätning, linrötning, spinning, nålbindning, vävning, täljning, näverslöjd mm. Till detta kan även en mängd litteratur rörande odling, nyttoväxter, vedhuggning och äldre användning av material för huskonstruktioner också räknas in.

3.3.2 Praktik – att konsultera och tolka

Arkeologen kan, när kunskap om en viss fråga eftersöks, använda möjligheten att konsultera experter på vissa specifika områden. Här kan utgångspunkten för arkeologen vara den som jag själv använder när jag konsulterar hantverkare.[106] Det arkeologiska materialet, artefakterna, jag arbetar med består i dessa fall (se artikel 3) av hantverk jag själv inte behärskar. I enlighet med min tanke om hantverksperspektivet bygger jag då mina tolkningar på *underlag* från hantverkare som jag uppfattar som experter på sitt område. Hittills har jag prövat att konsultera en finsnickare, Per Brandstedt och en arkeolog med textilutbildning inom forntida textila tekniker, Linda Eva Olofsson.[107] Jag menar att tolkningen ger en *mer* rättvisande bild än

104 Finn Lyngaard, *Jydepotter og ildgrave* (Köpenhamn: Clausens forl., 1972), 34.

105 Nils Niléhn, William Karlsson och Henning Persson, red., *Sveriges hantverk – en bok om dess förflutna och nutid, om dess utövare i hem och arbete, samhälle och organisationer* (Malmö: Litterära verk/Bernces, 1955–56).

106 Botwid, ”Visible Craft” (Paper 3).

107 Se ibid. Per Brandstedt är en nationellt och internationellt erkänd finsnickare med dokumenterat hög hantverksskicklighet, en auktoritet på sitt område. Han har varit verksam på heltid i över 35 år, och som mästare har han undervisat lärlingar i finsnickeri, både inom och utanför landets gränser. Eva-Linda Olofsson är utbildad i forntida textilhantverk och arkeolog med stor erfarenhet i handhavandet av forntida verktyg.

om jag själv (eller andra arkeologer) utför hantverkstolkningen och bedömer den forntida hantverkarens kunskaper och hantverkssituation.[108]

Att använda hantverksskickliga experters kunskap inom arkeologiämnet kan föras till den syn som citerades tidigare (i stycket hantverk) gällande den erfarenhetsbaserade experten som positionerad *inom* istället för *utanför* den akademiska sfären. Almevik och Bergström skriver att *"personer som aldrig utövat hantverk företrätt hantverkarnas kunskapsfält och meriterat sig inom forskning på hantverk"*;[109] min syn är att det är viktigt att Almevik och Bergströms uppfattning diskuteras. Jag håller inte helt med om bilden. Här finns bra exempel som är inbyggda inom ämnena arkeologi, konstvetenskap, konsthistoria och stilhistoria. Det finns människor som är oerhört insatta och intresserade av hantverk och blir experter på hela föremålsgrupper, konstriktningar och design. Jag menar att deras kunskaper är användbara som en expertmedverkan inom arkeologi, om frågorna riktar sig på ett sådant sätt att de som har denna typ av kunskap har en relevant expertis. I min bild av den forskning jag vill se i framtiden är det intressant och spännande ju fler experter som meriterar sig inom hantverk, då det betyder att hantverksintresset ökar. Vilket i sin tur ökar relevansen för den forskning som utförs av praktiker, av oss som äger en hantverkskunskap.

Jag meriterar mig, just nu på samma sätt som beskrivits av hantverkslaboratoriets företrädare ovan. Som arkeolog och keramiker har jag expertis inom dessa områden men går, om jag behöver veta mer, till den (exempelvis hantverkaren eller geologen) som vet mest om det jag för tillfället behöver veta. Jag använder experter som stöd för min forskning för att göra den valid och vederhäftig.

I min andra position som hantverkare kan jag göra hantverkstolkningarna själv eftersom jag är en utbildad keramiker med i dagsläget tjugofemårs daglig erfarenhet av keramikhantverket. Jag gör som andra hantverkare gör. Vi övar fortfarande på att bemästra det material vi valt, vilket är en livslång process. I mina arkeologiska uppsatser gjorde jag mina första försök att akademisera denna praktiska kunskap och har sedan utvecklat en metod för att kunna ta till vara hantverkskunskapen till nytta för arkeologiämnet.[110]

Att kommunicera mellan vetenskapliga grenar är inte något som kan tvingas fram; min syn är att det måste ”göras” fram när det finns behov av samspel. Inom hantverksområdet sträcker sig hantverkare mot natur-

108 Ett exempel på en arkeolog som arbetar med information som bygger på hantverkares utsagor är Eva Andersson som forskar på forntida textila hantverk i samarbete med Saxoinstitutet vid Köpenhamns universitet.

109 Almevik och Bergström, ”Hantverkslaboratoriet”, 13.

110 Botwid, ”Från skärva till helhet”; Botwid ”Offrad keramik”.

vetenskapen på ett liknande sätt som arkeologin gör. Samarbeten handlar t.ex. om materialutveckling, hållfasthet, materialkunskaper, mättekniker, skapandet av nya material för offentliga gestaltningar, väderbeständighet, silikatkemi och pyrotekniska egenskaper.

Det är lätt att förstå att naturvetenskap och arkeologi har incitament att sträcka sig över gränsen eftersom dessa ämnen växte under samma tid och i kontakt med varandra. Detta utifrån en tid där individen börjar kunna observera sig själv och därmed ser både bakåt och framåt.[111] Tidigare, under förmodern tid, fanns inte behovet av att avgränsa tingen (föremålen) och människan så som senare i ett modernt akademiskt sammanhang.[112] Den tysta kunskapen stannade i viss mening kvar i den tidigare tanken, eftersom den ännu inte kunde benämnas. Tyst kunskap förmedlades enbart genom kunskap i handling.[113] Ibland lyftes hantverksskicklighet upp i en diskussion om kvalitet,[114] och oftare, om olika tiders statushantverk. Sällan fanns referenser till en kunnig erfarenhetsbaserad expert av det hantverk som diskuterades. Denna omständighet kan vara avgörande för hur tyst kunskap kom att marginaliseras som resurs för arkeologiämnet.

3.3.3 Teori – att tänka och tolka

Att möta ett ämnesområde som är okänt är en prövning. Hur skulle då starkare kommunikation kunna byggas mellan hantverk och arkeologi? Att gå in i ett analysarbete som baseras på den egna uppnådda hantverkskunskapen inom ett hantverk som bildat grunden för en stark typologisk forskningstradition var mitt första steg. Här kunde jag se att hantverkstolkningen av keramiken innebar en mycket annorlunda arkeologisk tolkning.[115] Att sedan visa hur anomalier (ovanliga fynd) kan lyftas fram och bilda nya fyndkategorier var mitt andra steg.[116] Därefter (i min tredje artikel inom avhandlingsarbetet) prövar jag det jag själv föreslår. Jag kon-

111 Ola W. Jensen och Björn Magnusson Staaf, ”Between Body and Artefacts: Merleau-Ponty and Archaeology” i *Philosophy and Archaeological Practice: Perspectives for the 21st Century*, red. Cornelius Holtorf och Håkan Karlsson (Göteborg: Bricoleur Press, 2000), 57.

112 Ibid., 60–61.

113 Molander, *Kunskap i handling*, 15–19.

114 Se Ulla Isabel Zagal-Mach Wolfe, *Grasping Technology, Assessing Craft: Developing a Research Method for the Study of Craft-Tradition*, Acta Archaeologica Lundensia Series altera in 8° 63 (Lund: [Lunds universitet], 2013), 96 och Kuijpers, ”Early Bronze Age Metalworking Craftmanship”, 30.

115 Botwid, ”Evaluation of Ceramics”; se Paper 1.

116 Botwid, ”The Colour of Life”; se Paper 2.

sulterar människor som är experter, var och en på sitt område.[117] Mina erfarenheter från dessa försök gör det tydligt att man som arkeolog inte är automatiskt lämpad för att arbeta med sina frågeställningar med hjälp av konsulter. Det blir mycket viktigt att man planerar och förbereder sig på rätt sätt. Min intention var att det skulle vara mycket tydligt för den deltagande hantverkaren att det var denna person som ägde expertisen som jag efterfrågade. Det var svårt trots noggranna förberedelser eftersom jag inte hade så stora kunskaper om de hantverk jag ville veta mer om, och ofta hamnade i arkeologiska resonemang istället för att gå djupare in i hantverkstolkningen. I artikeln ”Visible Craft – tracing skill, knowledge and invisible tools through the artisanal perspective” diskuterar jag hur intervjumetoden fungerar och kan utvecklas.[118]

Rädslan att göra fel och att inte kunna kommunicera är två av de svåraste delarna när det gäller att arbeta tvärvetenskapligt. Den fasta grund man själv står på i sitt första ämne är väldigt lätt att förlora om man inte känner sig trygg. Min erfarenhet är att mångvetenskaplighet ofta blir inomvetenskaplig istället för tvärvetenskaplig för att det blir för smärtsamt att ge sig ut på osäkra vägar. Man håller hellre fast vid de vägar man känner till. De upptrampade spåren ger trygghet.

Min kunskap som keramiker är en stor del av min identitet. Handens kunskap äger jag. Att beträda den teoretiska akademiska banan var en helt ny och oprövad väg för mig när jag påbörjade mina studier i arkeologi. Efter magisterexamen var jag arkeolog; men kände mig ändå som en nybörjare eftersom jag inte hade tjugofem års arkeologisk erfarenhet *eller* var skicklig i att förhålla mig till det akademiska regelverket. Det har tagit mycket tid och kraft att erövra en viss trygghet inom det akademiska ämnet arkeologi. Att förklara hantverkliga fakta utan att kunna hänvisa till skriven text har varit en utmaning. Det är lätt att hamna i en situation där man skyddar sig själv, håller försvarstal och enbart hävdar sin ståndpunkt. Efter ett par år insåg jag att det är en pedagogisk utmaning att föra in den tysta kunskapen i en talad och skriven arkeologisk-historisk ämnesvärld. Jag var helt enkelt tvungen att förklara mig. Det gör jag nu.

Att som Mårten Medbo (doktorand i konsthantverk vid HDK) tala om sitt *språk* i avhandlingstexten *Lerbaserad språklighet* sätter ord på keramikhantverkets tysta kunskap.[119] Själv utgår jag från samma kunskap, den tysta kunskapen, när jag med händerna *läser* mina forntida kollegors skicklighet.[120] Frågan som kommer upp är oftast *hur* jag gör det. Han-

117 Botwid, ”Visible Craft”; se Paper 3.

118 Ibid.

119 Mårten Medbo, doktorand på HDK med avhandlingsprojektet ”Lerbaserad språklighet”(2013).

dens kunskap är tyst men kan uttalas. Jag är en skolad keramiker, liksom Medbo, vi har båda en inlärd praktisk hantverkskunskap inom ramen för HDK och Konstfacks magisterutbildningar i keramik/konst (se ovan under rubriken 3:1). Detta ger som all skolning en likriktning, troligen skulle vi båda läsa kärl med liknande resultat.

Det skulle bli outhärdligt långa texter om jag skulle beskriva *hur* jag läser eller hur jag uppfattar kärlen jag undersöker avseende hantverksskickligheten som hantverkats in i dem. Polanyi skriver följande *"Minutiösa detaljredovisningar kan oåterkalleligen fördunkla ett ämne som historia, litteraturvetenskap eller filosofi. Mer allmänt talat är tron på att kunskap om enskildheter, eftersom de är mer påtagliga, leder till en sannare uppfattning om tingen i grunden felaktig."*[121] Jag håller med Polanyi och berättar istället om vilken skicklighet kärlen representerar utifrån min tolkning.[122] Denna möjlighet talar också Mårten Medbo om i sin avhandlingstext "Varje historiskt eller förhistoriskt drejat föremål är gjort av en kollega och går att läsa som ett dokument om drejning."[123]

Att pröva en väg där denna annorlunda analysmetod används som underlag för arkeologiska tolkningar kräver envishet. Att övertyga en annan forskare om att det jag ser och observerar är vetenskapligt tillförlitligt kan vara en pedagogisk utmaning.

Arkeologen och keramikern Sandy Budden arbetar i sin avhandling med hantverkskunskapen som redskap för sin analys. Hon skriver följande *"Given that material objects are understood to play a central role in the constant negotiation of cultural and social dynamics, understanding the nature of skill acquisition and skill deployment may be considered to be an important enterprise."*[124]

Här ligger kärnan: hur kan vi hitta tilliten till varandras yrkesheder eller kompetens i tvärvetenskapliga samarbeten?

Praktiker och teoretiker kan behöva vänja sig vid varandra för att senare förstå hur ett nydanande samarbete kan se ut.

120 Här finns en diskussion inom arkeologin som talar om ting som text för vidare förklaring; se Anders Andrén, *Mellan ting och text: en introduktion till de historiska arkeologierna* (Eslöv: B. Östlings bokförl. Symposion, 1997).

121 Polanyi, *Den tysta dimensionen*, 44.

122 Botwid "Evaluation of Ceramics", 32–35; Katarina Botwid, "Från hand till hand – arkeologisk forskning ur ett hantverksperspektiv" i *Att befolka det förflutna: fem artiklar om hur vi kan synliggöra människan och hennes handlingar i arkeologiskt material*, red. Anne Carlie (Kalmar: Riksantikvarieämbetet, 2014), 59–61.

123 Medbo, "Lerbaserad språklighet", 13.

124 Sandy Budden, "Skill Amongst The Sherds: Understanding the Role of Skill in the Early to Late Middle Bronze Age in Hungary" i *Breaking the Mould: Challenging the Past through Pottery*, red. Ina Berg (Oxford: Archaeopress, 2008), 1.

4

Avhandlingens artiklar och sammanfattade resultat

De fyra artiklar som avhandlingen bygger på presenteras var och en för sig. I avhandlingstexten används de som grund för de tankar och teoretiska ställningstaganden jag gör. Arbetet med de tvärvetenskapliga undersökningarna har utvecklat min teoretiska förståelse för det jag och andra gör i praktiken. Här har jag prövat och utvecklat metoder och analysverktyg som kortfattat kommer att beskrivas och följas av de sammanfattade resultaten. I stycket ”syntes och diskussion” kommer en mer fördjupad diskussion att föras om vetenskapsteoretiska ställningstaganden när det gäller att kunna sammanföra flera experters medverkan i en process.

4.1 Paper 1: Evaluation of Ceramics: Professional Artisanship as a Tool for Archeological Interpretation[125]

Artikel 1 bygger på en undersökning av ett begränsat arkeologiskt keramikmaterial. Keramiken var nedlagd i gravar på ett mindre gravfält från romersk Järnålder, daterat till 300-talet e. Kr, beläget i Sjogersta socken söder om Skövde i Västergötland. Keramikmaterialet låg till grund för utvecklingen av metoden hantverkstolkning, som värderar forntida hantverkares skicklighet. I artikeln presenteras de metodologiska utgångspunkterna. Här visas på vilket sätt hantverkstolkning kan bidra till den arkeologiska tolkningen av artefakter. Undersökningen gav flera resultat som gjorde det möjligt att fastslå att *hantverkstolkning* kunde ge ytterligare tolkningsmöjlighet av keramik inom arkeologiämnet. Förutom att visa metodens bärighet visade det sig möjligt att skapa nya frågor för framtida fördjupning. Keramiken i de två undersökta stensättningarna bestod av så kallad finkeramik som bedömdes vara utformad av hantverkare med enbart nivån *hantverkskunskap*, vilket visar att gravkeramiken eventuellt inte var gjord av en keramiker, utan kan tolkas vara en *representation* av kärl i detta sammanhang. Det kärl som bedömdes vara utfört på nivån *professionell hantverksskicklighet* var ett kärl som stod öppet mellan de båda stensättningarna. Det innehöll en kremerad människa och ett bältesspänne i brons, utformat i karvsnitt, som avbildade en skäggig mansfigur och två upp- och nedvända fågelornament. I det här fallet bidrog den förändrade tolkningen till nya tolkningar av gravskicksarkeologi och keramiskt hantverk som kulturell bärare av mening.

125 Botwid, ”Evaluation of Ceramics”, 32–44.

4.2 Paper 2: The Colour of Life: An Artisanal Perspective on Ceramic Anomalies During the Scandinavian Roman Iron Age[126]

Artikel 2 behandlar ett fynd från, en järnåldersgård (Gustavslund) som bebotts under äldre järnålder fram till romersk järnålder. Gustavslund är beläget i Skåne inom det nuvarande Helsingborg. Denna undersökning, som utfördes av Riksantikvarieämbetet Uv Syd,[127] var den första som tog in *hantverkstolkning* av keramik som en del av en avslutande totalundersökning. All keramik var genomgången på det sätt som är brukligt inom arkeologin;[128] datering, föremålsbestämning (avser tolkning av hur föremålen brukats) och en lokal typologi arbetades fram i jämförelse med övriga skånska material.[129] Efter att den första analysen var klar fick jag som erfarenhetsbaserad expert ett arkeologiskt uppdrag som innebar att jämföra tre gårdar i området avseende de olika gårdslägenas tänkta *hantverksskicklighet*.[130] Under fyndanalysen kom det fram ett annorlunda fynd. Det kategoriserades som ”bränd lera”[131] och var enligt vad jag kunde se en *oxidkrita*. Det visade sig att denna fyndkategori inte finns inom de arkeologiska fyndkategorierna. Oxidkritor är en vanlig företeelse både inom historiskt- och inom dagens keramikhantverk. Artikeln behandlar hur vägen genom arkeologi till *hantverkstolkning* i samarbete med laborativ arkeologi kan ge helt nya tvärvetenskapliga slutsatser på det sätt vilket jag argumenterar för att tvärvetenskap skall kunna fungera. Slutsatsen är att det fanns konstnärsmaterial under romersk järnålder i Sverige. Tidigare forskning har sett färgspår men inte hela kritor. Kritan är daterad till 20–180 BC. Vi ser framför oss en allt mer färgrik forntid.

126 Botwid, ”The Colour of Life”.

127 Nuvarande Statens Historiska Museers arkeologiska undersökningsverksamhet i Lund.

128 Keramiken rapporterades, sorterades, analyserades och fyndregistrerades av Torbjörn Brorsson, Kontoret för Keramiska Studier.

129 Torbjörn Brorsson, ”Den förromerska och romerska keramikens kronologi och funktion – exempel från Gustavslund i Helsingborg” i Håkan Aspeborg, Bo Strömberg och Katarina Botwid, *Gustavslund: en by från äldre järnålder: Skåne, Helsingborgs stad, Husensjö 9:25 (Gustavslund), RAÄ 184: arkeologisk undersökning 2010* (Lund: Arkeologiska uppdragsverksamheten (UV Syd), Riksantikvarieämbetet, 2014).

130 Aspeborg, Strömberg och Botwid, *Gustavslund*.

131 Bränd lera är enligt min tolkning en fyndkategori som kan sägas vara en vid definition av keramik eller annan lera som avsiktligt eller oavsiktligt blivit bränd och inte direkt kan urskiljas som igenkännbara artefakter.

4.3 Paper 3: Visible Craft: Tracing Skill, Knowledge and Invisible Tools Through the Artisanal Perspective[132]

I artikel 3 prövar jag den tvärvetenskapliga möjligheten genom att arbeta tillsammans med två hantverkare inom områden som jag inte behärskar, trähantverket och textilhantverket. Utöver det prövas möjligheten att diskutera hantverksfrågor med en specialiserad arkeolog och med en jordbrukare. Resultaten och tillvägagångsätten är en viktig del av utvecklingen av en hantverksarkeologi som kan sägas höra till hantverksperspektivet. I artikeln utgår jag ifrån min tidigare hantverkstolkning av keramikartefakter i Käringsjöns mosse norr om Halmstad, där människor lagt artefakter under tiden 200–400 e. Kr. Min tidigare undersökning av keramikartefakterna[133] tillsammans med de nya hantverkstolkningarna gav en vidgad bild av platsens hantverkskrets; livet som hantverkare. Här kunde också frågor om tidsåtgång och kunskapsöverföring i hantverket tolkas. Dessa tolkningar visar en befolkning som hade en specifik förståelse för vissa hantverk och en generell förståelse av hantverkets betydelse för gruppen. En strikt användning av hantverksperspektivet genom alla hantverken som fanns i fyndet visade att en ny empirisk tolkningsgrund var möjlig.

4.4 Paper 4: Understanding Bronze Age Life at Pryssgården (LBA) in Sweden – from an Artisanal Perspective[134]

Den fjärde och mest omfattande publikationen inom avhandlingen är en mindre monografi. Undersökningen som står i fokus är Pryssgården, i det nuvarande Norrköping. Pryssgården undersöktes arkeologiskt 1993–94 och väckte stort arkeologiskt intresse nationellt. Alla då förekommande metoder inom arkeologi användes för att prövas på platsen, olika naturvetenskapliga analyser, miljö- och landskapsanalyser. Hantverksperspektivet har, i och med min undersökning av de 7100 fyndposterna, kunnat prövas i ett större arkeologiskt material. Utifrån hantverkstolkningen som kopplats till tidigare undersökningar har en vidgad bild av bronsålderns samhälle och organisation av hantverket skapats. Tyngdpunkten för den

132 Botwid, "Visible Craft", inlämnad till *Journal of Material Culture*.
133 Botwid, "Offrad keramik", 27–33.
134 Paper 4: Understanding Bronze Age Life at Pryssgården (LBA) in Sweden – from an Artisanal Perspective, Acta Archaeologica Lundensia report series 8°, (in press).

arkeologiska tolkningen ligger i yngre bronsålder då den största andelen fynd daterats i detta tidsintervall. Hantverksanknutna metoder som *hantverkstolkningar* och *arkeologiska experiment* har använts tillsammans med typologi och andra jämförande arkeologiska metoder. Inlärning av hantverk samt hantverkskunskap beskrivs utifrån den praktiska, tysta kunskapens plattform genom att sätta ord på de handlingar som är synliga i de arkeologiska artefakter och sammanhang som kan kopplas till denna fyndplats i Östergötland. Undersökningar av hantverkares kunskap i keramikhantverket beskrivs, och omtolkningar av fynd och anomalier (udda fynd) från Pryssgården presenteras.[135] Fyndplatsen knyts i syntesen till det större bronsåldersammanhanget. Pryssgårdens fynd och övriga arkeologiska omständigheter kontextualiseras genom hantverksperspektivets tvärvetenskapliga synsätt. Här bidrar texten (paper 4) med nya vetenskapliga resultat.

4.5 Undersökningarnas sammanlagda resultat

Att förstå men inte kunna bevisa är en av arkeologens utmaningar. Arkeologen vill förstå stora som små händelser i förhistorien. Utgrävningarna förstör delvis bevisen. I stora drag blir undersökningen inte replikerbar efter genomförandet. Detta faktum gör arkeologen beroende av ett antal olika möjligheter för att söka förklara vad hen ser och tolkar. Arkeologen är i utgrävningssituationen i viss mening hantverkare, tyst kunskap och erfarenhet *är* en del av arkeologens redskap.[136] Arkeologin i sig har utvecklat metoder för att beskriva, dokumentera och samla in den nödvändiga information som är möjlig i utgrävningssituationen. Hur säkras då denna information? Rapporter och dokumentationen är här helt beroende av arkeologens kunskap och noggrannhet. Hur noggrann man kan vara vägs mot den tid och möjlighet uppdraget ger i sammanhanget. Är det en förundersökning, en uppdragsutgrävning eller en forskningsutgrävning?

135 Katarina Botwid, ”From Figurine To Tuyère: Re-Interpretation of a Goddess Figurine Using Artisanal Interpretation of a Find from the Bronze Age Site of Pryssgården in the Southeast of Sweden”, konferensbidrag som först presenterades den 8 mars 2013 och, efter ytterligare arkeologiska experiment, den 2 juni 2014 samt, i sin slutliga tolkning, under det 21:a årsmötet för EAA (European Association of Archaeologists), Glasgow, 3 september 2015. Katarina Botwid, ”Skilled Children in Ceramic Craft: Artisanal Interpretation of a Bronze Age Pot from the Bronze Age Site of Pryssgården in the South-East of Sweden” och ”Craft and Climate”, båda presenterade vid XV Nordic TAG 2015, Köpenhamn, 16–18 april 2015.

136 Se diskussionen i Michael Shanks och Randall H. McGuire, ”The Craft of Archaeology” i *American Antiquity* 61, nr 1 (1996): 75–88.

Vilken budget står arkeologerna till buds? Alla parametrar vägs in och arkeologen måste utifrån detta göra sina val. Ett val kan vara att använda expertis för att stärka flödet av information. Många experter och laboratorier kan vara inblandade i en utgrävning som har stora giltighetsanspråk. Prover kan tas och ibland kallas experter till utgrävningarna för att övervaka eller söka information som hör till hens egen expertis. Allt sker under en viss tidsperiod och sedan läggs grävningen till handlingarna och rapporteras. Förhoppningsvis kommer alla expertsvar in innan grävrapporten publiceras. Rapporterna och artefakterna som magasineras blir kvar till en framtid som kommer att ställa nya frågor till materialen. Dessa kan i sammanhanget betraktas som slutresultatet av en arkeologisk utgrävning.

Mina olika fallstudier har byggt på sådana slutresultat. Jag har tagit fram både fynden och dokumentationen från tidigare undersökningar. I undersökningen som presenteras i paper 2 fanns jag med i diskussionen från början och gavs möjligheten att bidra med en hantverkstolkning i rapporten, detta har tillsammans med en tolkning av keramikkunskaperna hos den forntida hantverkaren skapat en ny fyndkategori, *oxidkritor*, som visar att det funnits konstnärmaterial (tillverkade för ändamålet) på platsen.[137]

Experten kan, som tidigare diskuterats, finnas inom många fält och en tydlig teoretisk diskussion förs i slutet av avhandlingen. Om det forntida hantverkets arbetsgång analyseras och beskrivs i syfte att visa hur aktiviteterna avspeglas på utgrävningsplatsen, kommer en tydligare bild av forntida aktiviteter att framträda. Analyser av hur ett föremål är gjort och en bedömning av vilken skicklighetsgrad artefakten representerar kan förmedlas till arkeologen. Hantverkaren kan i sin tur också förklara vilka omständigheter och resurser som måste till för att hantverket ska kunna utföras. Hantverkaren kan se spår av eller ha förståelse för flera olika parametrar som; kunskapsintensiva handlingar (*knowledge intensive actions*) som beskriver handlingar där flera hantverkare arbetar i ett arbetsflöde som inbegriper att alla tillsammans i en enda, förkroppsligad och gemensam händelse utför ett steg i hantverket. Dessa steg leder mot ett slutresultat eller ett viktigt steg, som inte kan göras på något annat sätt (exempelvis i resning av takstolar, stora keramikbränningar, metallgjutningens arbetsflöden samt glasblåsning). Sådana processer kräver att varje deltagare äger tyst kunskap och kan bidra till gruppens arbete med sin förkroppsligade och inlärda kunskap. Denna möjlighet kräver ett deltagande där hantverkaren lärt sig (eller håller på att lära sig) genom situationsbaserat lärande

137 Katarina Botwid, ”Hantverkstolkning av keramik – en undersökning av forntida keramikers hantverksskicklighet” i Aspeborg, Strömberg och Botwid, *Gustavslund*.

(*pheriferal or situated learning*).[138] Först ser hen på och därefter deltar hen i de ”enklaste” momenten, vilket ökar förståelsen och kunskapen gradvis tills hen slutligen kan leda en sådan process.

Kunskapen hos experten gör det möjligt att visa eller beskriva hantverksprocesser och förklara hur de kan gestalta sig under olika tidsperioder eftersom råmaterialet beter sig på ett tekniskt likartat sätt över tid. Detta kan ge en förståelse för hur hantverksprocessen kan ha gestaltat sig och leder till en *hantverksteknologisk avkodning*. Denna kan arkeologen sedan använda i sin förståelse och föra samman med sin arkeologiska tolkning.

All information gällande hantverk är inte bunden till den tysta kunskapens dimension även om ursprunget till den varit det. Exempelvis kan blandningar av råmaterial i glasyrer, en bra sammansättning av metall- eller färgblandningar snabbt förstås och fångas upp av experten. Denna information kan lätt förmedlas till arkeologen.

Arkeologen kan, på samma sätt som med naturvetenskapliga analyser, kontextualisera informationen och arkeologiskt tolka platserna med nya insikter.

138 Via etnologiska undersökningar har Lave och Wenger observerat vissa mönster i inlärning i en social situation. De ser hur den som vill lära sig ofta ser på under en tid för att alltmer närma sig ett aktivt deltagande. Se Lave och Wenger, *Situated Learning*.

5

Ett hantverksperspektiv i praktiken

Det är nu möjligt att tala om ett framväxande teoretiskt perspektiv. Genom de resultat som presenterats ovan och som fastställer giltigheten i metod- och perspektivutveckling blir det synligt att det går att tillföra arkeologiämnets alla delar ett teoretiskt ramverk gällande expertis, såväl praktisk som teoretisk sådan. Det blir nödvändigt att förhålla sig till expertens roll oavsett inom vilket ämne man anser sig ha sin kunskapsbas. Utifrån denna kunskap om hur en metod operationaliseras och utvecklas, genom avhandlingens fallstudier frambringas ett synsätt som teoretiserats genom avhandlingsämnet. Innan syntes och diskussion om den stora bilden kan föras är det nu lämpligt att fastställa för vem hantverksperspektivet är viktig och hur det kan vara öppet för alla.

5.1 För vem är hantverksperspektivet viktigt?

Den som söker kunskap om ting (föremål) skall finna att allt som hör till föremålsvärlden är tillverkat av *någon*, den som undersöker dessa ting och företeelser kommer att undra över det. *Hur* är tinget gjort, *vem* gjorde det och *hur* utförde hen arbetet (skickligheten). Den arkeolog som upplever att det inte är möjligt beskriva *vad* och *hur* människor gör i det praktiska hantverket under förhistorisk och historisk tid, kan söka denna föreslagna kvalitativa information och hitta denna möjlighet inom hantverksperspektivets ramverk och metod.

De som nu tänker att det räcker med att läsa *texter* om utförande, kvalitet eller material kommer att sakna en viktig faktor, nämligen den konkret praktiska/intellektualiserade kunskapens *utsaga*, om föremålen, de fysiska materialen, arbetet och världen.

Även den, som anser att det är svårt att vidga synen och definiera mänskliga handlingar om de inte är *direkt mätbara*, kan inom ramen för perspektivet hitta nya lösningar.

5.2 Hur kan ett hantverksperspektiv vara öppet för alla?

Genom att hantverksperspektivet inte kräver flera expertkunskaper av en enda individ utan en *samspelande kommunikation* över ämnesgränser och en förmåga att ta del av andras kunskap (även oskolad expertis i praxis) kan alla forskare som är intresserade av att vidga sin kunskapssyn ingå i den teoretiska ram som den tredje vågens vetenskap öppnar för. Vi har inte funnit alla former för detta ännu men inom arkeologiämnet finns oändliga möjligheter att bjuda in samtida yrkesgrupper som praktiskt hanterar många kategorier av mänskliga göromål. Det kan ge helt nya oväntade forskningsinsatser som utgår från den individ som ställer sig en vetenskaplig fråga och letar svaren genom att samspela.

6

Syntes och diskussion

Att tala om hantverk är svårt, det finns många åsikter om hantverk och hantverkare, både utanför och innanför hantverkskretsen. Det finns ibland en svårighet i själva kontakten som jag ska beskriva här. Meningen är inte att värdera utan att beskriva den bild som jag ser. Inom arkeologin och i min roll som arkeolog uppfattar jag att hantverkaren kan ses både som bärare av kunskap och som ett hot.

I min andra roll som hantverkare kan jag med min praktiska kunskap bidra till att ge fördjupade och nya kunskaper samt verifiera eller falsifiera vissa hypoteser. När jag själv undersöker keramik är det ju mina egna resultat jag presenterar både i min egenskap av att vara arkeolog och hantverksexpert.

Att tala tillsammans från olika utgångspunkter, som teoretiska och praktiska, kan vara lika svårt som att tala olika språk. Man förstår inte varandra. Själva språkbruket kan utgöra ett hinder. Möten mellan olika kunskapstraditioner går i vissa fall utmärkt och i andra fall inte alls.

Språkbruket kan avgöra hur olika deltagare i olika tvärvetenskapliga studier uppfattar sin medverkan. Vikten av att förändra sin inställning och forma tvärvetenskapliga alternativ kan ses som en alltför stor uppgift. Att vara en levande kunskapsbärare i praktiken bör vara en tillgång.

När det gäller att förändra språket, som just nu är aktuellt i vår samhällsdebatt, blir det tydligt att språket är viktigt för att nå fram. Det väcker onekligen känslor.[139]

För att ge ett exempel: Inom ämnet arkeologi kan det bli tydligt när vi talar om *traditionellt svenskt hantverk*. Begreppet kan tas emot positivt eller negativt beroende på vilken hantverkskrets vi befinner oss i. *Ska* arkeologer veta att samiskt, judiskt, romskt[140] eller vissa av kvinnors hantverk inte räknas till traditionellt svenskt hantverk? Begreppet *traditionellt svenskt hantverk* formulerades av hemslöjdsrörelsen i det sena 1800-talet och kunde exempelvis, förutom de tidigare nämnda exemplen, utesluta virkning som ansågs slappt och förödande för moralen, i motsats till knyppling då man satt rak i ryggen och arbetade flitigt.[141]

Om jag nu vänder perspektiv så är exemplet: När en hantverkare eller konsthantverkare talar om *primitiva* hantverkstekniker kan arkeologen reagera med misstroende då begreppet *primitiv* anses nedsättande och ko-

139 Se samhällsdebatten gällande äldre språkbruk: ”intersektionalitet, samhällsvetenskapligt begrepp som syftar till att synliggöra specifika situationer av förtryck som skapas i skärningspunkter för maktrelationer baserade på ras, kön och klass. Begreppet har sin bakgrund i den antirasistiska feminismen” (*Nationalencyklopedin*, s.v. ”intersektionalitet”).

140 Anneli Palmsköld, ”Hantverkskunskap som immateriellt kulturarv” i Löfgren, *Hantverkslaboratorium*, 101.

141 Ibid., 98–103.

lonialt. Inom konsthantverk och hantverk lever begreppet i viss mån kvar i betydelsen *ursprunglig* och anses därför ha en *högre status* än det som utförs med avancerad modern teknik. Ovanstående exempel och korta diskussion visar på hur språkbruk och uppfattningar kan försvåra tvärvetenskapliga samarbeten. Det kan vara lätt att hamna i språkliga återvändsgränder och missuppfattningar vilket i sin tur skapar svårigheter att kommunicera.

6.1 En möjlig tvärvetenskaplig arkeologi

I mina egna försök att arbeta med konsulterande hantverkare ville jag pröva om den skillnad som många arkeologer och hantverkare beskrivit för mig kunde överbryggas. Jag började med att i seminarieverksamhet ställa frågor om *hur* arkeologer tidigare samarbetat med hantverkare (i sin egenskap av arkeologer med uttalat intresse för hantverk). Hur hade deras process sett ut och på vilket sätt var hantverkaren delaktig.[142] Här samlades kunskap in och jag fick chansen att pröva hur en *semistrukturerad* intervjuguide[143] togs emot. Efter kommentarer och förändringar har jag använt guiden i mina intervjuer och hantverkstolkningar av sådana hantverk som jag inte behärskar. En viktig del har varit positioneringen av kunskapsnivån mellan mig och den hantverkare jag konsulterar. Här har intervjuformuläret varit till hjälp. I inledningen till intervjun placerar hantverkaren in sin egen upplevda hantverksskicklighet på den tiogradiga *vasskalan*.[144] Därefter får arkeologen placera in sig själv på en egen vasskala som visar hens egen hantverksskicklighet när det gäller det diskuterade hantverket. Här kan man då få klart för sig vem som äger kunskap och vem man talar med. Själva inplaceringen på skalan fungerar också som ett sätt att bryta isen. Här menar jag att både arkeologen och hantverkaren kan känna sig delaktiga. När sedan själva undersökningen (av föremål eller av bilder och text) sker är båda deltagarna mer öppna för att lyssna och förstå den andres kompetens. Att hantverkaren sedan får läsa och godkänna intervjuns sammanfattande text (den begripliggjorda praktiska kunskapen) så att missuppfattningar eller fel språkbruk kan rättas till är mycket viktigt. Arkeologen bör vara tydlig med att den arkeologiska

142 Hantverksseminarium inom forskargruppen ”Hantverksgruppen” vid Lunds universitet, våren 2014.

143 Semistrukturerad intervjuguide enligt Alan Bryman, *Samhällsvetenskapliga metoder*, 2 uppl. (Malmö: Liber, 2011), 412–445

144 VAS, förkortning för visuell analog skala, som ingår i en grafisk metod för att mäta en persons uppfattning eller upplevelse. Se *Nationalencyklopedin*, s.v. ”VAS”, http://www.ne.se/uppslagsverk/encyklopedi/lång/vas-(visuell-analog-skala) (hämtad 29 augusti 2015).

tolkningen är hens område och att här kommer hantverkarens ord och information ibland att bilda underlag för tolkningar som hantverkaren själv inte skulle ha gjort. Den text som berör den empiriska kunskapen och hantverkarens tolkning av hur föremålet är tillverkat ska publiceras som erfarenhetsbaserad expertutsaga och hantverkaren ska presenteras och namnges så att andra kan känna till vilken källa som använts. Man kan likna denna källhantering vid det tidigare muntliga meddelandet men här synliggörs hantverkskunskapen och man känner till källan. Min övertygelse är att ett förtydligande av källor gör arkeologin mer vederhäftig.[145]

Samspelet mellan flera aktörer kräver sin tid, jag menar att det är viktigt med noggranna förberedelser. Min tanke är att även hantverkstolkningar, praktiska seminarier och hantverksrapporter i text eller film ska kunna bli en kommunicerande och förmedlande del av hantverksperspektivets vetenskapliga förmedlande uttryckssätt. Det finns väl utarbetad forskning kring hur man kan fånga, och förmedla vidare, praktisk kunskap, genom att filma hantverk som kan direkt tas i bruk och användas.

Ett exempel på sådan forskning är projektet *Silent witness-using video to record and transmit tacit knowledge in creative practices*, där den engelska doktoranden Nicola Wood använder filmens möjligheter att på ett tydligt och medvetet sätt förmedla tyst kunskap från mästare till lärling.[146] Att stärka kommunikationen mellan hantverk och arkeologi ger tyngd åt diskussioner om hur material och praktiker kan ha utformats under olika tidsperioder. Genom avhandlingen har jag synliggjort hur *expertmedverkan* kan skapa nya kunskaper om människan som varelse och hantverkare. Denna kunskap ligger till grund för hela den teknologiska utvecklingen i samhället såväl den förhistoriska, den historiska och som den samtida.

6.2 Kommunicerande arkeologi – den tredje vågen, en utopi?

Härifrån ser vägen framåt mycket spännande ut: ett flöde av kunskap – praktisk och teoretisk – rullar in från skolade och oskolade experter och översättare som för varje vetenskaplig fråga gör upp: om *hur, vem och vad som ska göras*. Rollerna besätts och lusten att veta mer är vad som

145 Saklig och sanningsenlig. Se *Norstedts svenska ordbok*, s.v. ”vederhäftig”, http://www.ord.se/oversattning/svenska/?s=vederh%C3%A4ftig&l=SVESVE (hämtad 23 november 2015).

146 Nicola Wood, ”Silent Witness: Using Video to Record and Transmit Tacit Knowledge in Creative Practices” i Gunnar Almevik, red. *Hantverkare emellan* (Mariestad: Hantverkslaboratoriet, 2014), 57. Denna forskning har genomförts i samråd med Professor Chris Rust (Sheffield Hallam University, Storbritannien).

skapar den rollbesättning som blir adekvat för just den forskningsfråga som lyfts upp. Ämnestillhörighet är en rest från tidigare vetenskapliga paradigm. Kunskapen och hur den nu formats, är det viktigaste. Ingen minns längre varför man höll så hårt på sina kunskaper och inte delade med sig. I denna tredje våg har arkeologin modigt kastat sig ut för att vinna hellre än att gå under. I den nya vetenskapen måste alla bidra till kunskap. Såsom vederhäftig räknas då den kunskap som kommit från så många källor som möjligt.

Bibliografi

Almevik, Gunnar och Lars Bergström. ”Hantverkslaboratoriet: ett nationellt centrum för kulturmiljöns hantverk”. I *Hantverkslaboratorium*, red. Eva Löfgren. Mariestad: Hantverkslaboratoriet, 2011.

Alsterdal, Lotte, Jonna Bornemark och Fredrik Svenaeus, *Vad är praktisk kunskap?* Huddinge: Södertörns högskola, 2009.

Alvesson, Mats och Kaj Sköldberg. *Tolkning och reflektion: vetenskapsfilosofi och kvalitativ metod*. 2 uppl. Lund: Studentlitteratur, 2008.

Andrén, Anders. *Mellan ting och text: en introduktion till de historiska arkeologierna*. Eslöv: B. Östlings bokförl. Symposion, 1997.

Arendt, Hannah. *The Human Condition*. 2 uppl. Chicago: University of Chicago Press, 1998.

Arendt, Hannah. *Människans villkor: vita activa*. Rev. uppl. Gothenburg: Daidalos, 1998.

Arvas, Birger. ”Hur man utbildas till hantverkare”. I *Sveriges hantverk: en bok om dess förflutna och nutid, om dess utövare i hem och arbete, samhälle och organisationer*, red. Nils Niléhn, vol. 2, 677–713. Malmö: Litterära verk/Bernces, 1956.

Arwidsson, Greta och Gösta Berg. *The Mästermyr Find: A Viking Age Tool Chest from Gotland*. Stockholm: Vitterhets-, historie- och antikvitetsakad., 1983.

Aspeborg, Håkan, Bo Strömberg och Katarina Botwid, red. *Gustavslund: en by från äldre järnålder: Skåne, Helsingborgs stad, Husensjö 9:25 (Gustavslund), RAÄ 184: arkeologisk undersökning 2010*. Lund: Arkeologiska uppdragsverksamheten (UV Syd), Riksantikvarieämbetet, 2014.

Bender Jørgensen, Lise. Recension av *Klädd krigare: Skifte i skandinaviskt dräktskick kring år 1000* av Annika Larsson. *Fornvännen* (2008): 313–15.

Bender Jørgensen, Lise. ”The Introduction of Sails to Scandinavia: Raw Materials, Labour and Land”. I *N-TAG Ten: Proceedings of the 10th Nordic TAG Conference at Stiklestad, Norway 2009*, red. Ragnhild Berge. Oxford: Archaeopress, 2012.

Bergqvist, Johanna. *Läkare och läkande: läkekonstens professionalisering i Sverige under medeltid och renässans*. Lund: [Lunds universitet, Institutionen för arkeologi och antikens historia], 2013.
Björklund, Lars-Erik. *Från novis till expert: förtrogenhetskunskap i kognitiv och didaktisk belysning*. Studies in Science and Technology Education, nr 17. Norrköping: Nationella forskarskolan i naturvetenskapernas och teknikens didaktik (FontD)/Linköpings universitet, Institutionen för samhälls- och välfärdsstudier, 2008. http://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-17821
Botwid, Katarina. "Från skärva till helhet – keramisk hantverkskunskap som redskap för djupare förståelse av artefakter och arkeologisk kontext". Uppsats, påbyggnadskurs i arkeologi. Visby: Högskolan på Gotland, 2009.
Botwid, Katarina. "Offrad keramik – mossfynd från romersk järnålder i Käringsjön i Halland". Uppsats, fördjupningskurs i arkeologi. Visby: Högskolan på Gotland, 2009.
Botwid, Katarina. "Evaluation of Ceramics: Professional Artisanship as a Tool for Archaeological Interpretations". *Journal of Nordic Archaeological Science* (JONAS) 18 (2013): 31–44.
Botwid, Katarina. "Från hand till hand – arkeologisk forskning ur ett hantverksperspektiv". I *Att befolka det förflutna: fem artiklar om hur vi kan synliggöra människan och hennes handlingar i arkeologiskt material*, red. Anne Carlie. Kalmar: Riksantikvarieämbetet, 2014.
Botwid, Katarina. "The Colour of Life: An Artisanal Perspective on Ceramic Anomalies during the Scandinavian Roman Iron Age". I *Technology and Change in History*. Leiden: Brill (in press).
Botwid, Katarina. "Visible Craft: Tracing Skill, Knowledge and Invisible Tools through the Artisanal Perspective". Inlämnad till *Journal of Material Culture*.
Botwid, Katarina. "From Figurine To Tuyère: Re-Interpretation of a Godess [sic] Figurine Using Artisanal Interpretation of a Find from the Bronze Age Site of Pryssgården in the Southeast of Sweden". Konferensbidrag, 21:a årskonferensen för EAA (European Association of Archaeologists), Glasgow, 3 september 2015.
Botwid, Katarina. "Skilled Children in Ceramic Craft: Artisanal Interpretation of a Bronze Age Pot from the Bronze Age Site of Pryssgården in the South-East of Sweden". Konferensbidrag, XV Nordic TAG 2015, Köpenhamn, 16–18 april 2015.
Botwid, Katarina. "Craft and Climate". Konferensbidrag, XV Nordic TAG 2015, Köpenhamn, 16–18 april 2015.

Botwid, Katarina. *Bronze Age Life at Pryssgården (LBA) in Sweden – from an Artisanal Perspective*. Acta Archaeologica Lundensia report series 8° (in press).

Botwid, Katarina. ”Hantverkstolkning av keramik – en undersökning av forntida keramikers hantverksskicklighet”. I Aspeborg m. fl., *Gustavslund*, 223–46.

Brorsson, Torbjörn. ”Den förromerska och romerska keramikens kronologi och funktion – exempel från Gustavslund i Helsingborg”. I Aspeborg m. fl., *Gustavslund*, 190–222.

Bryman, Alan. *Samhällsvetenskapliga metoder*. 2 uppl. Malmö: Liber, 2011.

Budden, Sandy. ”Skill amongst the Sherds: Understanding the Role of Skill in the Early to Late Middle Bronze Age in Hungary”. I *Breaking the Mould: Challenging the Past through Pottery*, red. Ina Berg. Oxford: Archaeopress, 2008.

Budden, Sandy och Joanna Sofaer. ”Non-Discursive Knowledge and the Construction of Identity: Potters, Potting and Performance at the Bronze Age Tell of Százhalombatta, Hungary”. *Cambridge Archaeological Journal* 19 (2009): 203–20. doi:10.1017/S0959774309000274.

Collins, H. M. och Robert Evans. ”King Canute Meets the Beach Boys: Responses to The Third Wave”. *Social Studies of Science* 33, nr 3 (2003): 435–52.

Collins, H. M och Robert Evans. *Rethinking Expertise*. Chicago: University of Chicago Press, 2007.

Collins, H. M. och Robert Evans. ”The Third Wave of Science Studies: Studies of Expertise and Experience”. *Social Studies of Science* 32, nr 2 (2002): 235–96.

Collins, Harry. *Are We All Scientific Experts Now?* Cambridge: Polity, 2014.

Collins, Harry. ”A New Programme of Research?”. *Case Studies of Expertise and Experience*, specialnummer av *Studies in History and Philosophy of Science, Part A* 38, nr 4 (2007): 615–20.

Collins, Harry, red. *Case Studies of Expertise and Experience*, specialnummer av *Studies in History and Philosophy of Science, Part A* 38, nr 4 (2007).

Dreyfus, Hubert och Stuart Dreyfus. *Mind over Machine: The Power of Human Intuition and Expertise in the Era of the Computer*. Oxford: Blackwell, 1986.

Gustavsson, Bernt. *Kunskapsfilosofi: tre kunskapsformer i historisk belysning*. Stockholm: Wahlström & Widstrand, 2000.

Gustavsson, Bernt. *Vad är kunskap?: en diskussion om praktisk och teoretisk kunskap* (Stockholm: Statens skolverk, 2002). http://www.skolverket.se/publikationer?id=1840
Gustavsson, Bernt red. *Kunskap i det praktiska*. Lund: Studentlitteratur, 2004.
Högskoleverket. *Att utvärdera tvärvetenskap – reflektioner utifrån Högskoleverkets utvärderingar 2001–2005*. Högskoleverkets rapportserie, rapport nr 2007:34R. Stockholm: Högskoleverket, 2007.
Högskoleverket. *Granskning av utbildningarna inom arkeologi*. Högskoleverkets rapportserie, rapport nr 2009:9R. Stockholm: Högskoleverket, 2009.
Ingold, Tim. "Beyond Art and Technology: The Anthropology of Skill". I *Anthropological Perspectives on Technology*, red. Michael B. Schiffer. Albuquerque: University of New Mexico Press, 2001.
Jensen, Ola W. och Björn Magnusson Staaf. "Between Body and Artefacts: Merleau-Ponty and Archaeology". I *Philosophy and Archaeological Practice: Perspectives for the 21st Century*, red. Cornelius Holtorf och Håkan Karlsson, 53–67. Göteborg: Bricoleur Press, 2000.
Johansson, Bengt O. H. "Hantverk och byggenskap i backspegeln". I Löfgren, *Hantverkslaboratorium*.
Karlsson, Tomas. *Ramverksdörr – en studie i bänksnickeri*. Mariestad: Göteborgs universitet, Institutionen för kulturvård, 2013.
Kuijpers, Maikel. "Early Bronze Age Metalworking Craftmanship: An Inquiry into Metalworking Skill and Craft Based on Axes in the North-Alpine Region". Opublicerad doktorsavhandling, Cambridge University, 2014.
Larsson, Annika. *Klädd krigare: skifte i skandinaviskt dräktskick kring år 1000*. Occasional Papers in Archaeology 39. Uppsala: Uppsala universitet, Institutionen för arkeologi och antik historia, 2007.
Lave, Jean och Etienne Wenger. *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press, 1991.
Lyngaard, Finn. *Jydepotter og ildgrave*. Köpenhamn: Clausens forl., 1972.
Löfgren, Eva, red. *Hantverkslaboratorium*. Mariestad: Hantverkslaboratoriet, 2011.
Marchand, Trevor H. J., red. *Making Knowledge: Explorations of the Indissoluble Relation between Minds, Bodies, and Environment*. Oxford: Wiley-Blackwell, 2010.
Medbo, Mårten. "Lerbaserad språklighet". Opublicerad doktorsavhandling. Göteborg: HDK, Göteborgs universitet, 2013.
Molander, Bengt. *Kunskap i handling*. 2 uppl. Göteborg: Daidalos, 1996.

Nørgaard, Heide W. ”Tracing the Hand that Crafted: How Individual Working Traces Make Bronze Age Ornaments Talk” (in press).
Olausson, Deborah. ”Symposium Report: Experimental Archaeology – Method and Future: Gällö 24–25 September 1986”. *Fornvännen* 83 (1988): 112–14.
Palmsköld, Anneli. ”Hantverkskunskap som immateriellt kulturarv”. I Löfgren, *Hantverkslaboratorium*.
Petersson, Maria. *Djurhållning och betesdrift: djur, människor och landskap i västra Östergötland under yngre bronsålder och äldre järnålder*. Stockholm: Riksantikvarieämbetet/Uppsala: Uppsala universitet, Institutionen för arkeologi och antik historia, 2006.
Polanyi, Michael. *Den tysta dimensionen*. Göteborg: Daidalos, 2013.
Pye, David. *The Nature and Aesthetics of Design*. London: Herbert Press, 1978.
Selinger, Evan, Hubert Dreyfus och Harry Collins. ”Interactional Expertise and Embodiment”. *Case Studies of Expertise and Experience*, specialnummer av *Studies in History and Philosophy of Science, Part A* 38, nr 4 (2007): 722–40.
Shanks, Michael och Randall H. McGuire. ”The Craft of Archaeology”. *American Antiquity* 61, nr 1 (1996): 75–88.
Tempte, Thomas. *Lilla arbetets ära: om hantverk, arbete, några rekonstruerade verktyg och maskiner*. 2 uppl. Stockholm: Carlsson, 1997.
Trigger, Bruce G. *A History of Archaeological Thought*. 2 uppl. Cambridge: Cambridge University Press, 2006.
Vestergaard Pedersen, Kathrine och Lena Hammarlund. ”Textile Appearance and Visual Impression: Craft Knowledge Applied to Archaeological Textiles”. I *Archäologische Textilfunde – Archaeological textiles: NESAT IX*, red. Antoinette Rast-Eicher och Renata Windler (Ennenda: ArcheoTex, 2007): 173–80.
Wood, Nicola. ”Silent Witness: Using Video to Record and Transmit Tacit Knowledge in Creative Practices”. I *Hantverkare emellan*, red. Gunnar Almevik. Mariestad: Hantverkslaboratoriet, 2014.
Zagal-Mach Wolfe, Ulla Isabel. *Grasping Technology, Assessing Craft: Developing a Research Method for the Study of Craft-Tradition*. Lund: Lunds universitet, 2013.
Zivkovic, Zagorka. Förord till Martha Craven Nussbaum, *Känslans skärpa, tankens inlevelse: essäer om etik och politik*. Stockholm: B. Östlings bokförl. Symposion, 1995.

Elektroniska källor

http://www.universeum.se/
UR-Akademin. Samlade kurser: *Raku*. Utbildningsradion, 2001.
http://www.ne.se/uppslagsverk/encyklopedi/lång/positivism (hämtad 24 september 2015).
http://www.hantverkslarling.se/larlingsyrken/ (hämtad 24 september 2015).
https://www.folkhogskola.nu/kurser/amnesomraden/estetiska-kurser (hämtad 30 oktober 2015).
http://www.liu.se/utbildning/program/slojd/beskrivning?l=sv (hämtad 30 oktober 2015).
http://www.hdk.gu.se/sv/om-hdk/historia (hämtad 17 januari 2015).
http://www.konstfack.se (hämtad 1 augusti 2015).
http://www.hdk.gu.se (hämtad 1 augusti 2015).
http://www.ne.se/uppslagsverk/encyklopedi/lång/treperiodsystemet (hämtad 24 september 2015).
http://www.historiska.se/press/friapressbilder/foremal/pressbilder_hallare/verktygskista/ (hämtad 31 augusti 2015).
http://www.gu.se/english/research/publication/?publicationId=217556 (hämtad 1 augusti 2015).
http://www.arkeologi.uu.se/Forskning/Forskningspresentationer/annika-larsson/ (hämtad 15 augusti 2015).
http://www.lararnasnyheter.se/slojdforum/2011/11/23/varldens-forstahantverksdoktorand-aterupptacker-gamla-tekniker (hämtad 14 oktober 2015).
http://sverigesradio.se/sida/avsnitt/45817?programid=412 (hämtad 15 oktober 2015).
http://www.ne.se/uppslagsverk/encyklopedi/lång/intersektionalitet (hämtad 15 oktober 2015).
http://www.ne.se/uppslagsverk/encyklopedi/lång/vas-(visuell-analog-skala) (hämtad 29 augusti 2015).

Appended Papers

Paper 1

Evaluation of Ceramics: Professional Artisanship As a Tool for Archaeological Interpretation

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Contents

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Evaluation of ceramics
Professional artisanship as a tool for archaeological interpretation

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This paper aims to explore how professional artisanship can contribute to archaeological interpretations through the examination of ceramic artefacts based on the experience of a trained producer of ceramics. Certain forms of practical artisanal knowledge and practical levels of skill are defined within the area of theoretical knowledge known as tacit knowledge. The purpose of this proposal is to investigate whether professional artisanal skill can contribute to archaeological interpretation, and if so, how. The method that was used during this investigation is known as artisanal interpretation.The paper includes artisanal analyses conducted by the author on five ceramic artefacts from a closed find dated to the Roman Iron Age (200–300 AD) in the parish of Sjogersta in the municipality of Skövde, Västergötland, Sweden. The need to broaden our current archaeological interpretation methods is discussed. The work presented here makes it clear that there are aspects of archaeological ceramic artefacts that can only be appreciated by a trained professional ceramist. Finally, the paper discusses how an artisanal perspective can contribute to cooperation between professional artisans and archaeologists which, if extended further, could lead to more detailed and complex views of the past and its society, economy and crafts.

Keywords: ceramics, Roman Iron Age, tacit knowledge, artisanal interpretation, interdisciplinary, crafts

Introduction

The study of archaeology makes great use of cross-disciplinary cooperation so as to achieve the best possible interpretations of archaeological finds. When it comes to interpreting artefacts, archaeology has an important tradition of analysis, interpretation of form and function and typology. Archaeologists often work together with physical scientists to establish a body of measurable data, and the physical sciences contribute a great deal in areas such as dating, age, sex, attritional wear, materials analysis and the analysis of macrofossils. Additionally, the art sciences and the science of aesthetics hold knowledge that is vital for archaeology, and there is cooperation between these fields from time to time. One aspect that is seldom looked at, however, is cooperation between archaeologists and professional artisans. What, in the first place, is a professional artisan? While many people work in the crafting industry, there are some with a higher knowledge of their craft – people who are considered to be more skilled than their colleagues – artisans who have spent 10–20 years of their lives learning and perfecting a specific trade, and those who may have studied their trade at a university level. It is rare, however, for archaeologists to consult these skilled craftsmen, which is a pity because such people may be able to examine an archaeological find and provide information about it that simply would not occur to an archaeologist. My own background involves an extensive knowledge of the theory of ceramics and a professional proficiency in that craft, combined with a knowledge of archaeology. I have developed my skills in the field of

craft ceramics and have been able to convey some of my knowledge to others in a variety of ways, mainly as a teacher of fine arts. To have the opportunity to demonstrate how another artisan, specifically a prehistoric colleague, may have reasoned and worked, is an extremely enticing prospect.

The purpose of this article is to demonstrate what professional artisanal skill can contribute to archaeological interpretation. The hypothesis may be stated as follows: A person with professional artisanal skill can supplement the known information about archaeological finds. The questions are: What can a professional ceramics artisan see in ceramic archaeological materials that an archaeologist may not notice? Can artisanal interpretation be developed into a reliable method? How does artisanal interpretation differ from the current modes of archaeological interpretation?

Method and limitations

This work includes a review of the relevant literature, an empirical examination of a limited selection of archaeological materials and a report on the conducting of one interview. The finds to be examined were suggested by three experienced archaeologists, a course that was adopted in order to avoid any prejudices surrounding the ceramic materials. I did not wish to be influenced by previous interpretations, and so it was important to examine the items with only my own background in ceramics as an aid to interpretation. I wanted to be introduced to these artefacts, as it were, without having seen them before. In practice the material investigated is limited to a number of artefacts from a closed find dated to the Roman Iron Age (Axelsson 2005:5ff). The literature concerning the find consisted of the excavation report (Axelsson 2005) and a book, Archaeological Encounters Along Route 26 Borgunda-Skövde (Ask & Berglund 2005). Consequently, I did not read the archaeological interpretation until after I had developed my own interpretation of the artefacts. The materials were subjected to an empirical examination in order to develop an artisanal interpretation that covered only the craft of ceramics and the question of the evaluation of practical knowledge. I was the only professional artisan to examine the materials.

Background and previous research

In my own background, artisanal knowledge and art have been extremely important. I received my degree (Master of Fine Arts 200p) from Göteborg University in 1997 in low-technology firing techniques after a total of eight years of schooling in ceramics and art. During my graduate work, I searched the archaeological institutions in the Nordic countries for an archaeological ceramist, someone who had at least a bachelor's degree in ceramics, but despite many attempts, I was unable to find any relevant material regarding artisanal interpretation and how it could contribute to the archaeological interpretation of ceramic materials.

After working for five years as an artist and ceramics teacher, I began to study archaeology in 2002, and while taking the basic archaeology courses I discovered several interesting questions regarding archaeological ceramics that I wanted to find answers to. I received my Master's degree in Archaeology in 2009, and later the same year I was introduced to the work of Sandy Budden, a skilled ceramist and archeaologist who recently published the first extensive articles about the skill of ancient potters (Budden 2008). Budden concentrates on exploring how the ancient potters may have passed on their skills to the next generation and, working together with the archaeologist Joanna Soafer, explores the social role that pottery may have had in prehistoric society. Budden has also worked out a method for observing what she describes as *technological signatures* in ceramic artefacts that can be used to interpret the degree of skill and technique in a quantitative direction (Budden 2008:4).

At the same time I had written my bachelor's and master's theses on a similar subject (Botwid 2009a, 2009b), the evaluation of skills in archeaological ceramic material.

The foremost object of interest in my archaeological inquiries has been to investigate the ceramic artefacts amongst archaeological finds individually through an in-depth evaluation of the skill of the ancient producers of ceramics. The prevalent idea has been that if one can understand nuances in the skills represented in ceramic material within a given archeaological context, new possibilities for interpretation may arise that have previously been concealed (Botwid 2009b:44f). The possibilities for tracing a skilled individual or a specialist group are of great interest. I have used my own practical knowledge to perform artisanal analyses that have uncovered new information to broaden existing interpretations.

In his paper *Från Lincolnshire till Östdanmark* (From Lincolnshire to East Denmark) the archaeologist Stefan Larsson (2000) reaches some interesting conclusions. A potter from Lincolnshire was traceable in archaeological material from Lund because of certain special sherds that differed from the more

common ones in that material. This potter, who is thought to have moved to Lund in the early 12th century, was following an "internal structural pattern of behaviour" that led the individual to take his or her knowledge to another area (Larsson 2000:82). Larsson's investigation demonstrates that it is possible to recognize an individual potter's products (Larsson 2000: 74, 80–81). He concludes that the synoptic classification of (medieval) ceramics deprives archaeological interpretations of their detail and sharpness, making existing finds into a mass of material regarded as having little value in relation to the overall interpretations (Larsson 2000:70).

The theoretical focus of this approach is that of "knowledge in action" or "tacit knowledge" (Molander 1996, 2002:33–56, Gustavsson 2002:88–90 and Pye 1978:4–8), i.e. we aim to investigate how to define practical knowledge, which is important in order to evaluate such knowledge and utilise it for interpreting archaeological material. By highlighting the practical and theoretical aspects of artisanal knowledge I hope to stimulate discussions over a possible method for qualitative artisanal interpretations of skill.

The technical terms used in the article are those prevalent in the field of ceramics and will be explained further in appendix 1.

Theoretical background and definitions of concepts

Western scientific discourse has often held the theoretical side of knowledge in high regard. This knowledge is referred to as *declarative knowledge* (Gustavsson 2002:88–90). The practical side of things, what people accomplish by doing, has not been valued as highly (Molander 1996:35). We gain knowledge through seeing, imitating, practicing, failing and retrying. This is true in both theoretical and practical matters. Theoretical scientific knowledge has existed for a long time and has been well defined. When it comes to practical knowledge, however, there is a distinct lack of verbal terminology to describe the non-verbal know-how that is involved.

Existing theories on levels of practical knowledge

I will attempt to describe practical knowledge here from a theoretical and philosophical point of view, based on Bengt Molander's dialogically focused work presented in *Kunskap i handling* (Molander 1996) and David Pye's writings on knowledge theory from a practical standpoint. Pye delves further into the subject in *The Nature of Art and Workmanship* (1978). In his book, *Vad är kunskap? En diskussion om praktisk och teoretisk kunskap*, Bernt Gustavsson (2002) has attempted to explain how to define practical knowledge and give tacit knowledge a higher status.

These authors' descriptions of practical knowledge are similar, each proposing that there is knowledge that is larger than merely preconceived ideas about "practical work", that it requires both a great deal of practical learning and an intellectual processing of that learned knowledge, even if the intellectual side of things is not verbalised.

The pattern in the theoretical framework presented here is to divide practical knowledge into two parts. Each of the explanations presented can be seen as implying similar divisions of the same matter. It is therefore important that the differences are visible and their obviousness is clear. The lower and higher levels of practical knowledge as set out in the following are based on the author's theories. Let us first define the concepts required with regard to the levels of practical knowledge.

Lower level of practical knowledge

Know-how – knowledge which enables practitioners to know the steps and possess an instrumental knowledge. They know what to do and they do it routinely without thinking; artisans have a specific goal or predefined idea of how something will be. This kind of knowledge is based on tradition and a sense of security (Molander 1996:171).

Workmanship of certainty – knowledge that builds on greater margins of safety; it shows good technical knowledge and knowledge of the craft, but not to the level reached in Workmanship of risk. This type of knowledge can be converted to large-scale production, since it keeps within the well-defined limits of the task (Pye 1978:4–8).

Proficiency – when practitioner base their work on learned knowledge, work as they are accustomed to doing, and keep within their area of safety (Gustavsson 2002:88–90). This level is also described by Sandy Budden as *procedural knowledge* (Budden 2008:1) and by Debbie Olausson as *automatic actions* (Olausson 2008:39).

Higher level of practical knowledge

Knowledge of orientation (Orienteringskunskap) – requires a great deal of experience, a comprehensive view of the subject, and a specific set of skills for the craft. Practitioners have no problem working with anything within their area of expertise and are able to

answer new questions perfectly well using a combination of tacit knowledge and a higher level of practical ability (Molander 1996:170).

Workmanship of risk – the most admired artisanal skill, which is inimitable and based on a need to go beyond what is deemed safe; a common occurrence in the crafting world (Pye 1978:4–8).

Knowledge of confidence – practitioners whose actions stem from a vast knowledge of the subject and who have a comprehensive view which allows them to know what and why practical work can be performed in one way or another. Such practitioners can assess things as whole entities (Gustavsson 2002:88–90).

My definitions

The concept I call *professional artisanal skill* is defined via the idea of a *higher level of practical knowledge* described above. Such an artisan is admired by his or her own colleagues and is likely to take greater risks in developing new techniques. The concepts *artisanal knowledge* and *good artisanal knowledge* may be regarded together as making up the *lower level of practical knowledge*, a level that needs to be divided in two so that the evaluation will be more exact. The term *lower level of practical knowledge* described by the authors above is likely to be too broad for the present purpose, as there is a considerable difference between an experienced artisan who has been practising for a long time and an artisan who is still a beginner or is only able to work according to strictly laid-out steps and with poor results, who would, in the scheme proposed here, be assigned to the *artisanal knowledge* level. In my experience, the knowledge possessed by most artisans is *traditional knowledge*, which is built upon knowing what one has learned and refining one's proficiency on that basis. These artisans would in the present scheme reach the level of *good artisanal knowledge*. Consequently, such artisans would not be very likely to take risks that would endanger their production.

For the purposes of this paper we will therefore use the terms *artisanal knowledge* and *good artisanal knowledge* only to refer to the lower level of practical knowledge, separated into two parts so that *artisanal knowledge* describes the lowest level, which includes beginners and poor artisans, and *good artisanal knowledge* describes the traditional knowledge, which covers skilled artisans who are transmitting the tradition that belongs to their trade. The term *professional artisanal skill* will be used only when referring to the higher level of practical knowledge and the most skilled artisans, people who are likely to develop the trade and carry it forward.

An example of artisans' non-verbal know-how

Crafting people often discuss their craft together. No matter what the trade may be, professional artisans understand its inner core, have the ability to perform and develop it, and can discuss it in depth with others. My own feelings, for example, when working in the flow of reflection-action-understanding which occurs when crafting, can be described as something I call being *in the moment*. When I am *in that moment*, nothing can go wrong; the connection between the brain and the hands is so close that the borders are erased. My comprehension of the hands' intelligence and their knowledge-in-action stems from my experience of this *moment.*

Verbalisation of *tacit knowledge* is necessary in order to make it explicit. I have spoken with other artisans and asked them to describe their feelings in words. Here is one example I received from a flintknapper with many years of experience; in attempting to describe her feelings, Maria said:

> "It's hard to explain, but you know when it happens. It's that point where you stop trying to do a thing; the stone just moves of its own accord and you simply move along with it. It's a great feeling. Torbjørn (Pedersen, Maria's teacher) sees when it's happening, and then we don't need any words, just a nod will do. He and I both know that I'm there." (Maria Rosén, pers. comm. July 2006)

I would claim that this experience together with natural ability and long training in the trade are vital for reach the level of professional artisanal skill.

Results and experiences from testing a new method

After having conducted a craft-based analysis of archaeological ceramics from the Roman Iron Age, I have worked out a practical method that might be called *artisanal interpretation*. This is an empirical method in which my experience in ceramics can help me to discover and evaluate the artisanal skills of ancient ceramists. Practically speaking, the method consists of studying the artefact in a variety of ways. First, it is necessary to create an overall understanding by making a visual inspection, and then a more thorough tactile examination in which all the parts of the artefact are explored by touch. It is then time to reflect and note down things that seem relevant, before making a simple pencil sketch of the vessel. It is at this point that the evaluation framework developed above comes into play, i.e. one can assess whether the vessel was made by

Figure 1. The parish of Sjogersta, municipality of Skövde, Sweden. Excavation site. After Västergötlands Museum 2005. Illustration by Henning Cedmar Brandstedt.

a ceramist who had professional artisanal skill, good artisanal knowledge, or artisanal knowledge. One way of evaluating the artefact in this sense is to compare the performance of one's ancient colleague with one's own knowledge as an artisan. It should become evident to the investigator how skilled the artisan was. The technical markers can be very many things, such as wall thickness, the clay mix or the totality of the action performed. Some of these values are measurable and some simply come from experiences of concrete artisanal training and tradition according to the ceramic skill, with the evaluating artisan as the instrument. The non-verbal qualities, especially those at very high levels of skill, are harder to explain in a strictly technical or scientific way, and it is my intention in further work to try to develop a qualitative method for examining evidence of skill in archaeological ceramic materials. This method could very well lean on former methods, such as the method presented by Sandy Budden concerning technological signatures for the examination of skill (Budden 2008:4). Budden's work is highly interesting and valuable, especially in the context of quantitative investigations, and I will try to contribute to it further by considering the anomalies and technical leaps that easily become lost or hidden in large-scale quantitative investigations.

Figure 2. The excavation site at Sjogersta. Illustration by Henning Cedmar Brandstedt.

Having performed my examination of the finds referred to me employing the approach outlined above, I was able to demonstrate the levels of artisanal skill represented in the material. Four out of the five vessels (finds 4, 5, 6, and 11) were probably created by persons with *good artisanal knowledge*, and one vessel (find 16) was probably made by someone with *professional artisanal skill*. Further investigations may confirm whether find 16 perhaps originated from some other geographical area, as this evaluation might imply.

Presentation of the material

The finds from Österhög in the parish of Sjogersta, municipality of Skövde

The Västergötland Museum conducted excavations at a burial site in 2003 in connection with an extension of the road system in the municipality of Skövde in the county of Västergötland (Fig. 1). The graves, dating back to the Roman Iron Age, contained several ceramic vessels as well as bronze fragments and iron arrowheads. Among the numerous items recorded during the excavation of the two visible stone circles were a shallowly placed funerary urn, many signs of activity, some hearths, some traces of meals, and even a few post holes. Despite the visible signs of activity, no traces of actual settlement were found in direct connection with the burial site. The closest excavated settlements, dating to the pre-Roman or Roman Iron Age, are located 600 m south of the burial site, at the homestead of Österhög. During the Roman Iron Age, these graves would have been within sight of the settlement area. The main purpose of the original investigation was to determine the spatial orientation of the burial site with regard to the nearby ancient historical remains (Axelsson 2005:5–8).

The items examined

The ceramics found in these stone circles included in the present investigation were: Raä 102, A 200; Raä 57:2, A 250 (Fig. 2). Also included was a funerary urn, which was not previously indicated, A 1118. The distance between the stone circles was approximately 80 m and the urn was placed between them, about 25 m from Raä 102 (Fig 3).

Five ceramic vessels were found and given the numbers 4, 5, 6, 11 and 16. Also included in the investigation was a sample of metal, numbered 12. This was included on account of the quality of its craftsmanship and the fact that it was found together with find 16, the funerary urn, making it highly significant (Axelsson 2005:13–14).

All the ceramic items from this closed find were examined with regard to the craftsmanship of the ancient ceramists who shaped them.

Location of the items within the excavation

The stone circles were round, between 7 and 10 m in circumference and 1–1.5 m high. Both contained earth and stones as well as an inner burial chamber of stone. No bone fragments were recorded, but a dark coloration in the bottom of both stone coffins indicates that there had been bone at one time that had completely decomposed in the extremely damp sandy or gravelly earth. Grave-goods were found in both graves. The ceramic finds from stone circle A 200 are F numbers 4, 5 and 6, and three arrowheads, a bronze buckle and a portion of leather were also found in that grave. Stone circle A 250 contained the ceramic find F 11 and a well-preserved iron axe (Fig. 3). The funerary urn (F16) contained human remnants, of a man who probably died aged between 30–50 years. Along with the ceramic urn and the human remnants was a stripe-decorated moose-horn or deer-horn disc, which may have been some type of fitting. Also found was an unusual piece of cast bronze covered in ornamentation depicting a bearded man with two upside-down birds on either side of him. This is thought to be a belt buckle (Axelsson 2005:7ff).

Original archaeological interpretation of the ceramic Items

The following is the original description and interpretation of the ceramic items as listed in the initial report on the excavation (numbers 4, 5, 6, 11 and 16, Axelsson 2005) included in Ask & Berglund (2005). Included are statements from the chief archaeologist, Catharina Axelsson, concerning the ceramic items found.

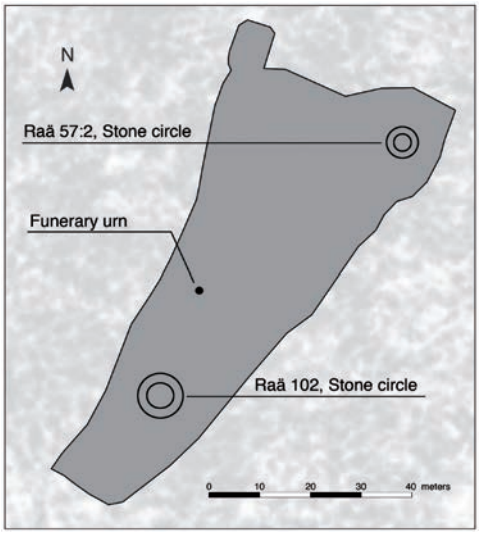

Figure 3. Internal layout of the excavation and areas examined. After Västergötlands Museum 2005. Illustration by Henning Cedmar Brandstedt.

"Two ceramic vessels were found in stone circle A 200/A824. Both were brought back to the lab for reconstruction. One could be nearly completed (F 4) and the other (F 5) consisted of the bottom and part of the body of the vessel. Both wares are blackish-brown in colour and smooth. F 4 is a thin vessel with a loop-like haft and a wide bottom and narrow neck. The mouth turns outward and the decoration consists of round depressions and angled grooves on the body and neck. The vessel is approximately 16 cm in diameter and about 18 cm high. F 5 is a small vessel, about 10 cm in diameter. This vessel too has round indentations likely made by a stick, and angled and horizontal grooves incised around the body. In stone circle A 250/A1882, we found a vessel that could be reconstructed from several sherds, F 11. This ware is also brownish-black in colour with incised horizontal grooves and angled marks around the body. The vessel is about 14 cm in diameter. All three vessels date to the Roman Iron Age period. In the funerary urn grave, A1118, there were many sherds from the mouth and body of an unadorned vessel, F 16. It is approximately 16 cm in diameter and the ware is thin, reddish-brown and smooth. Bones from the grave date to 200–300 AD, and this should be the same for the vessel."(Ask & Berglund 2005:16-18)

> "At the same level, we discovered two ceramic vessels. Both were brought back to the lab and could be reconstructed. Both wares are brownish-black and smooth. The first is a larger vessel of thin ware with a loop-like haft and a wider body with a narrow neck. The mouth turns outward and the decoration consists of round depressions and angled grooves on the body and neck. The vessel is approximately 16 cm in diameter (the mouth) and about 18 cm high. The second is a smaller vessel, about 10 cm in diameter (the mouth), and was similarly adorned with round depressions, horizontal grooves, and angled marks incised around the body.
>
> The findings consisted of a very limited area containing several ceramic sherds, charred bones, and a bronze object in the form of some type of fitting. The items were spread about in sooty, humus sand. The vessel – if it was whole at the time it was deposited – was probably not buried very deep; it seemed more to have been placed in a shallow pit. It may have functioned as a container for bones or small treasures or items.
>
> The sherds found consisted of mouth and body sherds made of a thin, reddish-brown ware from an unadorned vessel of about 16 cm in diameter." (Ask & Berglund 2005:199-202)

Artisanal interpretation

I will first present the general features of the finds and then an example of the specific artisanal interpretation of two items to demonstrate an artisanal interpretation of an artefact and what can be evaluated in the course of an investigation (find 4 together with find 16). All the finds were included in the investigation (Botwid 2009a). The italic text of the inventory list introduces the artisanal interpretation, and interspersed with this are explanatory photographs of the vessels. The metallic item, number 12, will be examined later in the section Contextual Link to Find 12 and 1F 1118, because the object is closely connected with find 16. The typology and terminology of the vessels are based on the systems commonly used in the fields of archaeology and ceramics.

General features of finds 4, 5, 6 and 11

The decorated vessels date from the Roman Iron Age. They all display a similar degree of effort in the crafting process and style. They were fired to a relatively high heat, probably to temperatures upwards of 800–900°C, as established by the fact that the wares are hard and have no tendency to crumble; low-fired wares (600–700°C) often crumble when scraped lightly, e.g. with a fingernail. There are no signs of the vitrification that would have occurred in clay of this type (in my own experience) if the temperature had reached above 1000–1100°C. These wares are smooth, indicating that sand or very fine-grained temper was used to temper the clay, or that purified natural clay (with pebbles, straw and other visible litter picked out) was used. In the craft it is natural to go through the clay when you are using natural clay bodies before you start to produce thin ware that can withstand the firing process. My own experience of this clay is extensive since I have been using it for over 20 years. The vessels show that the artisan created them relatively quickly and was used to working with the material. The technique resembles that used by the Jydepotte women in Denmark, a craft thought to have been pursued from the Iron Age right up to 1927 (Lynggaard 1972:30). The basic form of these vessels is common in Scandinavia, but the decorative elements on them are not so common on vessels from the west of Sweden but occur mainly in Jutland and north Germany (Bergström Hyenstrand 2005:42).

The mica-rich clay is of the kind commonly found in the area and contains mica that is visible as glittering spots in the surface after firing even if the clay is used without any tempering. It has either been tempered somewhat with sand, or was gathered from one of the area's more sandy clay pits. The ceramic methods used in the creation of these vessels include a combination of pinching and coiling. The bottom was shaped on a flat surface, such as a piece of wood held in the artisan's lap, or on a table. The artisan was unable to wait until the vessel had dried completely and so it has warped slightly during its creation nor did he/she bother to correct the warp when the clay had reached a more stable state of dryness, demonstrating that the exact shape of the vessel was not really of concern. What reason the artisan might have had for acting in this way is a question for further discussion, but it may be interesting to know that this is a correction that would have taken only a few minutes when the vessel was slightly drier and the result would have been a good deal better.

It is common in traditional ceramics to fire the pots on an open bonfire or in pits that have been reduction (covered with flammable material from the start) or oxidation (open pit) fired. These particular vessels could easily be interpreted as having been pit-fired and then covered with flammable materials, in view of their black surfaces. I believe, however, that the reduction was not deep enough for this to be the likely method, even though a low temperature and short duration of firing can give this kind of surface (Anders Lindahl,

Figure 4. F 4, with a loop-like haft. Photo by Katarina Botwid.

Figure 5. F 4, with a frost-cracked (spalled) surface. Photo by Katarina Botwid.

pers. comm.). While the surface is indeed black, the blackness is only about 1 mm deep and the clay is bright yellow, which points to the vessel having undergone some other post-firing treatment which would have sealed its porous surface. One way to make ceramic ware water-resistant, black and shiny is to soot the vessel when it is still hot after firing. Sooting, along with burnishing, is an early type of technique intended to seal ware, though the black surface can also be considered decorative. I regard this technique as differing from that used with pit-fired ware, so that it would be of interest to conduct experimental firings and try different post-firing techniques to investigate which technique was common in the area. Post-firing techniques are seldom discussed in connection with archaeological ceramics. The vessels have obviously not been used in a hearth, because no reoxidation has taken place on the bottom or the lower portion of the body of the pot and there are no traces of food inside them.

My belief is that these vessels were either created specifically for funerary purposes or that newly made vessels were taken and used as burial gifts. They were created by artisans who had good artisanal knowledge.

Artisanal interpretation, find 4

Description in the find inventory: *Vessel. Clay. Thin, brown-black ware. Reconstructed. Weight 590.8 g.*

Description: The vessel is 150 mm high. The mouth, slightly thicker and turning outward, is 110 mm in diameter. The neck is 95 mm in diameter, the body is 150 mm in diameter and the bottom is 95 mm in diameter. This type of vessel can be dated to the Roman Iron Age, 200–300 BC (Lindahl et al. 2002:41).

Artisanal Technique and evaluation: The bottom was created on a flat surface, such as a table or a large piece of wood that the artisan held in his/her lap. This is evident from is full of typical scratches from the wooden surface to be seen on the outside of the bottom. This method keeps the bottom of the vessel flat while the clay is being worked from the inside outwards. In this case, the pressure used was irregular and the clay on the inside of the bottom of the vessel is uneven, which suggests a lower level of artisanal knowledge. The vessel's decoration consists of rounded depressions of size approximately 3–5 mm that might have been made with a rounded stick of wood or bone. The delicate nature of the depressions is due to the fact that the clay was somewhere between soft and leather-hard when it was decorated, the angled grooves being incised under the same conditions. The vessel was left until it had reached the bone-dry state and was then burnished, this indicates an insightful artisan, as you can't achieve a shiny surface if the clay is too damp. In this stage of production one could regard the maker as showing good artisanal skill concerning the surface of the vessel. It was then thoroughly dried, fired and treated using the techniques described above in the general artisanal interpretation. This high temperature shows that the firing and post-firing techniques can similarly be viewed as representing the level of good artisanal skill.

Figure 6. F 16. Photo by Katarina Botwid.

Figure 7. F 16, the curve of the sherd. Photo by Katarina Botwid.

Other signs visible in the artefact that may be of importance for the interpretations are how it was placed in the grave. The vessel with a loop-like haft and the side surface where the decoration is visible and mostly intact is shown in Fig. 4, and the opposite side, where the sherds have broken away from the vessel in Fig. 5. The breakage pattern suggests that it was caused by frost, in the process known as spalling. This would have happened through moisture being absorbed into the porous material, after which the temperature dropped, freezing the water within the clay and causing the ware to "explode" from within, splitting it open. Such sherds are unique because they have only one outside or one inside surface, while sherds from a vessel that has been crushed or damaged by pressure has both an inside and an outside. It can be seen from the reconstructed vessel that one side has been more exposed to frost and spalling, which indicates that the vessel must have been lying on one side, as the spalling pattern would have been different if it had been standing upright.

Artisanal interpretation, find 16

Description in the inventory of finds: *Vessel. Clay. Thin red-brown ware. Slight bell-shaped rim. Weight 69.1 g.*

Description: This find consists of ten sherds. One larger one has become reattached to a smaller one, and these two sherds are from the mouth/rim of the vessel (Fig. 6.). The curvature of the opening implies a diameter of about 180 mm. This is a highly interesting find. The type and craftsmanship of this vessel render it completely different from the other finds. The ware is very fine, and the walls are thin, well made and even throughout (Fig. 7). The rim is very even and the lip is slightly thicker, which is a feature indicative of *professional artisanal knowledge*. The wide mouth of the vessel indicates that it was larger than the others. Large vessels are more complicated to produce and the artisan must have acquired the knowledge to master this degree of technical complexity (Budden 2008:3). The height of a vessel is often at least as great as, or slightly more than, the diameter of its mouth. Considering the curvature of this vessel, it is possible that it was 200–300 mm in height. This combination of size and shape again lead us to evaluate it as having been performed by an artisan with *professional artisanal knowledge*.

The clay itself is very fine, implying that the vessel was fired at a high heat and was allowed to cool without any attempt to reduce the amount of oxygen. All of the sherds are therefore a deeper orange, in accordance with the colour scale that occurs when a ceramic object is reduced, whereupon it is possible to see a wide range of colours from silver-grey (deepest reduction) to cold black, then warm black and light-grey, which grade to grey-orange that becomes more and more orange with more oxygen until you see a clear brick-orange colour. The colour of this specific clay turns from yellow to brick-orange when fired (my own experience) and these sherds are harder than the other vessels, indicating a higher firing temperature. I suggest that this vessel was fired at over 1000°C, maybe 1030°C, as there are no traces of vitrification as is common when fired at 1050°C or over. This information indicates that the vessel may have been produced in another tradition. If the vessel was made in the activity areas of Sjogerstad, it was probably oxidation fired on a bonfire that was not covered with any organic

material, but rather it was allowed to be fired and then cooled while fully oxygenated. If the vessel was made elsewhere, it may have been fired in a simple kiln with an oxygen-rich atmosphere. The form, the craftwork and the high firing temperature embodied in this vessel demonstrate that it was made by someone with *professional artisanal knowledge*. Further inquiries, investigations and comparisons of the two crafting styles through microscopic analysis of the sherds could give an answer to the question of the original production site of this vessel, or at least help us to decide whether the vessel was produced in Sjogersta.

Contextual link to find 12 and 1F1118

> "Context is a vital but problematic aspect of all activities in which one must find or create meaning. All meaning is derived from context, while at the same time, all context is, in one way or another, a construct". (Andrén 1997:160)

After examining the ceramic items, I turned to the other finds in the excavation area. According to the archaeologist Elisabeth Brynja, find 12 was very uncommon and attracted her attention right away (Elisabeth Brynja, pers. comm. October 2007).

After I had finished the artisanal analysis of the ceramic items, I learned from Catharina Axelsson that finds 12 and 16 were related. She felt that my artisanal interpretation of find 16 was particularly interesting in that it supported the archaeological interpretation of find 12 (Catharina Axelsson, pers. comm. October 2007). The find concerned, a piece of cast bronze about 28 X 28 mm which depicts a bearded man with an upside-down bird on either side, lay together with charred bone remains of a man who had been approximately 35–50 years old when he died, and the sherds of the vessel from F 16 (Rapport 2005:14, 18).

Once the contextual meaning of the figurine with regard to the artisanal interpretation of the ceramics became clearer, I decided to include this in my investigation. The find supports the interpretation of the unusual ceramic sherd. The interpretations of F 12 and 1F1118 are therefore subordinate to and dependent on the artisanal interpretation of F 16.

Interpretation of find 12

Description in the inventory of finds: *Metal. Bronze. Open-work. Ca. 2.8 X 2.8 cm. A bearded man with a bird (upside down) on either side. Weight 6.9 g.*

Description: The original carving for the piece was probably made of wood, and each of the ornament's angles depicts characteristics of the chisel or knife used to make it. This technique is known as chip-carving (Bergström Hyenstrand, 2005:39). The mould itself was then probably made of densely packed, fine-grained sand or clay that was first stamped with the original wooden carving and then filled with molten bronze. This wooden-stamp method made it easy to create a mould in sand or clay, and the stamp could be used repeatedly to create new moulds.

Figure 8. F 12, piece of cast bronze, Sjogersta. Photo by Katarina Botwid.

The double bird and bearded face image can also be found in a cross-shaped fastener from Hungary dated to the 4th century AD (Axelsson et al. 2004). A piece of bronze metalwork such as find 12 (Fig. 8) could have been imported. The bronze piece was interpreted as having been of religious or mythological significance. The artefact is of an early date as far as Nordic animal ornaments are concerned (Axelsson et al. 2004: 206, 228, Bergström Hyenstrand 2005:40).

Results

When it comes to the overall picture of the closed find discussed in the report 2005:14 and publication number 33, 2005 from the Västergötland Museum, the information covering the ceramic finds is quite limited. The only data included are details of the type, decoration, size and weight of the artefact. Comparing this with the information provided on non-ceramic objects, it is clear that these other objects receive much more attention. It would easily have been possible to include more information on the ceramic items, as I have tried to do in my examination, and this would

have provided more information than the limited interpretation included in the archaeological report.

The complete artisanal interpretations were divided into two parts: a general interpretation of the site and a specific interpretation that goes into detail for each artefact. Information on how the vessel was made and whether it was new or had been used before being placed in the grave would be included here, something not included in the archaeological interpretation provided.

The artisanal interpretation provides a closeness to the materials and techniques that makes for a broader picture of Iron Age ceramics and crafts, which the basic archaeological interpretation simply does not.

Find 16 differs from the other finds in these respects, and correspondingly has a different context. The urn was found together with charred bones and a metallic object deemed to belong to that particular vessel. For this reason, the urn and the metallic object received particular focus. The artisanal interpretation of the ceramic ware supported the interpretation arrived at regarding the metallic object in the grave, which the archaeologists find extremely interesting (Catharina Axelsson, pers. comm. October 2007). This proves that professionally skilled artisans can contribute useful information to the overall archaeological interpretation of a find.

One can also establish that this type of message conveyance provides an image that increases our overall understanding of the ceramics of the Roman Iron Age, artisans concerned and the methods of production that they used.

Supplementary archaeological interpretations

This section covers the ceramics and their context in the closed find. I believe ceramic finds 4, 5, 6 and 11 to be grave-goods for the dead, and the stone circle itself a kind of "vessel" to hold the body. The ceramics were newly created and meant to accompany the person to the other side, to serve the purposes of the new life to be encountered there. That the artefacts were unused may be part of the traditional or spiritual aspect of the burial, or it may imply that even the process of making them held a specific spiritual significance for the community. Perhaps everything included with the body was new, such as clothes and wooden items – things that would have disintegrated with time along with the body itself. The evaluation of the vessels showed that they was made by someone with *good artisanal knowledge*.

I interpret find 16 as being a type of funerary vessel containing the person's remains and that the item meant to go with the dead was the piece of cast bronze, which was probably not so much a burial gift as an item that the person may have owned that was buried with the body. The burial custom associated with this grave did not appear to require new artefacts for life after death. The place where the urn stood was open and the vessel was not covered with a stone circle. Instead, it was a mark in the landscape that, for some reason, remained untouched.

Find 16 could have been made in a completely different place and in a completely different context. If the vessel was made locally, it would have required an artisan with a different way of working to make an urn of this type. The evaluation of the urn showed it to be made by someone with *professional artisanal knowledge*. It is also interesting to note that the burial custom involving the urn deviates from the burials represented by the other stone circles in the area, especially considering that they both date from the same period. The unique character and function of the urn, as a vessel containing the remains of the dead, and the special bronze piece that is believed to belong to the grave, create a more varied picture of the time and place. These unusual characteristics create an image of the man buried here. I interpret the burial custom as denoting one of two possibilities: (1) The man may have been from the area but had travelled a great deal and become inspired by other ideas and beliefs. To have been a well-travelled person from Västergötland who came home and introduced the people to new ways of looking at the world could have strengthened his position in society. When such a man died he may have wished to be buried according to his new system of beliefs, i.e. cremated and his ashes placed in a burial urn. (2) Alternatively, the man may have been a foreigner who was visiting or living in the area and wished to be buried according to his traditions. In either case, he probably brought the urn with him to Sjogersta, and no matter where he was originally from, the fact that he brought it such a long way is indicative of the vessel's value. I consider the urn to have been made by an artisan with *professional artisanal knowledge* and its location, surrounded by bones, ashes and a precious bronze ornament, to signify that it was a prestigious artefact. Its placement above ground and the fact that it remained untouched showed that the man and the grave were highly respected.

Conclusions

This work with find materials allowed me to adopt the dual role of an artisanally skilled ceramist and archaeologist. By acting from within the world of archaeology,

I was finally able to use my knowledge as a ceramist to prove things that had once been only hypotheses. My hope was to add new information and broaden the knowledge that already existed in the archaeological interpretation of ceramics.

The interpretation of the finds became richer in content when it contained information about specific, unique technical features of the artefact and was accompanied by an evaluation of the ancient ceramists' artisanal knowledge.

This investigation made it apparent that a professionally skilled artisan looks at an archaeological find from a different point of view from the archaeologist as such. This type of interpretation also made it easier to see the kind of knowledge and skill possessed by such artisans. The lack of this insight becomes most apparent for archaeologists when it comes to analysing unusual finds, because these cannot be examined and interpreted with the artisanal insight necessary to define a context that would in fact support the archaeologists' interpretations of the other finds found at the same site. The urn (find 16) had not been accepted as a prestigious artefact, probably because of the lack of ornamentation, which is one of the important features in archaeological evaluations of ceramics.

Artisanal interpretation enables us to gain a clearer picture of the meaning of ceramics in people's everyday lives, and in the world as people perceived it at the time when those ceramics were created. The artisanal perspective is valuable to the overall interpretation, even with regard to the site itself and the remaining objects obtained from the excavation. I propose that the characteristics and potential place of creation of an object can affect the determination of an entire find.

This task demonstrates that artisanal interpretation can in fact be developed into a method, since the entire crafting procedure can be understood by examining the find (Andrén 1997:111). It is possible to determine what techniques and tools were used, to see how quickly the artisan worked and to appreciate the characteristics and construction of the wares. Additionally, it is possible to see the quality and consistency of the clay during the different steps in production, which firing and post-firing techniques were used and what the surroundings were like, including workshops and kilns at the site the level of skill of the artisan. The use of this method even makes it possible to interpret the relationship of this object to other accompanying finds. For example, one can determine how many ceramists were involved in making the vessels discovered at one site, which can be of assistance in determining such things as the status of given artisans. It can also help break down the levels of artisanal skill into percentages, which could possibly give clues as to whether the artisans in the area had a more general or a more specific knowledge of their craft. In this particular case, my cross-disciplinary knowledge allows my artisanal interpretation to be easily adapted to the field of archaeology.

The main thing that distinguishes artisanal interpretation from archaeological interpretation is that the interpretation becomes more complex and broadens the knowledge that can be gathered regarding all the material found at a site. The wording of the interpretation will also change, becoming more descriptive and touching on many new aspects of knowledge. The expressions and examples can take on a feeling of literary gestalt in that the whole really is more than the sum of its parts.

The totality of the reference material is broadened, and discussions can take place between professional artisans and archaeologists. Thus it may be said that literature from experts in a variety of subjects such as pedagogy, the art sciences, philosophy, archaeology and ceramics have contributed to this article.

The process of archaeological interpretation always includes the transferral of all experiences in the excavation to some kind of spatial context, and later into written form. This is often reflected upon in solitude or conveyed to an in-group of colleagues in round-table discussions at the excavation site. With this manner of telling and remembering with the aid of objects, the process of archaeology can bring many views together and open everything up to multiple interpretations and cross-examination (Andrén 1997:126).

In this day and age it is becoming all the more important to verbalise one's thoughts regarding material culture. It is necessary to formulate our ideas concerning empirical investigation, in this case in the form of an artisanal interpretation, in order to avoid ending up with an archaeology in which things that *aren't described don't exist*. Material culture must be made visible via excavations, interpretations and reconstructions.

Cooperation between archaeologists and professionally skilled artisans would achieve valuable results and provide more detailed and complex interpretations of periods in time which can only become known through their material culture. It is therefore of vital importance that the field of archaeology should be assured of the availability of a practitioner's knowledge and should trust in the statements made by that practitioner. It is, of course, of great importance that such cooperation should work both ways. Artisanal interpretations within the field of archaeology will

help living knowledge to become more widely used, described and thereby preserved for the future. The possibility to consult with professionally skilled artisans should not be easily dismissed. Many artisans are interested and willing to contribute to archaeology. The field of archaeology could be a role model for cross-disciplinary cooperation between fields encompassing areas of practical knowledge. Archaeology itself often alternates between theory and practice and has a long tradition of turning practical actions into academic text. Being able to use extensive artisanal interpretation to validate all activity in ancient societies would greatly change and/or develop our view of their economy, community structure, belief systems and status. I would like to conclude with the following quotation from the book *Pottery in the Making: World Ceramic Traditions* by Ian Freestone, Head of Archaeology and Science at Cardiff University, and David Gaimster, previously of the Department of Medieval and Later Antiquities at the British Museum:

> "Finally, experiment is crucial to an understanding of past ceramic production. From the skilled modern potter replicating an early masterpiece to the experimental archaeologist carefully reproducing the detailed characteristics resulting from a particular method of building the rim of a cooking pot, our understanding of the behaviour of clay and its response to the hand of the maker and the heat of the kiln can provide insights which are available in no other way." (Freestone & Gaimster 1997:13)

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References

Andrén, A. 1997. *Mellan ting och text: en introduktion till de historiska arkeologierna*. Stockholm: Brutus Östlings bokförlag.

Ask, C. & Berglund, A. (red.) *2005. Arkeologiska möten utmed väg 26 Borgunda – Skövde.* Nossebro: Skrifter från Västergötlands museum no 33.

Axelsson, C., 2005. *Rapport 2005:14 Raä nr 57:2 och 102, gravar och boplatsspår, Sjogersta socken, Skövde kommun, Västergötland*. Utskrift från Västergötlands museum.

Axelsson, C., Bergström Hyenstrand, E., Hyenstrand, Å. 2004. Vem var gubben från Österhög? *Skaraborgs Läns Allehanda* (14 July 2004). Skövde.

Bergström Hyenstrand, E. 2005. Romartida rikedom runt Billingen: Falköping: *Mittark 1,* Västergötlands Fornminnesförening, Arkeologiska Föreningen i Örebro län.

Budden, S. 2008. Skills amongst the sherds: understanding the role of skill in early to late Middle Bronze Age in Hungary. In: Berg, I. (ed.), 2008: *Breaking the Mould: Challenging the past through Pottery*. BAR International Series 1861.

Botwid, K. 2009a. *Från skärva till helhet – keramisk hantverkskunskap som redskap för djupare förståelse av artefakter och arkeologisk kontext*. Uppsats påbyggnadskurs i arkeologi. Högskolan på Gotland:Visby.

Botwid, K. 2009b. *Offrad keramik-mossfynd från romersk järnålder i Käringsjön i Halland*. Uppsats fördjupningskurs I arkeologi. Högskolan på Gotland:Visby.

Freestone, I. & Gaimster, D. (eds.), 1997. *Pottery in the Making: World Ceramic Traditions*. London: British Museum Press.

Gustavsson, B. 2002. Vad är kunskap? - En diskussion om praktisk och teoretisk kunskap. Serien *Forskning i fokus* nr 5. Kalmar: Myndigheten för skolutveckling.

Larsson, S. 2000. Från Lincolnshire till Östdanmark en krukmakare I Knut den stores tid. In:Högberg, Anders(ed), 2000: Artefakter arkeologiska ting- en bok om föremål ur ett arkeologiskt perspektiv. Malmö: *University of Lund Institute of Archeaology Report Series* No. 71 & Stadsantikvariska avdelningen, Kultur Malmö

Lindahl, A., Olausson, D., & Carlie, A. (red.), 2002. Keramik i Sydsverige: en handbok för arkeologer. Lund: Keramiska forskningslaboratoriet.

Lynggaard, F. 1972. *Jydepotter & ildgrave*. København: J.Fr. Clausens Forlag.

Molander, B. 1996. *Kunskap i handling*. 2:a omarbetade uppl., Göteborg: Bokförlaget Daidalos AB.

Olausson, D. J. 2008. Does Practice Make Perfect? Craft Expertise as a Factor in Aggrandizer Strategies. Journal of Archaeological Method and Theory
Volume 15, Number 1, 28–50, DOI: 10.1007/s10816–007-9049-x.

Pye, D. 1968. The Nature and Art of Workmanship. First publ. in 1968, reprinted in paperback edition 1978, 1979, 1982. Cambridge: Cambridge University Press.

Personal communications

Axelsson, Catharina 2007. Archaeologist at the Västergötland Museum.

Brynja, Elisabeth 2007. Archaeologist at the Västergötland Museum.

Lindahl, Anders 2010. Associated professor. University of Lund.

Rosén Maria, 2006. Flintsmith, teacher of Archaeology. Ekehagen Prehistoric Village.

Appendix 1

Ceramics Terminology

The following terminology is based on the expressions used in my practice-based education, and in those cases where I use the literature to explain a concept, references are provided. There are many descriptive terms in the crafting world, but I have selected to define only those used here.

Bone-dry Clay that is in the final stage in which it can still be worked, meaning that one can work the surface into a smooth, high gloss, and one can still carve or incise very thin, exact decorations without the surface flaking away.

Firing Various heating methods to change the clay into ceramics, given that these require temperatures of at least 500°C. When the clay can no longer return to a state in which it can be re-shaped, it has become ceramic (Lindahl et al. 2002:30).

Bonfire firing The completely dried wares are fired directly on the ground using organic materials such as wood, peat or manure.

Burnishing A traditional method of sealing the clay before firing. In some cultures burnishing is used to create patterns using glossy and matte surfaces. Burnishing takes place when the clay is bone-dry and creates a smooth, shiny surface.

Pit firing A type of mild bonfire firing where wares are stacked in a pit in the ground and a bonfire is built on top. Sometimes the pits are covered with organic material after the firing so that the ware cools less quickly. This method creates a red-grey-black surface typical of pit-fired ware.

Banding wheel A rotating disc which allows the artisan to spin the vessel without touching it. The banding wheel is turned by hand and facilitates the formation of circular objects.

Leather-hard Clay that is no longer soft, i.e. it is somewhat stiffened but still damp and can be reshaped to a certain extent. Leather-hard is so named because of clay of this kind feels much like thick leather; it is pliable, yet firm.

Soft clay Completely pliable and plastic clay, i.e. it is saturated and not too damp or too hard.

Oxidation With regard to firing techniques, oxidation firing takes place in an atmosphere with an abundance of oxygen to ensure combustion of the fuel and oxidise the ceramic materials. In such a firing, the sherds do not become black or grey, but rather iron-rich clay turns red-orange when fired. Open bonfire firing is one example of oxidation firing.

Reduction Reduced access to oxygen during firing or cooling. In this case the iron in the clay (Fe2O3) reacts by returning to the black or grey tones that iron has when it has not become oxidised. Reduced iron has lost oxygen atoms, which occurs when an oxygen-deprived atmosphere "takes" the three oxygen atoms (O3) and only the reduced iron gives colour to the fired wares. Oxygen deprivation can be achieved either intentionally (blackware) or unintentionally on the underside, where flammable materials have remained during cooling.

Coiling A method using rope-like coils of plastic clay assembled in successive courses to build up walls of vessels or sculptures.

Sooting A simple technique used to make ceramic wares completely black and shiny. To soot objects, one can "grill" them over an open fire or bury larger vessels in straw or other flammable materials to produce intense smoke, and then later polish the vessel with beeswax to seal the surface. Aside from the black surface, sooting also helps to seal the porous, unglazed surface so that it does not readily absorb moisture.

Pinching A method in which clay objects are formed by pinching repeatedly between the thumb and fingers, or between the fingers of one hand and the palm of the other hand, smoothing them out, while pushing and turning alternately until vessels are formed.

Tournette An early version of the potter's wheel, consisting of a wooden disc turned with the feet. This allowed more freedom than the banding wheel, since it did not require the hands for movement.

Reoxidation When performing pit firings or bonfire firings in which the objects are covered with flammable materials, it is often the intention to reduce the ware during cooling. If the objects are taken out too early, or the flammable materials catch fire too quickly and begin to burn with open flames, the intended reduction can be partially or completely lost. If it is partially lost, the ware will have a grey streak through the middle when looked at in cross-section. More often, the reduction effect will be lost completely and the ware will become brick red all the way through. Reoxidation can also occur when using domestic wares that were blackened from the start on an open fire, whereupon the great heat and oxygen infusion changes the Fe2 back into Fe2O3 and the ware becomes brick red again.

Paper 2

The Colour of Life: An Artisanal Perspective on Ceramic Anomalies During the Scandinavian Roman Iron Age

In Technology and Change in History.
Leiden: Brill (in press)

Abstract

The question of craftspeople and their role in prehistory has been discussed in many different ways and from different theoretical perspectives. This article discusses this question from an artisanal perspective based on the analysis of archaeological ceramics from the Roman Iron Age in Scandinavia. Presenting an interdisciplinary research project between ceramic art and archaeology, this contribution is at the breaking point between different views and perspectives.

Certain forms of practical artisanal knowledge and practical levels of skill are defined within the concept of *tacit knowledge*. I use and widen these definitions to interpret ceramic artefacts based on my own tacit knowledge as an educated professional ceramist and archaeologist.
This article presents various ways in which knowledge of artisanal knowledge may contribute to archaeological interpretation.

Keywords:
artisanal perspective, tacit knowledge, interdisciplinary, ceramics, art material, artisanship, skill.

Contents

Introduction

This article aims to discuss the use of an artisanal perspective in the field of archaeology. The archaeological material that is used as an example was found in south-west of Sweden; it has been dated to the Scandinavian Roman Iron Age. In collaboration with the Swedish National Heritage Board Contract Archaeology Service in Lund, the excavation of Gustavslund 2010, situated near Helsingborg was used for a previous case study.[1] The present study focuses on one enigmatic find interpreted, to be a red iron oxide *crayon*.[2]

Aims and Objectives

My research questions are as follows:
Are there any anomalies hidden in the archaeological category sw. *bränd lera* (fired clay)?

Is the find F98 really an example of art material (crayon) from the Roman Iron Age?

Most importantly, would it have been possible to discover the oxide crayon without an artisanal interpretation?

These questions are here addressed in a very limited case study where artisanal perspective, artisanal interpretations and artisanal experiments are used. I would claim that artisanal interpretation of what has often been regarded as less interesting material might give new information as well as new questions to answer.[3] Initially I will define the concepts referred to above and give a presentation of my own interdisciplinary knowledge. First, a case study will be described as an example of how artisanal interpretation and artisanal experiments can lead to a widening of the archaeological find categories. Results, final conclusions and discussion will confirm that it is possible that art material was used during the Roman Iron Age in Scandinavia.

The Artisanal Perspective Used to Explore Ceramic Mass Material

Hidden in the mass material, there may be anomalies that have been 'unknown' until now. Traces of those finds are hard to observe in the ordinary way of working with the archaeological material. New perspectives of interpretation might explain these finds and bring new knowledge of, and insight into, prehistoric society. There are parts of find materials that archaeologists usually interpret based only on their own archaeological knowledge

Archaeologist sometimes use consultants to verify or confirm their own interpretations. Examples of this are calibrated Carbon 14-datings and thin section analyses of pottery; these are natural to include in the archaeological investigations. Archaeology often uses science to answer technical questions. Questions are limited to fit into what is possible to examine using the current scientific methods. New technology is used to give answers to old questions. My experience is that scientific analyses are more accepted than experience-based ones and/or practical knowledge even though these results have to be interpreted as well.

Maybe it is time to turn to artisanal knowledge to obtain a holistic view on ancient craft. It is obvious that, as Maikel Kuijpers states that, 'Many of these studies refrain from making interpretations about the meaning or organization of the craft as a practice, limiting themselves to a supposedly objective explanation of technology.'[4] The challenge is to put

1 Håkan Aspeborg & Bo Strömberg, Husensjö 9:25, Gustavslund, unpublished manuscript, Swedish National Heritage Board, Board Contract Archaeology Service, UV Syd in Lund.

2 Katarina Botwid, 'Hantverkstolkning av keramik', In: *Husensjö* 9:25, *Gustavslund*, Håkan Aspeborg & Bo Strömberg, unpublished manuscript, Swedish National Heritage Board Contract Archaeology Service, UV Syd in Lund.

3 Katarina Botwid, 'Evaluation of ceramics – Professional artisanship as a tool for archaeological interpretation' in (Journal of Archaeological Sience 18 in press) University of Stockholm.

4 Maikel Henricus Gerardus Kuijpers, The sound of fire, taste of copper, feel of bronze, and colours of the cast: sensory aspects of metalworking technology, in *Embodied Knowledge*, Eds. Marie Louise Sørensen and Katharina Rebay-Salisbury, Oxford: Oxbow Books 2013:139.

artisanal knowledge into words and regard that there are living traditional practices going on all over the world, these constitute silent, tacit or embodied knowledge[5], which can be taken into consideration and be asked for, to make more valid interpretations.

I have looked through the most crumbled sherds to find out more about technical signs that can be hidden in the ceramic mass material. Although interest for the artisanal perspective is not new, conference sessions[6] and special conferences[7] have been arranged and interest for the crafting people of the past is growing. It is high time to incorporate this silent, but useable, knowledge and give words to artisanal knowledge within all directions of archaeology in a developing, open, collaborative and intentional *artisanal perspective.*

Experienced-Based Knowledge and Its Influence on Archaeology

Ceramics is a living tradition; it is taught all over the world although the clay and the firings are, of course, different in different environments. Hand-forming techniques are almost unaltered although developing.[8] This enhances the possibilities to understand the ancient ceramists' work and technical knowledge. With this experience-based practical knowledge, there is a great potential to expand archaeology into becoming a field with a more distinctly defined artisanal perspective. In this article this is applied and exemplified within the ceramic craft.

My own experience within ceramic craft is extensive; I have worked fulltime as a ceramist and as a ceramic teacher for over twenty years. Low firing and hand-forming techniques are my special competence and they were a great part of my master exam work, applied in ceramic sculptures (MFA 1997, University of Gothenburg). My expert knowledge in low-technical ceramics forming and firing methods together with a deep interest in ancient colleagues' work lead me to studies in archaeology (MAA 2009 University of Gotland).

The method I use and have developed is called *artisanal interpretation*; it is a practice-based empiric method that relies on the fact that the interpreter is very skilled in his or her artisanship and craft.[9] A similar method was tried out and developed for the Bronze Age material of Százhalombatta in Hungary by the British ceramist and archaeologist Sandy Budden during her work for her dissertation thesis and following articles (Budden 2007, 2008).[10] In her extensive work, she uses her artisanal expertise to find out how the production of the ancient ceramists of Százhalombatta is related to social life and learning strategies. Budden's method is, as I understand it, worked out to suit a specific archaeological ceramic material. These analyses gave interesting results when con-

5 Bernt Gustavsson. '*Vad är kunskap*'. 2002. , Bengt Molander. '*Kunskap i handling.*' 1996., David Pye. '*The Nature and Art of Workmanship.*' 1968.

6 Dr Berit Valentin Eriksen & Dr Gitte Hansen, Associate Professor arranged '*Settled and Itinerant Crafts People in History and Prehistory*' in an EAA session on crafts people in history and prehistory, in The 18th Annual Meeting of the European Association of Archaeologists in Helsinki on August 29–September 1, 2012.

7 Sara Strack, Marion Uckelmann and Ben Roberts arranged '*Craft and People Agents of Skilled Labour in the Archaeological Record', British Museum*: London, 1–2 November 2012.

8 Moira Vincentelli, Women Potters – transforming traditions. (London: A & C Black Limited, 2003).

9 Katarina Botwid , Från skärva till helhet- keramisk hantverkskunskap som redskap för djupare förståelse av artefakter och arkeologisk kontext. (University of Gotland: 2009a), Offrad keramik – mossfynd från romersk järnålder I Kärringsjön i Halland (University of Gotland: 2009b), 'Evaluation of ceramics – Proffesional artisanship as a tool for archaeological interpretation' in (Journal of Archaeological Sience 18 in press) University of Stockholm.

10 Sandy Budden, 'Renewal and Reinvention: the role of learning strategies in the Early to Late Middle Bronze Age of the Carpathian Basin' (PhD diss., University of Southhampton, 2007).

verted to statistics.[11] The main importance of her work is that it clearly shows that it is possible for an artisan to 'read' another artisan's work. Budden's investigation is quantitative and thus similar to typological or other scientific analyses, which of course is very valuable, but if used on a relative scale or evaluation, it will be hard to make comparative evaluations of levels of skills in long-term perspective or in large geographic areas.

The method *artisanal interpretation* is possible to use in an overall evaluation of large archaeological materials without excluding irregularities or anomalies, and as I will show in this article, it is not based on cultural or production issues, but on artisans' practical and intellectual ability to gain knowledge in any type of context. The next section presents the case study and enlighten what can be the result of trying the artisanal perspective

The Colour of Life

Colours for decorating purposes are made in different ways; one colouring metal oxide may be used and mixed in different ways to obtain the right nuances. It is also important that the mix is developed for different uses and may adapt to the surface the artisan would like to decorate. Art materials such as crayons, colour pigments and paint[12] are unusual and has, to my knowledge, not been found in prehistoric archaeological material from Scandinavia. However, here are traces of crayons being used and some traces of colour painted on to artefacts.[13] Recently, a find of large stones with iron red lines from the excavation site of Lindängelund Age, near Malmö in the very south of Sweden, dated to the Older Roman Iron Age were excavated and presented by Anne Carlie. The stones with red drawings had been broken into pieces and put in a well. Carlie interpreted the find as an offering in a feast context, and the find in the well is described as part of a closuring process. The artefacts used for the feast were placed in the bottom of the well and then covered by nine large stones, and on top of these, there were smaller stones.

Broken stones with red lines and hammerstones together with a calvarium of a dog were the last artefacts put in place in the filling of the well.[14] It is an exciting find of red colour, which shows indications that the iron oxide was mixed with a liquid containing traces of egg (amin).[15] Red colour is generally interpreted as the colour of life. In graves natural red ochre was used in different ways; mostly, it seems to have been spread around or on top of the buried person. Red ochre mixed with fat in a Mesolithic woman grave has been found in the area of Scania together with so-called *sminkstenar* (cosmetic stones).[16] From Bronze Age contexts, there are examples of a few *cosmetic stones* in men graves.[17] The artefacts are interpreted as having been used for traditional make-up and/or some kind of ritual expression.[18] These stones are interpreted not to be manmade, to my knowledge. Instead, they appear to be naturally shaped stones.

11 Joanna Soafer and Sandy Budden, 'Many hands make light work: potting and embodied knowledge at the Bronze Age tell at Százhalombatta,' in *Embodied Knowledge*, eds. Marie Louise Sørensen and Katharina Rebay-Salisbury, (Oxford: Oxbow Books 2013), 117–127.

12 A mixture of pigment suspended in a liquid wich dries to form a hard coating, used on artefacts walls or stones.

13 Jørgen Jensen, *Danmarks Oldtid Ældre Bronzealder 2000 f. kr–500 f. kr*, Viborg: Gyldendahl 2006:351., Oscar Montelius, Minnen av vår forntid: 1917, Nytryck; Gamleby: ARKEO förlaget: 1991:95

14 Anne Carlie, Arkeologisk Undersökning 2010, UV Syd Lockarp 44:1 m. fl. (Lindängelund 1), manuscript.

15 Analysis performed by Sven Isaksson, Stockholm University, supplement in: Anne Carlie, Arkeologisk Undersökning 2010, UV Syd Lockarp 44:1 m. fl. (Lindängelund 1), manuscript.

16 Mathilda Kjellqvist, 'Gåvor eller avfall?,' in eds Karsten & Knarrström *Tågerup specialstudier*. (Lund: Riksantikvarieämbetet, RAÄ, UV Syd, 2013) 58.

17 Joakim Goldhahn, *Dödens hand – en essä om brons och hällsmed*. Gotarc Serie C, Arkeologiska Skrifter No 65, Institutionen för Arkeologi och Antikens kultur, Göteborg: Göteborgs Universitet 2007:152, 184, 189.

Red oxide paint have also been used for rock carvings in different parts of Sweden. Rock paintings are known in Flatruet in Jämtland[19], Tumblehed at Hisingen in Gothenburgh, in Värmland, Norrland, Västernorrland, Gävleborg, Västerbotten and Västra Götaland. Altogether, there are about 35 rock paintings found in Sweden. All of them seem to be painted with red oxide paint and though rock paintings are hard to date, the interpreted datings are close to or around 2000 BC.[20]

The Case Study

The case study concerns an enigmatic find that originates from the site of Gustavslund situated in the southwest of Sweden in the area of Helsingborg (fig. 1).

When the excavation of Gustavslund[21] was planned, it was presupposed that ceramics were likely to be a large part of the find material and I was engaged to do artisanal interpretations of the levels of skill and analyse activity areas.[22]

Performing an artisanal interpretation of levels of skill, I looked through about two hundred and fifty find boxes containing ceramic sherds to try to make an overall examination. I also included boxes with clay daub and other ceramics that were not interpreted as artefacts. In one box, find 98, a very red piece of fired clay appeared. A pattern that was well-known to me showed in the box: he characteristic lines of an oxide crayon. I had not heard about any findings of oxide crayons before and I had a wondrous feeling. Was it possible that I had found an oxide crayon? This piece of ceramics was 38 mm high and 28 mm wide. My hands were red after handling

FIGURE 1. The geographical location of Gustavslund (the excavation site) in the Helsingborg area. Illustration Henning Cedmar Brandstedt

it. I checked the database from the excavation and there was a note that said 'Class: archaeological layer, Finding category: Fired clay, Weight: 14 g, Quantity: 1, Level of fragmentation: defect, Note: Brick-like strongly fired disc, Intrasis no. UV2010:036'.[23]

Full of questions I asked my project leader: Did they use oxide crayons during the Roman Iron Age? His answer was a question: What is an oxide crayon?[24] In my own ceramic workshop, I use oxide crayons for decorations of bisquit-fired ceramics before the glazing or before a second firing at a higher temperature.

This example showed that new findings are possible if new questions and new ways of

18 Goldhahn, '*Dödens hand – en essä om brons och hällsmed*', 189.
19 http://www.upptacksverigeshistoria.se/sok-besoksmal/visa/334/ (accessed May 19, 2013).
20 http://www.varmlandsmuseum.se/1/1.0.1.0/360/1/ (accessed May 19, 2013).
21 Husensjö 9:25, excavation site near Helsingborg.
22 Bo Stömberg at Swedish National Heritage Board Archaeological Excavations Department in Lund engaged me for the analysis.
23 Translation by the author 'Klass: arkeologiskt lager, Fyndkategori: Bränd lera, Vikt: 14g, Antal: 1, Fragmenteringsgrad: defekt, Anmärkning: Tegelliknande hårt bränd platta. Intrasis nr UV2010:036.'
24 Dialogue between me and archaeologist Håkan Aspeborg in March 2012, when performing an artisanal interpretation of the massmaterial of Husensjö Gustavslund.

interpretation are applied. By looking through the most crumbled shreds, one may find out more about the technical signs that can be hidden in the ceramic mass material. Maybe this is a new artefact category, which can easily be traced by presenting the characteristic lines to other archaeologists.

Analysis and Artisanal Experiments of Find 98

The investigation of ceramics from Gustavslund concerned 161 finds of ceramic vessels and other ceramic finds such as clay daub. My general task was to establish the levels of skill of the ancient artisans and go through the rest of the ceramic finds to see if there was something of importance.

Find number 98 (see fig. 2) was found in what was later called the *cooking kitchen*, and it was put in the category *bränd lera* (fired clay). This category contains everything made of clay that is not regarded as vessels or other known ceramic artefacts. The find was dated to obtain more information. Dateable barley had been saved from the same context and Find 98 is now dated to 180 BC—0 AD CAL 2 Σ, which means Early Pre-Roman Iron Age in Sweden—this dating falls in the span of the greatest activity at the site.[25] To separate my proposed find category *oxide crayons*[26] from the find category *fired clay*[27] the next step in the process was to analyse the elements in find 98 to investigate if there were similarities or differences in the composition. The method used to verify or falsify the artisanal interpretation was to perform an x-ray fluorescence analysis.[28] A find representative of the find category *fired clay* was chosen. This find (find 20) comes from the same context as find 98 but did not have the features of an oxide crayon. To compare the contents of minerals, both samples were analysed.

The results are shown in figure 3 and 4 below. The differences of the contents of minerals in the samples turned out to be substantial. In Scania, natural clays from different areas show an average amount of iron oxide between 4 and 9% and this is the amount in find 20 (fig. 3). The highest amount of the 5,000 samples tested at the Laboratory for Ceramic Research in Lund University is 19% of iron oxide[29]. The content of iron oxide in find 98 is extraordinary and validates that it is credible to interpret find 98 as an ancient oxide crayon.

The Artisanal Experiment

To be able to separate the oxide crayons from the category fired clay, I wanted to show how the characteristic lines occur on a piece of paper, this might give guidelines to keep the art material easily separated from other finds. I obtained permission to use the supposed crayon for these experiments, and was now able to go further with the examination.

As mentioned above, the characteristic lines of the oxide crayon were the first hint that there was something special about find 98. An artisanal experiment was designed, to make a crayon with the same contents as the presumed ancient crayon. The experiment was made to see if the amounts of minerals according to the XRF-result from find 98 (fig. 4) would give a proper crayon with the right qualities. The oxide used was red iron oxide (Fe_2O_3) and the clay was red earthenware powder clay according to Mix 4 (table 1). I mended 33 g of red iron oxide and 67g red earthenware clay to a smooth reddish clay body according to current recipes for oxide crayons. In the living Swedish tradition of making oxide crayons, one uses 1/3 oxide and 2/3 clay, white for lighter colours and red clay for darker colours.[30] This was supposed to be similar to the ancient possible crayon amounts if 1/3 was roasted iron (red iron oxide) from iron making and 2/3 clay from the area (fig. 4). Thereafter, I formed it to a small ball and pressed it to the same size as the ancient crayon, and when it had dried thoroughly, it

25 Find 98 is dated to: 2061 +−33. 180 BC till 20 AD CAL 2 Σ
26 See former discussion about art material.
27 Find 20 from excavation of Husensjö 9:25, found in the same context as find 98 in the so-called cook-kitchen.
28 X-ray fluorescence analyses performed by Prof. A. Lindahl, The Laboratory for Ceramic Research, Lund University.
29 Personal communication Anders Lindahl 2012.

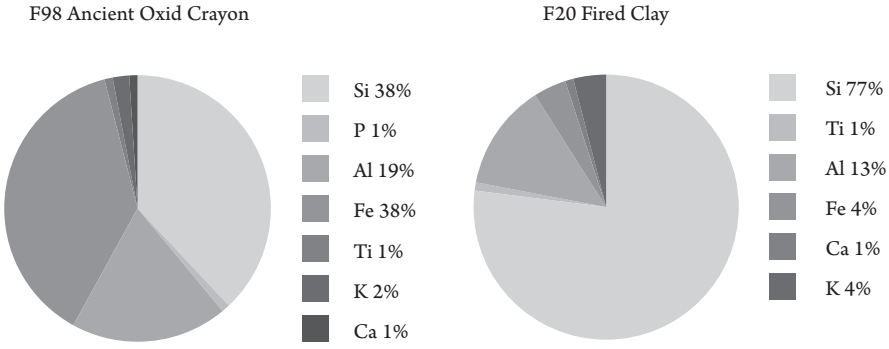


FIGURE 2. Find number 98, three views of the crayon (38 mm high and 28 mm wide) Photo Katarina Botwid.

FIGURE 3. The result of the XRF-analyses in find 98.

FIGURE 4. Shows the result of the XRF-analyses in find 20.

was fired in an electric kiln to 800 °C. According to my experience the temperature is easy to acquire in an open bonfire. In order to provide a very simple method, the following photos (fig. 5 and fig. 6) show how these characteristic oxide crayons lines may be separated.

By observing extra reddish pieces of clay, it is possible to test them on a thicker paper and see how the lines appear. This visual method is very cheap and does not involve much extra work in the excavation or when sorting the finds. In the photos, it is obvious that the lines from the actual find (fig. 5) are very clear and sharp and very similar to the experimental ones (fig. 6). Find 20 (fig. 7) with totally different amounts of mineral does not show the same colouring power.

The x-ray fluorescence analyses and the experiment together support the idea of a new find category of *oxide crayons* in ancient Scandinavian ceramic materials.

Categories of Art Material Possible to Trace

To indicate how, in this case, iron oxide may have been used, I will present some different ways of making art material. The information can be used to address questions about anomalies or odd finds that do not seem to fit established archaeological categories. Presented in the table (table 1), materials used for making *art* material is shown. The contents may be traceable in the archaeological context. If analyses show, for example egg or fat together with oxides, it can be a help to interpret or find art materials.

Oxides in art material are crucial and can be changed or mixed to give different colours; the colourful oxides can also be varied if mixed with natural clays. A light clay body gives brighter colours than darker ones. The amounts of oxide, clay, oil, egg or water in the mixtures themselves are supposed to give the right adaption onto the material that it is supposed to be applied on.[31] Different art materials can be soft crayon, hard crayon, leather colour, egg-tempera, paint of different kinds and cosmetics.[32]

All these kinds of material can be used on ceramics, wood, textile, leather, stones or bodies depending on how they are prepared.[33] The way that the mixtures are made decides how they may have been used. Different art materials are presented below and the table (table 1) gives information that can be valuable when questions of ancient art materials and their composition are discussed.

Conclusions and Discussion

In this article, I have tried to explain the connection between theory and practice in the artisanal perspective. The concepts used are supposed to work for all archaeological interpretation of skill within the ancient artisanal crafts.

As an archaeologist, I am a part of a growing movement that in different ways try to find new answers to old questions, reaching for an understanding of artisanship in ancient societies. The new ways of doing this is like finding paths leading into a central place, an arena where thoughts, theories, methods and practices can be 'boiled down' and give a platform for interpretations and discussions where artisanal skill is recognized. The artisanal perspective can be used as a tool for widening archaeological interpretation.

Exemplified in the case study it seems clear that find 98 may be interpreted as an oxide crayon that was hidden in the mass

30 Author's personal experience.

31 Katarina Botwid, table (Table 1.) of color mixes and art material in this article.

32 For reading about all kinds of use of clay and minerals in ceramic craft see Finn, Lynngaard Keramisk handbok, regarded as a 'ceramist bible' in Scandinavia or go to books authored by Emanuelle Cooper for a better understanding of colour in ceramic craft and art tempera color on differnt surfaces read Lasse Andreasson's book Tempera.

33 Lasse Andréasson. *Tempera: en bok om att måla tempera*. Stockholm: Wahlström & Widstrand, 1987., Emmanuel Cooper. *Cooper's book of glaze recipes*. London: Batsford, 1992[1987]., Finn Lynggaard. *Keramisk handbok*. Västerås: ICA förlaget, 1969.

FIGURE 5. Find 98 with its characteristic lines.

FIGURE 6. Experimental Crayon nr 1 with its characteristic lines.

FIGURE 7. Find 20 and its colourless lines.

material of fired clay. Probably the crayon would not have been found and discussed without a ceramic artisanal perspective. In Maikel Kuijper's discussion about an archaeology of senses, he contributes greatly by lifting up the technical knowledge of the artisans themselves and take their role as informants into the academic area as a valuable contribution in interpreting a craft, in his case the metal workers' senses.[34] I am myself an interdisciplinary researcher but I cannot stand alone in my work, I need the questions from other scholars to think and explain my knowledge about ceramic craft in ways that are useable to archaeology. Otherwise, the risk is that the artisanal perspective just becomes a private aim to validate my own case studies. I want to illuminate how the artisanal perspective and its methods and theories may contribute to solving old questions, but also how to address new questions from the artisanal standpoint. The view of artisanship must be discussed and develop solid sets of theoretical framework for the future. It is a necessary task if we want to bring it to the breaking point and create a wide-open possibility to an understanding of what we refer to as artisanal knowledge. We need to point out that artisanal knowledge can be used together with scientific methods to reach a valid result of our research. It is also important to range the levels of skill. It has to be ranged out of what is possible to acquire/achieve as an artisan during life, where learning by doing together with inherited ability is the only way to get expertise.[35] Artisans need to attend discussions about ancient activity areas and workshops, detecting the ancient artisans' toolboxes and explain needs and customs together with learning strategies in the artisanal society. My intention is that the knowledge of artisans will be a natural knowhow in the service of archaeology.

Artisanal interpretation involves more than establishing skill and ability within the group of ancient artisans; it is a way of studying archaeological material with artisanal glasses. Irregularities, anomalies and technical leaps can tell a great deal about development; they seem to hide when quantified and/or excluded in statistics. The risk here is that we lose information and do not see the turning points in the ancient crafts heading for new techniques. New categories may be found such as the oxide crayons exemplified in this case study. The method of finding crayons is likely to be adapted by the archaeological society. When pointed out as a category, the identification does not need expertise, but it is not possible to take that step without reliable knowhow being transferred from artisans to archaeologists. Collaborations and discussions are very important in order to develop an artisanal perspective that can be used by everyone dealing with the matter of crafts.

Asking qualitative questions may open up for a new way of seeing the environment of Scandinavian Roman Iron Age people, as a group that used art material. A more colourful society might become visible and interpretable.

34 Kuijpers, 'The sound of fire, taste of copper, feel of bronze, and colours of the cast' 146.

35 Deborah Olausson, 2008. 'Does Practice Make Perfect? Craft Expertise as a Factor in Aggrandizer Strategies.' *Journal of Archaeological Method and Theory* (2008) 15:30.

OXIDE IRON OXIDE FE_2O_3 (FINE GRAINED)			COLOUR RED/BROWN		
	Unfired			Fired (800°C)	
MIXTURES	MIX 1	MIX 2	MIX 3	MIX 4	MIX 4:1
100-recepies	Oxide 50 Bee wax 50 (hard wax)	Oxide 30 Clay 30 Oil 30	Oxide 50 Oil 50	Oxide 33 Clay 67	Hard crayon 50 Egg 40 Oil 10
Art Material	Soft crayon	Body art/ Cosmetics	Soft shiny Leather color	Hard crayon	Egg/oil tempera color
Preparation					
MIX 1	The wax must be warmed up, to between 50°C–80°C, the oxide should be fine-grained and added to the warm wax and hold on the temperature for a while. Take the mix of the heat. Stir during the cooling process. When hand warmtake pieces out and roll to crayons of whished shape				
Used for	Drawing on soft organic material as textile and wood				
Quality	Easy to apply but doesn't hold for washing				
MIX 2	Just mix the dry ingredients thoroughly and mix with small amounts of oil until the mix is creamy but not loose. If it is to hard pour in small amounts of water until it creamy and smooth				
Used for	Face or body painting				
Quality	Soft creamy strongly red and opaque, doesn't fall of easily				
MIX 3	Warm up oil and pour in small amounts of Iron Oxide and stir, let it cool down and take a cloth or a sponge and rub the mix onto the leather				
Used for	–Decoration and preserving, –rubbed into leather it gives a bright red colour on light leather and deep red on darker leather				
Quality	Preserving the material as well as giving a more waterproof surface/decorative				
MIX 4	Grain red earthenware clay and the iron oxide to a fine powder. Mix the dry ingredients then pour water and stir until you get a claylike body. Roll the mixture to a crayon shape let it dry and fire to 800°C				
Used for	–Sketching, –drawing, –as a base for tempera.				
Quality	The hard crayons is long-lasting it does not wear down easily. Fired crayon is even in colour. The fired colour is light resistant				
MIX 4:1	Mix oil, whipped egg and a teaspoon of water in a jar and shake it thoroughly, then mix with grated and fine-grained fired crayon powder				
Used for	–wall paint, –decorations on ceramics, bones and stones, –wood painting (the colouris applied with brunches or sponges)				
Quality	The colouris light resistant. It is almost permanent, the egg oil makes a very hard surface. If waxed after painting it will last for very long				

TABLE 1. Different art materials and how they are made and used. The oxide can be changed to get another colour (e.g. if the oxide is changed into chrome oxide, the colour will be green).

Andréasson, Lasse. Tempera: en bok om att måla tempera. Stockholm: Wahlström & Widstrand, 1987.
Aspeborg, Håkan. Bönder och barbarer: Helsingborgsområdets järnålder. Helsingborg: Dunkers kulturhus, 2008.
Aspeborg, Håkan and Strömberg, Bo. Husensjö 9:25 Gustavslund, unpublished manuscript, Swedish National Heritage Board Contract Archaeology Service, UV Syd, Lund.
Botwid, Katarina, 'Från skärva till helhet – keramisk hantverkskunskap som redskap för djupare förståelse av artefakter och arkeologisk kontext.' Bachelor thesis, University of Gotland, 2009a.
Botwid, Katarina. 'Offrad Keramik – mossfynd från romersk järnålder i Käringsjön i Halland.' Master thesis, University of Gotland, 2009b.
Budden, Sandy 'Renewal and Reinvention: the role of learning strategies in the Early to Late Middle Bronze Age of the Carpathian Basin' (PhD diss., University of Southhampton, 2007).
Budden, Sandy. 'Skills amongst the sherds: understanding the role of skill in early to late Middle Bronze Age in Hungary.' In Breaking the Mould: Challenging the past through Pottery, edited by Berg I, SID. BAR International Series 1861, 2008.
Budden, Sandy and Joanna Soafer 'Many hands make light work: potting and embodied knowledge at the Bronze Age tell at Százhalombatta.' In Embodied Knowledge, edited by Sørensen, M-L. and Rebay-Salisbury, K., Oxford: Oxbow Books 2013.
Carlie, Anne. Arkeologisk Undersökning 2010, UV Syd Lockarp 44:1 m. fl. (Lindängelund 1), manuscript, Swedish National Heritage Board Contract Archaeology Service, UV Syd, Lund.
Cooper, Emmanuel. Cooper's book of glaze recipes. London: Batsford, 1992[1987].
Gustavsson, Bernt. 'Vad är kunskap? – en diskussion om praktisk och teoretisk kunskap.' Statens skolverk: Stockholm, 2002. (http://www.skolverket.se/publikationer?id=1840).
Isaksson, Sven. Stockholm University, supplement. In Arkeologisk Undersökning 2010, Uv Syd Lockarp 44:1 (Lindängelund 1), Carlie, Anne. Unpublished manuscript.
Kjellqvist, Mathilda. 'Gåvor eller avfall?.' In Tågerup specialstudier, edited by Karsten, Per and Knarrström, Bo (Lund: Riksantikvarieämbetet, RAÄ, UV Syd, 2013.
Goldhahn, Joakim. Dödens hand – en essä om brons och hällsmed. Gotarc Serie C, Arkeologiska Skrifter No 65, Institutionen för Arkeologi och Antikens kultur, Göteborg: Göteborgs Universitet 2007.
Kuijpers, Maikel H.G. 'The sound of fire, taste of copper, feel of bronze, and colours of the cast: sensory aspects of metalworking technology.' In Embodied Knowledge, edited by Sørensen, M-L and Rebay-Salisbury, K., Oxford: Oxbow Books 2013.
Molander, Bengt. 'Kunskap i handling.' 2 omarb. uppl., Göteborg: Daidalos 1996.
Pye, David. 'The nature and art of workmanship.' Rev. editor, Herbert, London 1995.
Jensen, Jørgen. Danmarks Oldtid Ældre Bronzealder 2000 f. kr–500 f. kr. Viborg: Gyldendahl, 2006.
Lynggaard, Finn. Keramisk handbok. Västerås: ICA förlaget 1969
Lynggaard, Finn. Raku: massa, glasyr, bränning. Västerås: ICA förlaget, 1971.
Montelius, Oscar. Minnen av vår forntid: 1917, Reprint; Gamleby: ARKEO förlaget, 1991.

Olausson, D. 2008. 'Does Practice Make Perfect? Craft Expertise as a Factor in Aggrandizer Strategies.' Journal of Archaeological Method and Theory (2008) 15:28–50.
Vincentelli, Moira. Women Potters – transforming traditions. London: A & C Black Limited, 2003.

Websites

Swedish Museums, accessed April 2013, http://www.upptacksverigeshistoria.se/sok-besoksmal/visa/334/
Värmlands Museum, accessed April 2013,http://www.varmlandsmuseum.se/1/1.0.1.0/360/1/

Personal Communication

2012-10-20 Personal communication with Professor Anders Lindahl, Laboratory for Ceramic Research, Lund University.

Paper 3

Visible Craft: Tracing Skill, Knowledge and Invisible Tools Trough the Artisanal Perspective

Submitted to:
Journal of Material Culture

Contents

FIGURE 1. Reconstruction of Käringsjön 200–400 AD.
Illustration by Henning Cedmar Brandstedt.

Introduction

The focus of this article is to examine finds from the site at Käringsjön using an artisanal perspective. The tarn was interpreted by Holger Arbman and Anne Carlie (Carlie, 2009b: p. 44 (swe 27–33); Carlie, 2009a; Carlie, 1998; Arbman, 1945; Kuijpers, 2012) as an Iron Age offering tarn. My earlier work on Käringsjön concentrated on ceramic vessels (Botwid, 2009b). Being an archaeologist with a master's degree in ceramics, with twenty-five years experience in the craft, I have taken a practice-based approach in my research. Drawing on my own tacit knowledge, the investigation centred on in-depth validations of the craft and skill present in the vessels which were made by Roman Iron Age ceramists. This interdisciplinary approach has been developed into a useful tool for archaeological interpretations (Botwid, 2009a; Botwid, 2009b; Botwid, 2013; Botwid, 2014).

In order to interpret and discuss different aspects of living in the Käringsjön area during Roman Iron Age Sweden, I show how more complex and thorough artisanal interviews will enrich the understanding of ancient artisanal societies.

I will conduct interviews with professional skilled artisans (a woodworker and a textile artisan) and a professional experienced informant (a farmer). It is important to explore how my approach can be applied to other crafts and areas, refining the applicability of my method.

Aim and objectives

I am going to reinvestigate Käringsjön's site and its artefacts using a strict artisanal perspective, demonstrating how such an approach can garner new information from an already thoroughly-researched archaeological site. The ambition of this research is to give new answers about skill and crafting which will illuminate society and social relations of the past.

Presentation of the Käringsjön site

Käringsjön has been the subject of archaeological research since Källmark's excavation in 1917, followed by T. J. Arne and L. von Post's excavation a year later (Arbman, 1945: p. 174). The site is situated in a hollow on a ridge in Övraby parish near the city of Halmstad on the west coast of Sweden, and it became a well-known archaeological site in 1941 when archaeologist Holger Arbman excavated it extensively (see fig. 3). Since then, several researchers have published papers and articles concerning the site (see Carlie, 2009b). Arbman's interpretation of the tarn as an offering site is seldom problematized and has been accepted since 1945.

In Roman Iron Age Sweden, Käringsjön was a small tarn, secluded in the surrounding broad-leaved forest (see fig. 1). Hemp, flax and rye were cultivated in the area. Spacious grass- and crop-lands characterized the landscape and environment (Björkman, 2009: p. 204). When excavated and analysed, the majority of the artefacts at the site were determined to originate from the Roman Iron Age (200–400 AD)(Arbman, 1945: p. 116; Carlie, 2001: p. 125). The finds are briefly presented below (see fig. 2).

Surrounding the small tarn was a platform made from a large quantity of wood and stone. Stones and rocks were carried to the place according to Arbman (Arbman, 1945: p. 26). Notably, there were no traces of sacrificed war-booty or sacrifices of animals or human beings. Consequently, the tarn has been interpreted as a peaceful offering site where the local peasant population came to ask for a good year or to celebrate harvests (Arbman, 1945: p. 100; Carlie, 1998: p. 35; Carlie, 2009a; Botwid, 2009b).

Previous interpretations and approaches to religion, offerings, cult and rituals

It seems to be the mystique character or the feeling of a hidden place that has been important in the process of interpreting the Käringsjön site as a holy place (Arbman, 1945; Carlie, 1998: p. 17; Carlie 2001, 2003, 2009a; Goldhahn and Østigård, 2007: p. 218; Habbe, 1995). Åsa Berggren offers an excellent discussion of how to go about explaining and interpreting impenetrable locations (Berggren, 2010: pp. 44–55; Berggren, 2009: pp. 39–47). In my own Masters thesis, I concluded with a discussion of which artefacts were offerings in the Käringsjön tarn, pointing out the rich archaeological potential of interpreting the objects as transformed, from nature to culture. 'Crops were

Categories	Type	Nr
Ceramic Artefacts	Vessels, Small cups, Storage vessels, Cooking pots	114
Wood Artefacts	Box-lid (1), Bowl (1), Knife shaft (1), Tray (27)	5
Wood/Agricultural Implements	Rake heads (2), Spade (1), Digging stick (1), Pulley (1), Chopping block (1)	6
Wood/Objects	Worked wooden object unknown function	16
Wood/Prepared	Curly birch blocks	2
Wood/Textile Tools	Linnen-mallet?/Flax attachment	2
Textile	Processed flax	2
Bast	Ropes	3
Stone Artefacts	Grinding stone (1)/Flint (firemaking) (1)	2
Stone/Prepared	Worked flint (4) /Quarts (1)	5
Iron/Traces	Knife-shaft and stick with iron-oxidation	2
Leather	Left-shoe, Mended (medieval)	1

FIGURE 2. Finds in Käringsjön (Arbman, 1945: pp. 89–97).

turned into food, wood was made into tools and clay was formed and fired to become ceramics' (Botwid, 2009b: p. 45). I also called for a new view of ceramics in which their status was raised to a position of ritual importance equal to that of the other offerings, rather than as mere containers for food-offerings.

Artisanal Understanding of Hidden Information

During the decades since Arbman's 1945 publication, the concepts of ritual, offering, sacrifice, religion and cult in relation to the Käringsjön site have been repeated quite unaltered, and as a result have been reduced to generalizations and, in archaeology, reduced even to mere categories. Using the existing theories as a starting point, this article presents a critical reflection on present understandings of Käringsjön.

Combining knowledge from two arenas—archaeology and craft—I will show how artisanal thinking can contribute to the understanding of prehistoric societies.

In artisanship, certain practices of craft are understood to be examples of true 'custom' and 'tradition', and these practices can be related to all kinds of skill-related issues. In some groups of artisans, traditions contain extrasensory experiences or beliefs connected to artisanship. Examples of such beliefs are frequent in ethno-archaeological references to ceramic craft (Hodder, 1982: pp. 171–180; Vincentelli, 2004: pp. 175–187). These examples illuminate physical and social environments that can be active in specific artisanal groups. I will present an argument for dividing the understanding of such practices into two parts, collective and specific understanding.

A collective understanding consists of a shared understanding or a shared set of beliefs that are exclusive to a larger group (culture, nation, village). In relation to material culture, collective understanding ensures communal knowledge of what acts and artefacts represent. Specific understanding describes knowledge about rules and doctrines and it is only understood by those who are initiated. Within the artisanal nonverbal dimensions, this kind of knowledge is recognized and is linked to so-called tacit knowledge (Björklund, 2008; Gustavsson, 2002; Molander, 1996; Pye, 1995). Sequences of actions like those that were staged in and around the Käringsjön tarn, and

FIGURE 3. Käringsjön's location in the Swedish west coast area. Illustration by Henning Cedmar Brandstedt.

in connection with surrounding settlements, can be understood as a chain of collective understandings with elements of specific understanding imbedded (Lave and Wenger, 2005: pp. 100–105 cf. 'community of practice').

Using an explicit artisanal perspective, I will not accede to the unclear definitions that concepts such as 'ritual', 'offering', 'religion' and 'cult' often offer. I will henceforth use the expression collective understanding when discussing issues which everyone could comprehend (artisan or other), and the expression specific understanding when discussing those matters which were exclusive to artisans.

The Artisanal Perspective

I will now briefly present the essence of my research concerning artisanship together with the concepts and methods that I use to trace and build up an artisanal understanding of the past. The artisanal perspective involves more than a simple discussion of crafting and the establishment of skill and ability within the group of ancient artisans; it is a way of studying archaeological material through artisanal glasses. An artisanal interpretation makes it possible to detect irregularities, anomalies and technical leaps that otherwise seem to hide when results are quantified and/or excluded in statistics. New categories of artefacts can be identified,

such as the oxide crayons exemplified later in this study. I am convinced that we can find additional traces of people, workshops, tools and equipment by using this approach. After discussing methods and concepts, I will present my artisanal interpretations of ceramic artefacts from Käringsjön, and will evaluate the skill of ancient ceramists that was visible at the actual site. Thereafter I will conduct interviews with one farmer and two artisans in wood and textiles who will carry out artisanal interpretations of artefacts. The information garnered from the interviews can be used to enhance an understanding of structures and artisanship in a wider context (cf. the concept of collective understanding, above).

Method and concepts – artisanal interpretation

Artisanal interpretation relies on tacit or silent knowledge. These forms of knowledge are mostly explored within the field of theoretical philosophy of knowledge, in cognitive neurology and in pedagogic research (Molander 1996: pp. 170–171; Pye 1978: pp. 4–8; Gustavsson 2002: pp. 88–89). What kind of knowledge is this? Some research refers to this concept as embodied knowledge or knowing in action, implying that it is not possible to learn without practising until the knowledge gets into the individual's own physical motions, and becomes a part of him/her as a second nature. My intention when developing a practical method was to widen its use for application to different crafts and topics, and to develop new methods within the artisanal perspective. The artisanal investigation is carried out by tacit, ocular, and audial survey, and is linked to the understanding that comes from work experience and expertise as an artisan. To be able to differentiate between levels of skill, it is especially valuable if the interpreter has experience of teaching the craft.

I have developed concepts concerning levels of artisanal skill which I have defined and exemplified in papers and seminars. Professional artisanal skill refers to the highest level of skill visible in or on the artefact. An investment of time and effort is clearly exemplified. Artefacts made with good artisanal knowledge display a wide range of technical knowledge. A high level of skill can be reached at this level. Skill is built upon knowing what one has been taught and refining one's proficiency on that basis. These artefacts are manufactured in a way that would not endanger the production. An artefact made with artisanal knowledge shows evidence of poor manufacturing (crafting). The performing artisan is still a beginner or is only able to work according to strictly laid-out steps. Artisans perform at different levels of skill during a lifetime. The artisanal interpretation assumes that knowledge is passed on, not only from hand to hand, but also over time (Botwid, 2013: pp. 34–35).

Revealing skill in ceramic craft through artisanal interpretation

Interpretations of ceramics include use of the following parameters: weight, balance, symmetry, proportions, surface treatments, form qualities, size, wall thickness, manufacturing choices, decoration, amounts of temper, clay preparation and firing quality (Botwid, 2009a; Botwid, 2014: p. 60; Botwid, 2013: p. 35; cf. Budden, 2008: p. 4; Budden and Sofaer, 2009: p. 10). Marks and traces are visible on the artefacts as imprints of the makers' hands or tools, and consequently each artefact carries evidence of a level of skill in a 'frozen moment'.

Käringsjön's ceramic material included one hundred and fourteen vessels and was interpreted through artisanal interpretation (Botwid, 2009b). I had the opportunity to submit twenty-four of these vessels to visual, tactile and audial analysis. These vessels are presented in figure 4. A further twenty-three vessels were interpreted only visually as they were in exhibitions. These are presented as silhouettes. The sixty-seven small shreds in the Feach represent one vessel in very small pieces or fragments. The dots (white, grey, and black) represent the level of skill according to my artisanal interpretation.

The interpretation of the vessels in the study shows that 25% reached the level professional artisanal skill, 67% of the vessels reached the level good artisanal knowledge, and 8 % reached the level artisanal knowledge (see fig. 5). Overall, Käringsjön's ceramic material shows good levels of performance of ceramic artisanship. Analyses reveal that so-called coarse household-ware was sometimes made with professional artisanal skill. Vessel H21, for example, was light, even, and made with an excellent finish. Some of the fine-ware vessels, on the other hand, revealed the lowest level of

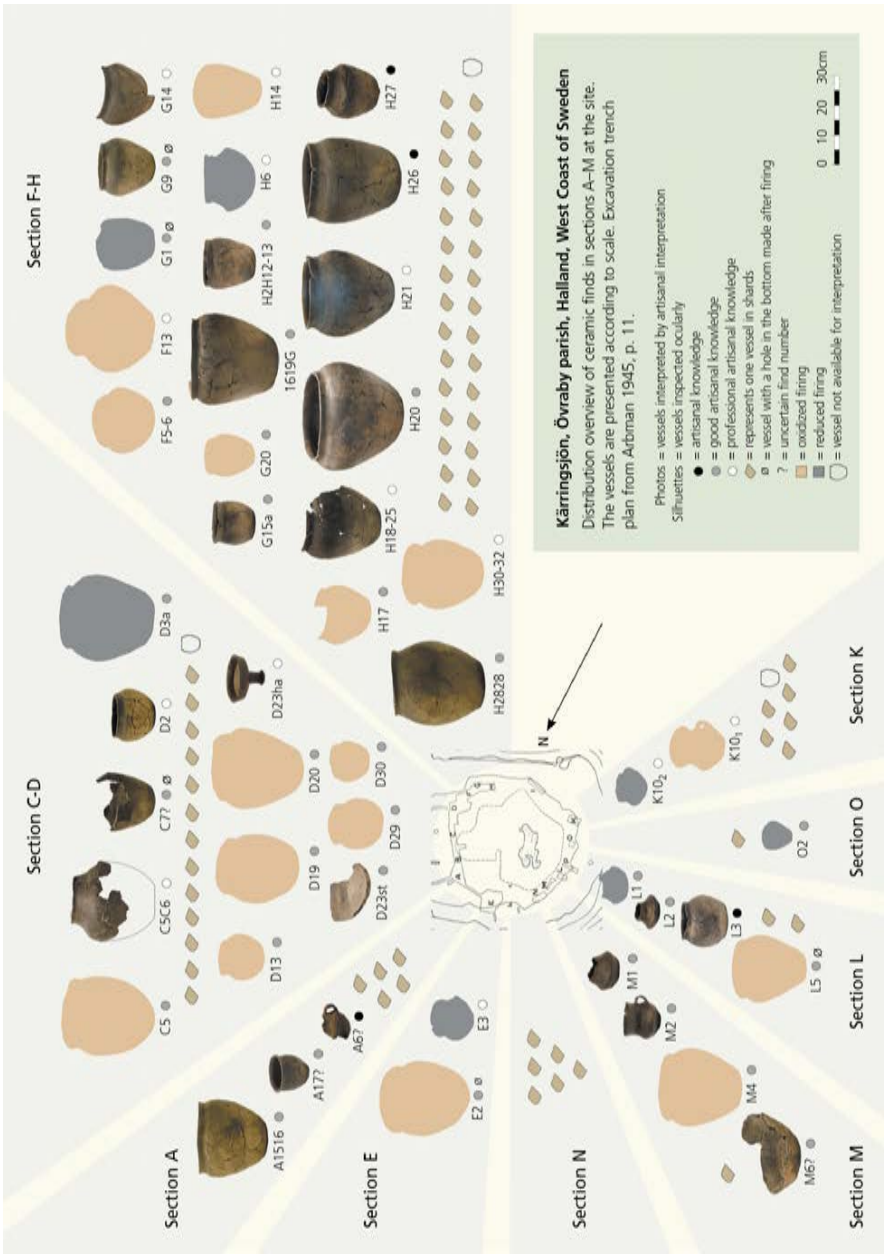


FIGURE 4. The ceramic finds (114 vessels) in the tarn. The small dots (white, grey, and black) represent the level of skill interpreted. Illustration by Katarina Botwid and Henning Cedmar Brandstedt.

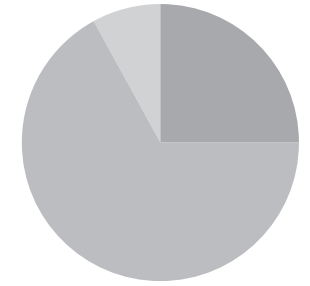


FIGURE 5. Results from the artisanal interpretation of skills present in Käringsjön's ceramic material.

skill, as finds nr A6 and L3 (see fig. 4) show. This nuances both the understanding of ceramic vessels commonly referred to as coarse household-ware and fine-ware (Arbman, 1945: p. 42), a view that has been reproduced over time (Carlie, 2009a: p. 248).

As I revisit Käringsjön, my intention is to perform archeological interpretations of other finds. Interdiciplinary collaborations will provide a broader knowledge, complementing my previous analyses of the ceramic material. Just as my approach to ceramic studies has changed former interpretations, working with a focus on different artisanal aspects will allow me to extract new information from the existing finds.

REVEALING SKILLS THROUGH ARTISANAL INTERVIEWS

For deepening the understanding of the Käringsjön and to be able to gain information, I conducted one-hour interviews based on a semi-structured qualitative interview guide (Bryman, 2012: p. 419) developed for the purpose. The artisanal interviews with expert consultants provided information that proved vital when interpreting the site and context.

Wood, textile, and farming implements were interpreted from photos, drawings, and text in Arbman's thorough archaeological documentation of the artefacts and their context. The accounts of the interviews each follow the structure of the individual sessions.

Revealing Skills in Woodwork

Käringsjön's excavation included different wooden finds (see fig. 2) which Arbman interpreted to be artefacts reflecting a good knowledge of woodwork (Arbman, 1945: p. 84). Arbman did not refer to artisans or literature when stating these points and so it is of great value to see how, and if, the artisanal interview can confirm Arbman's interpretation.

Presentation of the Woodworker Consultant

Per Brandstedt is an internationally renowned Swedish woodworker in the area of arts and crafts. His experience of the craft is extensive and he has worked full-time for over 35 years, achieving master level in the guild of master craftsmen. As a master he has taught woodwork to apprentices, both nationally and internationally. Brandstedt evaluates his own skill to be at the level of professional artisanal skill.

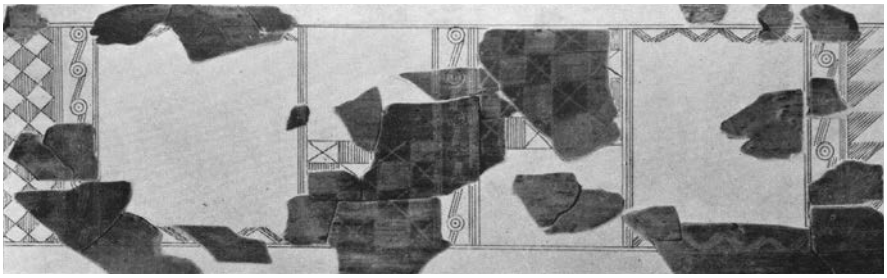
Brandstedt was interviewed and gave his interpretations of the wooden artefacts from his own artisanal expertise.

Brandstedt's Interpretation of Käringsjön's Wood Finds

Brandstedt's General Interpretation

When Brandstedt interpret the wooden finds from Käringsjön, both farming implements and other artefacts, he concluded that a high level of skill was present in the group of woodworkers.

When discussing the decorations and ornaments, Brandstedt was able to show the tool and technique that would have been used for the decoration on find D10 (see fig. 7). Brandsted suggested an old type of drill, similar to the one in his own workshop, to be the tool used on the actual artefact from Käringsjön. As shown, the tool fits perfectly and makes the same type of decoration mark when used without pressure (see fig. 8). The original decorative mark appears to show that two drills were used, one smaller and one bigger, using the same centre (see fig. 6).



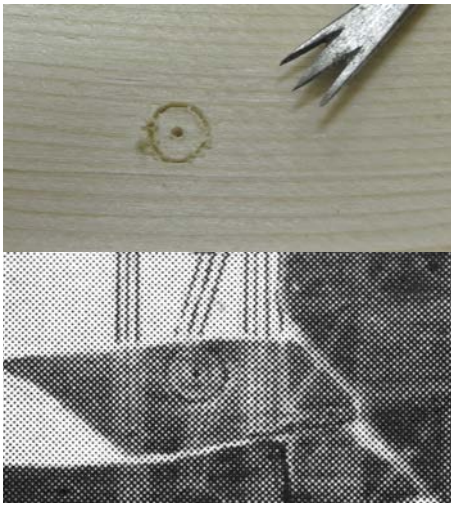


FIGURE 6. Find D10 (Käringsjön), painted wooden lid, reconstruction by Dagmar Selling, 1945.

FIGURE 7. The box lid D10, Brandstedt shows the tool and technique for decorations on the find. Photo Katarina Botwid.

FIGURE 8. Comparing Brandstedt's suggestions and the actual photo of the artefact D10. Photo Katarina Botwid and Holger Arbman (by courtesy of Kungliga Vitterhetsakademien, Sweden).

FIGURE 9. Artefact A3 Turned birch bowl. Photo Gabriel Hildebrand/The Swedish History Museum.

Brandstedt's Evaluation of Skill Visible in Wooden Artefacts

1. Find D10, Box lid from ash tree, decorated. Brandstedt puts the lid at the level of good artisanal knowledge, and when asked how many years of training a craftsman would need to achieve this, Brandstedt estimates the learning process to be at least five years. Using drills is a sign of a developed technical knowledge and supports the interpretation that the woodworkers near Käringsjön were able to reach a high level of skill.

2. Find A3, turned bowl from birch, 11.5–14 cm diameter, 8.2 cm, with a lost lid. Brandstedt interpreted that the craftsman who created this turned bowl performed his/her craft with good artisanal knowledge. Brandstedt estimated that this level of skill would take at least four years to acquire.

3. Find F19, Chopping block from oak. Brandstedt is sure that the block was as important as the axe for the ancient wood artisan. He interpreted that the block was deliberately put in the tarn as a valuable object for the woodworker. This information can be interesting in the discussions about specific understanding but does not evaluate levels of skill (see fig. 10, number 6).

Brandstedt's Conclusions on Interpreted Woodwork

Brandstedt interprets his ancient colleagues to have been aware of different types of wood and how to use them in the most appropriate way. The rake is a good example as oak, birch and goat willow were chosen for their individual properties as parts of it's construction. Curly birch is an unusual kind of wood and was used for tool handles because of its hardness, the different directions in the wood would prevent the handle from breaking as well as providing a unique pattern (see fig. 10, finds D32 and A17). As the box and the turned bowl show, there were people around who had the potential to achieve good artisanal knowledge and who were in a position to get that knowledge from others. Brandstedt refers to Tempte's work concerning woodwork, suggesting that the turning technique occurs very early on and was likely to be known in the area at this time (200–400 AD)(Tempte, 1997).

Revealing Skills in Textile

Ancient textiles are rare and in Käringsjön's context there were no actual textile finds. Traces of textile craft are present in the form of raw material and tools. Flax and bast is placed in the tarn in a deliberate way, according to Arbman. Different stages of the textile craft are visible, and flax seems to be sorted in small stacks and placed in different directions. A distaff (a staff to which flax etc. is attatched in handspinning; also the word for 'woman's work.' [Wordsworth, 1993: p. 126]) was placed in the tarn.

It is interpreted to have been used for spinning flax, and the stick was found together with the turned birch bowl (A3) and the painted wooden lid (D10) (Arbman, 1945: p. 109).

Presentation of Textile Consultant

Eva-Linda Olofsson is a textile-archaeologist, educated in both topics. She has artisanal knowledge and experience of ancient textile crafting techniques and a degree in archaeology (BA). Her learning process in textile craft started at the age of five years. Her artisanal knowledge was a starting point for her archaeology studies with an aim to studying textile-related topics. Olofsson is involved with craft-related work at Trelleborgs Museum and also in scientific archaeological experiments concerning textile crafts in international workshops and conferences at the Centre of Textile Research (CTR) in Copenhagen. Olofsson evaluates her own skill to be at the level of good artisanal knowledge.

Olofsson's Interpretation of Käringsjön's Textile Finds

In addition to Arbman's publication more recent photo printouts from the National Museum of History in Stockholm were used in the interpretation.

The flax material is limited to two bunches of flax. Ropes of lime tree bast were found. There are also wooden artefacts that are possible to discuss as potential textile tools (see fig. 10, numbers 3, 4, 5 and 7).

1

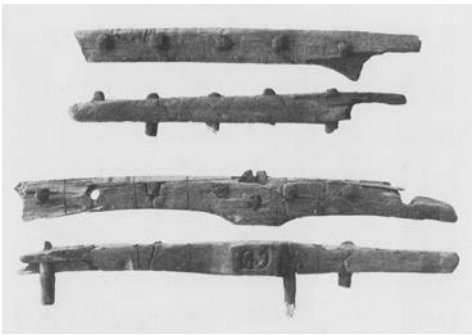


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FIGURE 10. Plate showing finds discussed in the article: 1. Agricultural implements F3, H16, K1, K2, K12; 2. Rakes F4, F; 3. Distaff A5; 4. Flax-bunch F1; 5. Ropes, lime tree bast A18, H19, E2; 6. Chopping block F19, (top) (length 80 cm), curly birch D32 (raw material); 7. Mallet K12 (alder wood); 8. Knife-shaft A17 (curly birch); 9. K11 Wooden lock (swe: lekane) (oak). Photo 1, 2, 6, 9: Holger Arbman by courtesy of Kungliga Vitterhetsakademien, Sweden. Photo 3: Annica Ewing/The Swedish History Museum (SHMM). Photo 4, 7: Peter Sillén/(SHMM). Photo 5: Sara Kusmin/(SHMM). Photo 8: Gabriel Hildebrand/(SHMM).

Olofsson's Evaluation of Skill Visible in Textile Artefacts

1. Find F1, Flax-bunch (see fig. 10). Olofsson interprets that the person (textile artisan) who produced the flax-bunch showed good artisanal knowledge. This level of skill was discerned from the particular choices that the artisan had undertaken during the flax-making process. Processes used in this case were: growing, harvesting, reting and trimming. According to Olofsson, at this point in the process the artisan can stop and gather bunches to sell. If working further, the next steps in the process of preparing flax are: braking, swingling and spinning linen thread, before weaving linen textiles

2. Find A18, H19, E2 (see fig. 10). Ropes of lime tree bast. Olofsson suggests that these ropes were made in different stages of the bast's drying process; fresh bast loses its twist when drying, while dried bast will keep its twist. It may appear that making ropes from dry bast requires greater skill, but if the purpose is to make a rope for one-time use, it can be sufficient to make rope from fresh bast. A good rope for repeated use should be made of dry bast or other fibres. The knowledge evaluated shows good artisanal knowledge in rope making.

3. Find K12, (see fig. 10) Mallet (alder wood). Find K12 seems to be a tool that could be used in the process of textile manufacturing. Olofsson interprets the mallet to be useful when braking flax. Olofsson has a clear view of how she would use this tool in her own work, turning it for different edges for different purposes in the textile process. Olofsson also interprets the mallet to be useful when washing textiles.

4. Find A5, Distaff (see fig. 10). Olofsson interprets find A5 as a possible distaff. Flax is sticky when dampened and will attach to the stick even if it is not designed as find A5. The square form of one end might imply that the stick could have been used as a distaff that was formed to fit a square hole in a plank that the textile artisan could sit on while spinning the flax. This way of working allows the use of both hands while using the spindle. This construction is easy to use in different surroundings—outdoors and indoors—according to Olofsson. Olofsson shows different ways of using a distaff without connecting it to a table or a plank, holding a stick in one hand and the spindle in the other. She also puts the distaff under her upper arm, pressing it to her body which allows the freedom to use both hands during the spinning process. Another alternative is to attach the flax attachment to a belt, also enabling the use of both hands. If the distaff is used in this complex way, the artisan can be interpreted as having *good artisanal knowledge*.

Interviewing a professionally experienced informant

Archaeologists are practitioners as well as theorists. The craft they perform is undoubtedly, to some extent, built on tacit knowledge when investigating an artefact thoroughly or excavating carefully. The archaeologists' techniques, together with their complex understanding of the signs of the soil, are examples of how archaeologists are reaching for new understandings through practice. This is true for other experts too. Farmers, for example, have a lot of different knowledge combined in a kind of practice-theoretic understanding.

In my search for a deeper understanding about artefacts in Käringsjön, I chose to conduct interviews with informants who have the knowledge to answer artisanal-related questions. I conducted an interview with a farmer, as a complement to the interviews with artisans, as a way of increasing my knowledge and to challenge my own former interpretations.

The wide aspects of farming and special artefacts related to farming were in focus for this interview.

Understanding Agricultural Implements and Farming Knowledge

To try to understand the more complex world of farming and toolmaking, and to validate my own interpretations, I wanted to interview an experienced farmer. As a practitioner in a living tradition of (small scale) farming for generations, Kjell Davidsson represents the knowledge that I needed in order to undertake artisanal interpretations of agricultural implements. When discussing the woodwork from Käringsjön, I mainly wanted to discuss Arbman's interpretation of the farm implements, tools and skill. I was also interested in the daily running of farms. By interviewing a farmer, I hoped to gain insights into farming practises that was beyond common artisanal knowledge.

Presentation of the Farming Consultant

Kjell Davidsson has been a farmer for forty-five years. Before working full-time from the age of fifteen, Davidsson was helping his parents in the holidays and during his free time. He considers himself as holding good artisanal knowledge—following a tradition without creating new ways of working. He notes that his father was more of an innovator since he had one of the first tractors in the area. Davidsson describes himself as a farmer who waits for evidence that new technology is working before he takes it up himself, and he does not like to take risks.

Davidsson's Information on Käringsjön's finds

The agricultural implements analysed were made of wood (see fig. 10, number 1). Davidsson says that these are implements that he is able to make himself, if he had to, and that he would be able to make them with artisanal knowledge or, for some of the implements, good artisanal knowledge. The rakes (see fig. 10, number 2) are harder to make and would require more than common farmers' knowledge, according to Davidsson. He assesses that his father, who was good at handicrafts, would have been able to whittle rakes during the winter and maybe sell or trade some;—if he had the interest for such work. Finds D10 (lid) (see fig. 6) and A3 (turned bowl) (see fig. 9) were not made using common farmers' knowledge, Davidsson argues. He suggests that they were made by a fine woodworker as they are much too specialized.

Davidsson describes farming as a very complex kind of knowledge, where one is supposed to know a great deal about a great many things; for Davidsson, that is what makes a farmer a farmer. Davidsson suggests that building houses and making fences are also a farmer's responsibility, and that special woodwork for buildings can be interpreted as being a joint effort between professional woodworkers and farmers. Davidsson says that both carpenting and smithing require knowledge that surpasses the common farmer and that such people would have had artisanal training. Artisans could allocate time to help others out (relatives, neighbours, villages) during harvesting and other work-intense periods of the farming year, and consequently they had insight into the realities of farming.

When discussing the itinerant artisans, Davidsson mentions that knife and scythe (coulter) grinding was performed 'properly' by a knifegrinder once a year; during the rest of the year, a farmer would sharpen their own tools. Tinners (who tinned copper casseroles or pans) walked around the villages doing their craft in exchange for food and a little money, or something they could trade further. Itinerant artisans (for example butchers from the area nearby) carried out slaughtering and dismemberment (primal cutting). 'Everyone is not doing everything' is Davidsson's very short conclusion of this interview. In my concluding discussion I will explore how this information can be useful in the interpretations of agricultural implements at the Käringsjön site.

All participants that were interviewed were able to partake in the summaries of the interviews and to alter any of my misunderstandings. They have approved the presented texts (above).

In what follows, I will interpret the Käringsjön site with reference to all of the information gained from the interviews. This exercise will make visible all kinds of artefacts through an artisanal perspective, taking account of artisans' knowledge in the interpreting process. This will be useful for enhancing archaeological knowledge about craft.

Artisanal Knowledge in the Käringsjön Environment

Is there really more to say about this little tarn in the west of Sweden? Revisiting a well-interpreted site, years after the last publishing, might seem superfluous. As my own research developed into an artisanal perspective that allowed me to reflect upon archaeological approaches that would broaden awareness of particular questions about artisanship (both in prehistory and in the present), it became clear to me that some questions remained unanswered. Why are contemporary artisans not regarded as craft experts? Is it not possible to consult artisans when discussing or interpreting techniques used by prehistoric artisans in the same field of expertise? Is there not more to say about the artefacts?

The ambition of this research was to give new answers about skill and crafting through artisanal interpretations and to illuminate society and social relations of the past through the artisanal perspective. This will hopefully give openings for other scholars who might wish to try this path.

INTERPRETATION

Using my own former evaluation of ceramic finds in Käringsjön as a starting point (Botwid, 2009b: p. 44), I was striving, in this exploration, to make evaluations of wooden and textile craft and to extract farming aspects from the site, by consulting artisans. The results of the inteviews were crucial to create an empiric ground for the archaeological interpretations. New information was achieved by this exploration, thus increasing the understanding of how the ancient people may have lived their (artisanal) lives. It seems clear that Käringsjön had a strong artisanal community in the area. They were probably living in the nearby settlements (see fig. 3). The tarn was used for 200–300 years (200–400 AD)(Carlie, 2009a), and the artefacts excavated show how all levels of skill are represented (see Botwid, Brandstedt, Olofsson, and Davidsson, above).

There is evidence of organized work in the tarn—actions that required time and effort, and cooperation between people. For example, a pier and a platform of about 2 × 2 meters was constructed from stones and cut timber. Such activities were undertaken to prepare the area for planned actions, which enhances the understanding of its importance in this prehistoric society.

Alongside the accumulation of the rich array of artefacts for which the tarn is famed, there are other activities to be traced in the well-documented excavation. For example stones can be interpreted to have been thrown from the shores or from the platform for sound effects (Hydén, 2014), whilst quartz pebbles may have been used for sparkling effects for festivities (Arbman, 1945: p. 103). These actions may be connected either to specific understanding or to common understanding, depending on if everyone participated or if the actions were only for initiated members of the community. I suggest that such collective work and activities are expressions of collective understanding (see 1.3.1).

Artisans from this area also had enough knowledge to solve all daily and domestic needs within their own group. Material was grown or taken from the nearby surroundings close to the settlements. Harvesting and preparing bast of lime trees was known, although lime trees were probably uncommon in the area (Björkman, 2009: p. 201). Finds of rope showed that rope making or twining was known; in the tarn there are preserved ropes in different sizes and qualities (see the evaluation of lime tree bast ropes given by Olofsson, above, concerning finds A18, H19, E2). According to Arbman, sunken and decomposed artefacts tied with ropes (finds A18 and H19) could indicate the use of boats on the tarn (Arbman, 1945: p. 108). The use of canoes or other kinds of small boats would require knowledge of boat-building. As the wooden artefacts testify, artisans had good artisanal knowledge, and in turn, this might support Arbman's interpretation that boat-buildning may have been known in the area. This possibility would have allowed residents to travel by boat to other areas, opening up contact with people in a wider geographic region. Artisans could probably leave the settlement to work or visit others, thus developing their skill and knowledge. This could account for the long-distance influences in some of the ceramic vessels.

I suggest that those who went to Käringsjön from surrounding settlements were, for different reasons, linked to a wider understanding of artisanal knowledge. Some had a collective understanding of craft while others had a deeper, specific understanding of particular crafts. Artisanal knowledge was adopted in various ways, for example by learning from relatives in situations resembling so-called situated learning or peripheral participation (Lave and Wenger, 2005). Artisans that visited the settlements could easily work together with artisans living in the existing artisanal environment. Journey travelling and itinerant artisans could have been living contact-links to new techniques from other regions.

CERAMIC CRAFT

Ceramists in Käringsjön's surrounding settlements performed their craft with a high level of skill evaluated to good artisanal knowledge and professional artisanal skill, and some were

even outstanding in performing their craft in domestic ware (see fig. 4, H21). There were also examples present of the lowest level of skill, artisanal knowledge, from both bigger storing pots (H26, H27) and fine-ware (A6, L3) in the tarn (see fig. 4). The forming techniques were complex and the firings were well performed. Ceramic artefacts that had features from other ceramic traditions were regarded by Arbman as imports from different sites in Europe (Arbman, 1945: pp. 43–60, p. 175). Later, after petrographic analysis, these were proven to consist of local clay (Stilborg, 2009). Local artisans with this level of knowledge would easily adapt to new techniques, and so-called imported artefacts may have been manufactured by local artisans who were inspired to make pots with foreign design features.

Artefacts made in connection with foreign artisans (or foreign objects) can give a sense of hybridization by cultural choices, showing an urge to connect to other artisans or to other traditions (Ekengren, 2009: pp. 24–30). In Käringsjön's material especially the ceramic artefacts visualizes these kinds of cross-cultural expressions (see fig. 4, finds: L1, M1, K101, K102, G21, E3, and D23). These finds could be regarded as cultural hybrids.

In a strictly technical sense, I argue that ceramic hybrids should consist of local clay, crafted by a foreign artisan with no cross-cultural expression. If some features from the local craft expression are incorporated in the form, I interpret the foreign artisan as an individual wishing to create social connections to local artisans in the group, or that a local artisan was crafting the hybrid.

WOODCRAFT

Woodworkers from the area were competent and had good knowledge about different types of wood and their usability. Curly birch, for example, was used because of its firmness, its specific surface and its rarity. Complex techniques such as turning and splitting were used at the level of good artisanal knowledge. The decorated wooden lid (see fig. 6, D10) was made from an ash plank using the splitting technique. This gives the woodworker a very thin plate without the use of a plane tool, and the technique requires about five years to master. Turning with an ancient lathe is, according to Brandstedt, not as complex as the splitting technique and takes approximately four years to accomplish. During the interview Brandstedt demonstrated how the perfect circles on the lid (see fig. 6, D10) were made. Using an old type of drill and a light hand, the circular marks were easily engraved onto the wood. As a decorative imprint the perfect concentric circles are not uncommon, and marks as these can be seen on bone (Müller-Karpe, 1957: p. 35), wood, ceramics, and metal (Müller, 1933: p. 72, pp. 85–86, and fig. 108). I propose that the old type of drill was used as a design tool and would thus have had a broad usability in various crafts. Aside from the work with wooden artefacts, woodworkers' knowledge was important in all aspects of daily life in a farming community.

TEXTILE CRAFT

Textile artisans in the Käringsjön area knew the stages in manufacturing linen. They were familiar with growing, harvesting, and preparing flax, and were using tools such as linen-mallets and flax attachments. Different ways of fastening the flax attachment may have been in use (Olofsson, above) so it is possible to expect that knowledge of spinning thread and making yarn was known. The evidence shows that textile artisans had a good artisanal knowledge of the process indicating that the artisans had a good grasp of textile technologies. No textile remains were found and therefore it is not possible to understand or evaluate textiles. Mobile constructions allowed the textile artisan to work flexibly and to take the craft elsewhere. Consequently, textile artisans had the possibility to work as itinerants.

Conclusions

My former articles and interpretations are based on my own tacit knowledge and my own skill. Conducting interviews with artisans in other crafts proved to be useful when doing in-depth validation of skill and artisanal life. Specific understanding was shown in the way the informants were able to evaluate the time and effort it would take to produce artefacts. Thoughts about the artisans' close relations to, and emotions concerning, their own artisanal equipment and tools were illuminated, for example the importance of a contemporary woodworker's chopping block.

Archaeological artefacts themselves contain information and knowledge about the skills and crafts that were a part of daily activities. It is obvious that the collective allowed everyone to take part in the making of ceramic artefacts as all levels of skill were represented in the tarn. Ceramics were manufactured with a high level of skill as evidenced by a coarse household vessel that was interpreted as having been made by someone who possessed the level of professional artisanal skill. At the same time, a beginner or a less-skilled ceramist could manufacture fine-ware artefacts (see fig. 4).

This circumstance indicates that the lower level of skill present in some of the ancient artisans' manufactured material was not a hindrance; these artefacts were still placed in the tarn alongside more professional pieces.

The interview conducted with a professional and experienced informant (Davidsson, above) support the idea that specially trained members of the population performed some work or crafts. Davidsson puts forward that a farmer has a broad knowledge and a hard and time-consuming work. The specific knowledges of turning wood, making linen, or producing a fine-ware pot were not in a full-time farmer's list of chores. If a farmer needed something special like a pot or a wooden box, (s)he would turn to an artisan with the specific knowledge and the tools and work-space for such a task. The artisan lived in the group as an expert in his or her artisanal arena, supporting the group with the items needed and as a resource in farming. An artisan had access to some form of education from a skilled person or went to other regions to learn a craft. Dissemination of knowledge is visible in those artefactual forms that have features from outside places, such as Jutland, Roman provinces, Lausitz or Scania, but which are created from the local clay (Arbman, 1945; Stilborg, 2009).

Ceramic finds from Käringsjön support the idea of travelling artisans. The ideas of design may have arrived with artefacts, or from visiting artisans or local artisans travelling for some time who had picked up ideas about form and techniques that were later applied and visualized in the Käringsjön tarn. To live in the settlements nearby to Käringsjön was actually to live in an artisanal environment and to take part in actions deeply connected to embodied knowledge.

Concluding remarks

Mental perceptions and understandings of ancient worlds are created by archaeologists, and reproducing each other's interpretations is a part of our profession. As human beings we want to understand others, and we have the right to our own view as it is a vital part of the creative process of archaeological interpretation. Problems occur when explanations and interpretations are not connected to empirical investigations and to actual artefacts. The artisanal perspective does not offer all answers. Why, for instance, is the flax stick put beside the wooden box lid? Why are the small quartz pebbles placed carefully around a bigger stone, and why does a rope of lime bast fasten around a stone? Why is a piece of rope put inside a ceramic vessel, and why are small stones put in the big vessels? Why did some vessels need a hole made after the firing? The proposed concepts of collective and/or specific understanding can be useful in such reflections. Answers can be derived from other archaeological fields.

An artisanal perspective enhances knowledge both through and about craftsmanship. In this matter I want to contribute to those endeavours which are approaching more balanced explorations of craftsmanship, such as that called for by Maikel Kuijpers (Kuijpers, 2012: p. 147).

Gathering groups of archaeologists and artisans together to explore a number of artefacts can provide an unexpected impetus to further dicussions and interpretation. Reflections and understanding of artisanal environments in different contexts can benefit from all the diverse knowledge(s) in action. This interdisciplinary way of working had to be tried out when calling for new perspectives, and linking archaeology to the artisanal arena of practiced knowledge has succeeded in yielding results that neither of the two disciplines could bring out alone. I hope to inspire others to interesting and fruitful collaborations between artisans and archaeologists in the future.

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Arbman H (1945) *Käringsjön: studier i halländsk järnålder*. Stockholm: Wahlström & Widstrand.

Berggren Å (2009) Offerbegreppet i arkeologin: tolkningar och perspektiv. Utskrift (Halmstad) Halmstad: Uppdragsverksamheten, Stiftelsen Hallands länsmuseer, 1991–.

Berggren Å (2010) *Med kärret som källa: om begreppen offer och ritual inom arkeologin*. Lund: Nordic Academic Press.

Björklund L-E (2008) *Från novis till expert: förtrogenhetskunskap i kognitiv och didaktisk belysning*, Norrköping: Nationella forskarskolan i naturvetenskapernas och teknikens didaktik (FontD).

Björkman L (2009) Vegetationsutveckling och markanvändning vid Käringsjön i Halland från neolitikum till tidig medeltid. Utskrift (Halmstad) Halmstad: Uppdragsverksamheten, Stiftelsen Hallands länsmuseer, 1991–.

Botwid K (2009a) *Från Skärva till helhet*. Bachelor Thesis, Högskolan på Gotland HGO, Sweden.

Botwid K (2009b) *Offrad Keramik*. Master Thesis, Högskolan på Gotland HGO, Sweden.

Botwid K (2013) Evaluation of ceramics: professional artisanship as a tool for archaeological interpretation. *Journal of Nordic Archaeological Science* volume 18:31–44.

Botwid K (2014) Från hand till hand – arkeologisk forskning ur ett hantverksperspektiv. *Att befolka det förflutna: fem artiklar om hur vi kan synliggöra människan och hennes handlingar i arkeologiskt material.* (Nordic TAG conference 2011 at Linné University in Kalmar).

Bryman A (2012) *Social research methods.* Oxford: Oxford University Press.

Budden S (2008) *Skill amongst the sherds: understanding the role of skill in the early to late Middle Bronze Age in Hungary*. Oxford: Archaeopress.

Budden S and Sofaer J (2009) Non-discursive Knowledge and the Construction of Identity Potters, Potting and Performance at the Bronze Age Tell of Százhalombatta, Hungary. *Cambridge Archaeological Journal* 19:203–220.

Carlie A (1998) Käringsjön: a fertility sacrificial site from the Late Roman Iron Age in south-west Sweden. Current Swedish archaeology. Stockholm: Swedish Archaeological Society [Svenska arkeologiska samfundet], [1993].

Carlie A (2001) *Fosfatkartering och provundersökning vid Käringsjön, södra Halland: Halland, Övraby socken, Älvasjö 1:1, 1:2 m. fl., RAÄ 18,* Halmstad: Stiftelsen Hallands länsmuseer.

Carlie A (2003) *Från maglemose till senmedeltid: nya perspektiv på Käringsjön i södra Halland: Halland, Övraby socken, Älvasjö 1:1, 1:2 m. fl, Raä 18*. Halmstad: Hallands länsmuseer.

Carlie A (2009a) Käringsjön – en av järnålderns rituella platser: inledande kommentarer kring boken och projektet. Utskrift (Halmstad) Halmstad: Uppdragsverksamheten, Stiftelsen Hallands länsmuseer, 1991–.

Carlie A (2009b) Käringsjön: en gammal fyndplats i ny belysning. Utskrift (Halmstad) Halmstad: Uppdragsverksamheten, Stiftelsen Hallands länsmuseer, 1991–.

Ekengren F (2009) *Ritualization – hybridization – fragmentation: the mutability of Roman vessels in Germania Magna AD 1–400,* Lund: [Institutionen för arkeologi och antikens historia, Lunds universitet].

Goldhahn J and Østigård T (2007) *Rituelle spesialister i bronse- og jernalderen,* Göteborg: Institutionen för arkeologi och antikens kultur, Göteborgs universitet.

Gustavsson B (2002) *Vad är kunskap?: en diskussion om praktisk och teoretisk kunskap,* Stockholm: Statens skolverk.

Habbe Y (1995) Käringsjön – en offerplats av kvinnlig kaliber. *Högskolan på Gotland.* Stockholms Universitet.
Hodder I (1982) *Symbols in action: ethnoarchaeological studies of material culture,* Cambridge: Cambridge University Press.
Hydén S (2014) Personal Communication 2014.
Kuijpers M (2012) The sound of fire, taste of copper, feel of bronze, and colours of the cast: sensory aspects of metalworking technology. In: Stig Sørensen ML and Rebay-Salisbury K (eds) *Embodied knowledge: perspectives on belief and technology.* Oxford: Oxbow.
Lave J and Wenger E (2005) *Situated learning: legitimate peripheral participation.* Cambridge: Cambridge University Press.
Molander B (1996) *Kunskap i handling.* Göteborg: Daidalos.
Müller S (1933) *Oldtidens kunst i Danmark. 3, Jernalderens kunst i Danmark: førromersk og romersk tid = L'art de l'âge du fer au Danemark: époque préromaine et romaine,* København.
Müller-Karpe H (1957) *Münchener Urnenfelder: ein Katalog.* Kallmünz, Opf.: M. Lassleben.
Pye D (1995) *The nature and art of workmanship.* London: Herbert.
Stilborg O (2009) Vid vatten, sten och jord: studier av keramikoffer vid Käringsjön och andra lokaliteter i Halland och Östergötland. Utskrift (Halmstad) Halmstad: Uppdragsverksamheten, Stiftelsen Hallands länsmuseer, 1991.
Tempte T (1997) *Lilla arbetets ära: om hantverk, arbete, några rekonstruerade verktyg och maskiner.* Stockholm: Carlsson.
Vincentelli M. (2004) *Women potters: transforming traditions.* New Brunswick, N.J.: Rutgers University Press.
Wordsworth (1993) *Wordsworth.* Basingstoke: Macmillan.

Paper 4

Understanding Bronze Age Life at Pryssgården (LBA) in Sweden: From an Artisanal Perspective

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Pryssgården in Norrköping is one of the larger ancient settlements in Sweden. People lived and worked here from the Stone Age until medieval times and live and work here still. In this article, the area and the archaeological questions surrounding it will be examined and discussed from an artisanal perspective.

By re-examining the material from the excavations in Pryssgården from the perspective of artisanal expertise, new questions are both asked and answered. The investigation focuses primarily on the extensive ceramic material, and thus, the people crafting the clay.

Manuscript: Katarina Botwid
Translation: Carole Gillis

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Foreword

The further back in time we go, the lesser the chances of understanding and making correct interpretations about people living then. Our ability to take part in the lives of prehistoric humans ranges from historical texts full of facts, quasi-facts and everyday information through living narrative traditions telling us perhaps more about ways of thinking than about facts, and down to distant times where we no longer have any words from that time to describe what remains today—all that remains are the bits and pieces that are left of their lives, with no one to interpret for us.

The finds are there along with the previous research. Archaeologists must not follow this earlier research slavishy, but must be open and fair and not reject it out of hand either. Many research projects are of excellent quality and are representative of their time. To not use earlier research simply because times and ideas change would be essentially to "throw out the baby with the bathwater". I am often both horrified and delighted by some of the texts I review. And such will be the case with this text, in a hundred years—that it is completely typical for its period. It is perhaps time now to pay attention to practical knowledge held by ancient peoples and groups. It is more common that historical research is conducted on practical knowledge: there are texts about guilds, their social and financial systems, ideas about a market, a buyer, and surplus.

Today, consumerism is so prevalent that we have a difficult time thinking about anything without using economic terms. What needs did *production* fill? What did we *gain* by being extremely skilled? What was the *cost* for the group to allow someone to become so knowledgeable? What was the artisan's *status*? Was production a *surplus*? What *resources* were required?

That we use rhetoric from our own time is not wrong, but I believe it can be a trap. Words shape our perceptions of people. We can perhaps avoid transferring our own economic structures onto the people of prehistoric times.

I have no objection to our transferring our human abilities—the ability to create relationships, situations and societies. However, if we use our modern economic terms, then I believe they should be thoroughly considered and employed only where they are relevant. The prehistoric period I will be examining here is primarily the Late Bronze Age and the transition to the Early Iron Age and will focus on the past from an artisanal perspective.

1

Pryssgården in Östergötland – People Lived Here

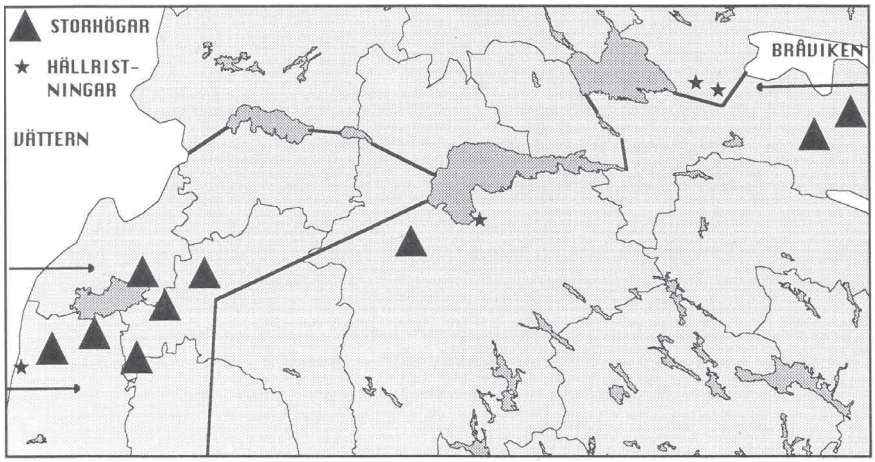
FIGURE 1. Pryssgården's location in Östergötland. (Map RAÄ 2002)

Pryssgården is located within the modern city of Norrköping, not quite fifty kilometers from Sweden's east coast (fig. 1). The settlement is adjacent to Bråviken's innermost bay. Bråviken cuts into the coastal landscape, and via the waterways that pass Pryssgården, it is possible to go by way of Glan Lake to Roxen Lake and on through the natural Motala channel out into Lake Vättern.

From western Östergötland, which had been cultivated as early as the Neolithic period, agriculture continued to spread toward the east during the Bronze Age (Larsson 1994:9).

This easterly direction may be a change indicative of a lifestyle shift that developed with the introduction and propagation of bronze. Larsson shows how even burial customs moved from west to east, and fig. 2 clearly shows how the spread of stone cists moved in the same direction (Larsson 1994:13).

The 1600 petroglyphs at Himmelstalund and other carvings such as those at Ekenberg, Leonardsberg, Fiskeby and Klockartorpet are located near Pryssgården (Lindgren-Hertz 1998). The carvings are clear examples of how activity increased in that area. People lived there from the Neolithic period until the Early Middle Ages (Borna-Ahlkvist et al. 1998:147–148). People still live here—people who have a relation with the land, whatever the season. When the new motorway was to be built and the area was excavated in 1993–4, its archaeological riches came



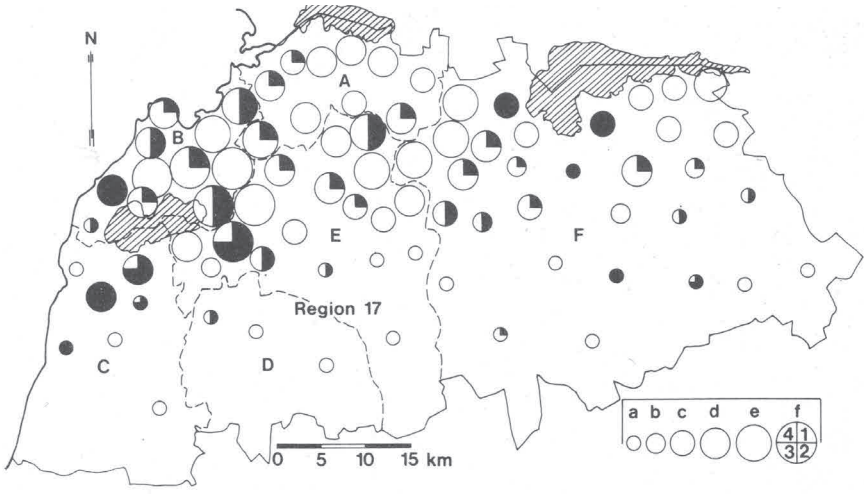


FIGURE 2. The upper map shows the general spread of stone cists in Östergötland, and the lower, the degree of cultivation and density of finds from the Bronze Age in the central parts of Östergötland (Larsson 1994:9 and 14).

to light. For a short time, the ancient people who had dwelt there—particularly those from the Bronze Age—were in the spotlight. Now there is asphalt where once the excavations revealed a surprisingly large and well-populated settlement.

1.1 Pryssgården and Archaeology

The substantial archaeological material from the excavations is well documented and has been extensively studied. The report from the final investigation, RAÄ 166 and 167, "Pryssgården – from the Stone Age to the Middle Ages", is the documentation that enables us to understand the full potential of the finds and the excavation area. The report is comprehensive, with multiple appendices containing scientific analyses, an ample collection of cartographic information, and expert opinions on finds and behaviours (Borna-Ahlkvist et al. 1998). In the report, Lena Lindgren-Hertz has expanded the analysis of pits and pit systems (Lindgren-Hertz 1998:72–102), Hélène Borna-Ahlkvist has analysed and categorised houses and types of houses and examined the chronology of the houses, and Ulf Stålbom has focused on the analysis of the (primarily) pottery finds. Stålbom made a local chronology for the ceramic materials, dated them and determined their functions. He then proceeded to work on a number of articles and texts where he looked in-depth at the finds and their interpretations (Stålbom, 1995; Stålbom, 1997).[1]

The dissertation *Hällristarnas hem* (The Rock-carvers' Home) by Hélène Borna-Ahlkvist examines the settlement patterns in Pryssgården, and she presents a method based on the smallest unit in a settlement: the individual household. The reasoning and interpretations are supported by a thorough microanalysis of the larger settlement, where 90 different house remains can be distinguished (Borna-Ahlkvist 2002:126ff).

To be able to archaeologically show settlement continuity from the Neolithic period to the early Middle Ages and even beyond up to contemporary buildings, as we can in the case of Pryssgården, is rather unusual. Borna-Ahlkvist discusses the social construct of "belonging to a house" as a fundamental part of her interpretation. She also examines the various viewpoints in previous research regarding how farms and villages can change over time and discusses, in contrast to earlier

1 I owe much to the work of Ulf Stålbom († 1958 to 1999). His very untimely death was a great loss not only to his family but to the world of Swedish archaeology.

interpretations (see Borna-Ahlkvist for the cited literature), how farms during the Late Bronze Age can consist of very different building traditions, and that the division into Late Bronze Age–Early Iron Age cannot be interpreted as strictly as it often has been up to this point. She further claims that the lay-out of houses and farms depended on various needs, and that there is still insufficient knowledge about the shaping and variation of Bronze Age societies. She concludes that Pryssgården in specific had a fixed farm structure (Borna-Ahlkvist 2002:170–171). Later excavations in the area support the interpretation that Pryssgården was a part of a larger settlement at that site from the Bronze Age. A further five buildings, two longhouses west of Pryssgården (4 and 5), and smaller buildings east of the settlement (1, 2 and 3) were excavated in 1996 (see fig. 3). These were all dated to the Late Bronze Age (Nilsson 2005:10–19), but will not be discussed in my analysis other than as a part of the overall picture of the area.

Farther east, an excavation was carried out at Rambodal (2009), not quite ten kilometers east of Pryssgården, where another Bronze Age settlement came to light. There was a longhouse with a three-aisled hall (A200369) and a smaller four-pillar house (house 3, site number missing), plus a pit house (A1225). The buildings belong to a time spanning from the Late Bronze Age to the transition to Early Iron Age, and relatively large quantities of pottery have been found (Nyberg and Nilsson, 2012:13–21) that were later published and discussed in-depth by Ole Stilborg in his article "Rambodal i Norrköping: om keramik och identitet under den yngre bronsåldern" (Rambodal in Norrköping: About pottery and identities during the Late Bronze Age) in *Fornvännen* in 2014 (109). Stilborg discusses the similarities and differences in the pottery over a wider area and compares artefacts from Rambodal with Pryssgården's area E2 in Norrköping. Comparisons were also made with Ryssgärdet in central Uppland and the Scanian Bronze Age settlements near Glumslöv and Kristineberg (Stilborg, 2014). He finds that there is a lot of similarity, but also local differences that make it possible to determine a northern boundary in the particular expression of the ceramics around the level of Uppland, and southern areas down toward Scania. Stilborg determines, however, that the pottery from the Middle and Late Bronze Ages correspond surprisingly well with that in southern and central Sweden (Stilborg, 2014:172–177). Stilborg's interpretations will be discussed again in the section "Petroglyphs, Mobility and Transit Sites". The following section presents ideas about how crafting at Pryssgården can be examined and which questions I will put to the material in this study.

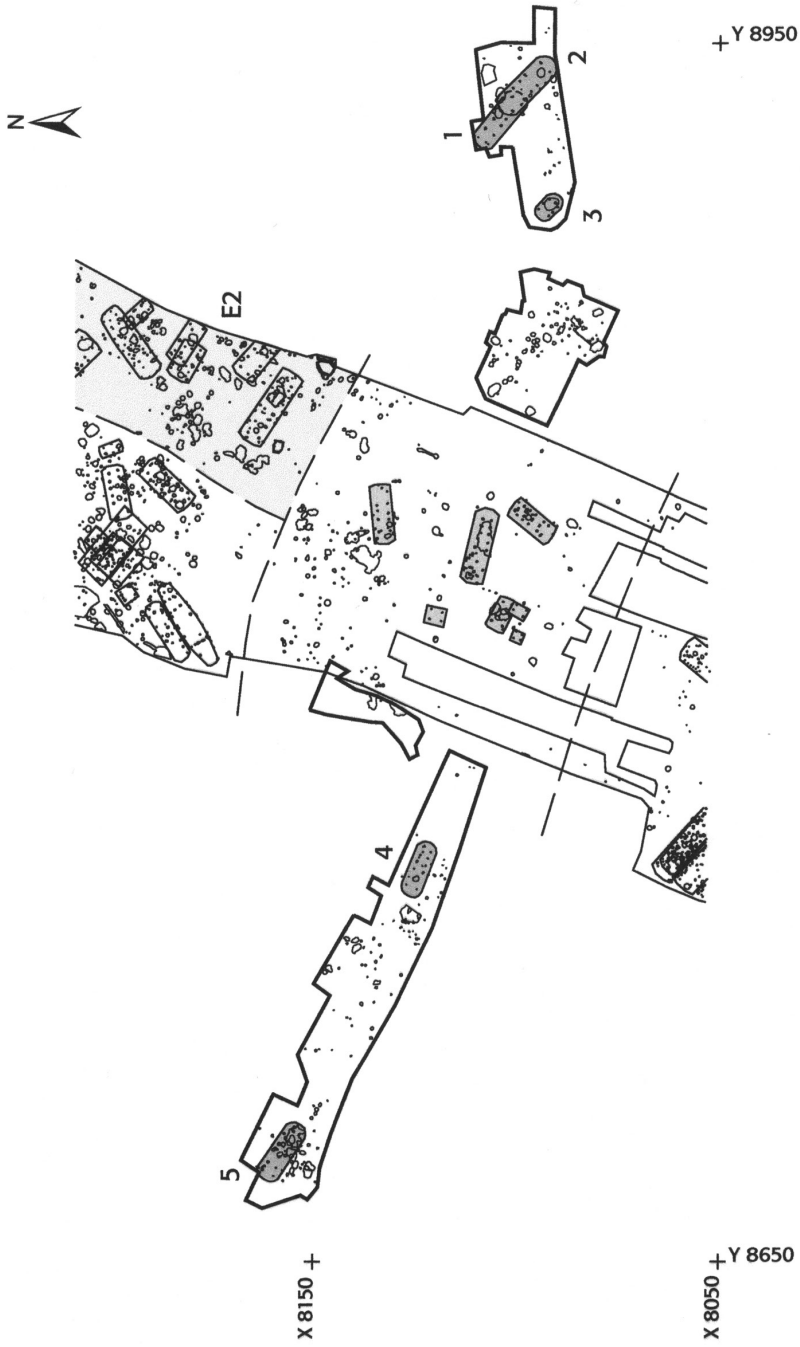


FIGURE 3. The parts of Pryssgården that completed the picture of it as a part of a larger Bronze Age settlement. Buildings 1–3 east of, and 4–5 west of the earlier excavated site are dated to the Late Bronze Age (Nilsson 2005:10–19).

1.2 Pryssgården and the Crafting

How people live is crucial for determining how different crafts can be categorised. I pose several questions that are vital for a better understanding of the day-to-day workings of Pryssgården's prehistoric settlement during the Late Bronze Age. If and when the questions receive answers, a more comprehensive image can emerge: my goal is to broaden that image from an artisanal perspective.

These questions are as follows: how skilled were the artisans? How did they work with crafts in this area? With regards to ceramics in particular, the questions are equally important: is it possible to see how craft skills were used and expressed in the social continuity shown by the Pryssgården material? And finally in this section: based on pottery production, is it possible to determine contact with the outside world?

The questions posed above form the basis of my study of the 7100 finds of ceramics registered at the excavation of RAÄ 166 and 167 Östra Eneby parish in the municipality of Norrköping during 1993–1994. The total weight of the ceramic finds was 128 kg, which was then and still is now the largest ceramic find in Östergötland. The interdisciplinary analysis that will be performed is based on my own knowledge, with my Master's degree and background in ceramics (HDK – School of Design and Crafts University of Gothenburg 1997) and in archaeology (Uppsala University-Campus Gotland 2009). With this basis for my research, I will present a new archaeological analysis which builds on knowledge both theoretical and experiential from each of these two fields. In the analysis, I focus first on determining which level of artisanal skill each find represents. An interpretation of artisanal skill can answer questions about the society's social and/or economic structures. For example, it is possible to ask whether the importance of the level of competency is driven by demand—artisans who must work according to future requirements might not have the same ability to spend a lot of hours achieving the perfection they would otherwise desire. Another example could be that time, opportunity and materials are given the artisan because someone in a position of status intends to use the artisan to augment this status (see the discussion about "aggrandizers" in Olausson 2008:20–50). It is possible to clearly determine whether artisanal skill is important in the production of a particular artifact group, or whether all artifact groups exhibit varying levels of skill in their execution (see 3.1.3). If there are differences, one can ask why that might be the case.

Following the analysis of the skill level of the artisan, my work will touch on the household , followed by an examination of the position of pottery making within the farmhouse and in the various smaller buildings

on the farm used for production, storage and various chores. Artisanal interpretations of ceramics are independent of classification or categorisation of finds, something which can provide new angles on how ceramics can be used as a resource in the field of archaeology. The activity areas of a selected farm location will be divided up and interpreted with regard to the production of ceramics. In addition, I will discuss other crafts, climate and environment. Daily life and tasks on the farm will be described with regard to different seasons for different activities. Limitations and choices artisans make can provide vital information and permit interpretations of the *specific horizons of understanding* for crafts that were possibly active at the site. *Specific horizons of understand* is the collective idea of practical as well as social and cultural contexts that are part of a specific *smaller group* during a specific time, in this case, artisans. What was generally viewed as clear to everyone, of course, went by the term *general horizons of understanding* (Botwid 2015). Through using these two horizons of understanding, it becomes more obvious, in my opinion, what can be interpreted as hidden knowledge (i.e., knowledge held by a select few) and as open knowledge (i.e., knowledge that everyone knows, even if they are unaware of all the details) in an historical context. One example of general knowledge is that even if I am not a blacksmith, I know what a blacksmith makes and what those objects are used for. The specific knowledge about smithing and all its nuances and complexity is something the blacksmith shares with other smiths.

2

Method and Analysis

In this section, method, perspective and the artisan's interpretive analysis will be presented. Analysis, in this case, refers to the examination of the artisanal skill that is possible to observe in the ceramic artefacts. These analyses create a starting point for interpretations on how the artisanal skills at Pryssgården were distributed. The entire recovered quantity of ceramics, which amounts to 128 kg, was composed of c. 7100 individual finds all coming from objects deemed to be made of clay and are thereby included in the category of ceramics. Special artisanal characteristics will be shown in pottery finds in order to illustrate various crafting traditions that existed in this area. The main focus, however, will be on those finds that were examined for their technical skill, amounting to 349 pieces. Some of the finds that have deviations or are of especial interest will be interpreted and discussed in relation to the otherwise more usual finds. It will be interesting to see how the site and the artisans affected or were affected by the location of Pryssgården.

2.1 Method of Artisanal Interpretation

The artisanal interpretation method is based on the fact that the author has practical knowledge of the subject (see below). Working practically is something common to most people. Our daily lives include many practical tasks, perhaps especially within the private sphere with its daily work in the home and its leisure activities. Many also work practically in their professional lives. *Practical knowledge* is absolutely necessary in our lives, and is viewed as completely natural. In research, there are several subjects that attempt to describe such knowledge, particularly in the areas of epistemological philosophy and cognitive sciences, but also in such subjects as medicine and health care, where an expanding part of the research is focused on the ideas of practical work and tacit knowledge (Bornemark & Svenaeus 2009). Tacit knowledge is knowledge that comes with the body's perception of its surroundings (Polanyi 1966:40). The ability to observe and understand with one's senses does not include using words until we try to find verbal ways to describe this sensory awareness to other people. Polanyi uses the theory that *we know more than we can say* when he discusses tacit knowledge (1966:27). In many ways, this thought touches on the practical side of a craft. The action itself (in real time) is difficult to express, but it can still be possible to reconstruct actions after the fact. Within research fields, practical knowledge is also known as practical wisdom, the intelligent hand, knowledge in action, tacit knowledge, and embodied knowledge (Pye 1978:4–8; Molander 2002:33–56; Gustavsson 2002:88–90). The idea here is to describe the competence

FIGURE 4. Artisanal interpretation of a stock pot. The vessel's artisanal skill level is perceived with the artisan's own knowledge as a tool. Photo Katarina Botwid.

of the body—through, and along with, practical intellect—to result in things (Björklund 2008:24). It takes practice and time to achieve competence or knowledge. The levels are described in epistemological philosophy and technology, the latter divided into *two* parts: the most skilled and the rest of the practitioners (see aforementioned authors). My method uses practical knowledge as an analysis tool: in the coming section, I will attempt to describe how this method works.

2.1.1 Artisanal Interpretation

The artisanal interpretation method assumes that an experience-based expert in that field is analysing how an artifact is made. This means that an artisan with extensive experience and good knowledge of the craft is called an expert (Collins 2014:64). The term *artisanal interpretation* was first used in my method-developing Bachelor's thesis *Från skärva till helhet* (2009a), and then further tested in several other works such as my Master's thesis *Offrad keramik* (2009b) and archaeological reports, but the definition is primarily discussed in *Evaluation of ceramics* from 2013 (Botwid 2013:32–34). I have now advanced the development of the method so that more experts can make use of it and consult on matters that build on their practical artisanal knowledge in interpretation of artefacts from various categories of materials. In the article *Visible craft* (submitted: Journal of Material Culture 2015), I demonstrate how a further examination of the finds reported and interpreted in *Holger Arbmans Käringsjön – en studie i Halländsk järnålder* from 1945 can contribute to new information through artisanal perspective. The finds and their contexts are also discussed by other researchers, primarily Anne Carlie, who worked with Käringsjönsmosse for more than ten years (Carlie 1998, 2000a, 2000b, 2003a, 2003b, 2009).

Several experts (within the craft) are also part of the new *artisanal interpretation* of finds from Käringsjön, and I, as an archaeologist, am making new interpretations for the entire amount of find material. It is in this way, in my opinion, that the archaeological interpretation of an object is made with a greater awareness of the artisanal processes that the item underwent before it was preserved in its final context as an archaeological find.

2.1.2 Description of the Method

The expert examines the artifact through the lens of his or her experience-based, tacit knowledge (see fig. 4). The artifact is then given a ranking based on the assessed level of skill needed/used in its production.

These skill levels used for artisanal interpretation stem from how practical skills can be learned and then expressed in a material. The object with its various characteristics can be ranked according to different skill levels by judging the technical details of how it was created (Botwid 2013:31–44). In the development of the *artisanal interpretation* method (adapted for use and application in archaeological analyses of crafts), I divided this practical knowledge into *three* parts, where, unlike the theoretical divisions mentioned above (dividing tacit knowledge in two levels) I defined a *third* level. This third part—beginners and less skilled artisans—was placed on a level where the practitioner had the least skill and knowledge of technique. I believe that low skill level becomes invisible when only a two-part division is used (Botwid 2013). By categorising and analysing even low artisanal-technical skill level, society's various cultural or social aspects, as well as its technological needs, can be traced. Learning processes and places for learning become visible when using a three-part division, which gives the method a greater usefulness. Artisanal interpretation contributes nothing more about the craft than the skill level visible in the artifact. Unlike other assessment methods (Budden & Sofaer 2009), contextual circumstances, or esthetic or societal values (Kuipers 2014) are not included in the evaluation. My model is applicable to most crafts and is based on what the body's own ability, regardless of material, time or circumstances, can achieve. I propose that it is possible to evaluate degrees of skill level in the three divisions presented below in all practical operations, and am working to test them on materials other than ceramics (see below) (Botwid 2015 submitted). Its generality makes it possible to prevent the scales from becoming relative. The analysis model results in the possibility of larger studies being made, and it becomes possible to compare artisanal skill levels among *different* crafts through time and geographical distance. The levels are not bound to one particular type of craft. It is important to point out that an artisan can create on several different levels of skill depending on the situation or intent.

2.1.3 The Three Skill Levels

The three levels that make up the observable evaluation criteria are as follows:

> *Professional artisanal skill*: The artifact demonstrates the very highest level of skill. At this level, the artisan is not afraid to take risks or develop new techniques. Technical procedures that push the boundaries of the material are not uncommon at this level.

Good artisanal knowledge: The artifact shows that the person who made it has a broad knowledge of the craft. A high level of skill can be achieved at this level. The artifact is made in such a way that production is not jeopardised, meaning the technique keeps within the boundaries of the artisanal-technical framework.

Artisanal knowledge: The artifact created with artisanal knowledge demonstrates a low level of knowledge and poor technical results. They are made by beginners or by artisans who simply lack skill or follow only clearly given instructions.

2.2 Artisanal Interpretation of Ceramics

In the artisanal interpretation of ceramic artefacts, the expert uses his/her senses, primarily vision, hearing, and touch, along with his/her experience of the craft in order to study how the vessel was created. Parameters included in pottery investigations performed by experts are as follows: weight, balance, structural integrity, size, thickness of vessels walls, amount of temper, manufacturing process and artisanal quality, selection of material, firing method and temperature, surface treatment, and decoration (Botwid 2009a & b, 2013:31–44, Budden & Soafer 2009:10).

After this is a total evaluation of the artifact based on technological knowledge that results in an assessment of the ancient artisans' work. The artifact can then be placed in one of the three defined skill levels. The three levels can be determined through the artisanal interpretation method: the various parameters mentioned above, with regard to pottery, have been "fired" into the artifact and can be viewed as a series of moments frozen in time. In the next section, following the evaluation of the literature and description of the material, Pryssgården's ceramic material will be examined with respect to its artisanal skill.

2.3 Material Description and Evaluation of Literature

The ceramic material from Pryssgården is sorted according to the contexts of the original study: thus, all the find categories are found in the crates and boxes belonging to each discovery area. Not all the crates have context information, however. The list of finds has no registered dating: any finds that I can date are those which were put into the report (Borna-Ahlkvist et al. 1998), or in Borna-Ahlkvist's dissertation (2002). Neither in the report nor in Appendices I–III is it clear whether the

feature number is connected to the plans, which makes it more difficult to answer questions such as how the various features indicated on the plan can be interpreted as belonging to a craft. A likely explanation for this is that during the transition from analog to digital field documentation of archaeological examinations in the 1990s, different methods and systems were being tested. In this transition period, there was a belief that the digital materials would be publicly available and therefore people did not always consider it necessary to report all the details in the written reports. This digital development is described in *Digital field dokumentation* (Lund 2007) in Archaeology in the East and the West (Kaliff 2007).

Registers and databases are available in the condition they were in at the time of report completion. Ole Stilborg registered the pottery from area E2, and has allowed me to use the registration in my research, something which has facilitated the work considerably. Karin Lund at the National Historical Museum (SHMM), helped me to connect SHMM's database MIS (accsess) find database with the digital documentation materials from Pryssgården that existed in connection with the publication of the report in 1997–98, which has enabled me in these final stages of the study to connect feature number with distribution on the plan. With this—in my opinion—indispensable work, it is possible to answer several questions that make interpretation more clear and empirically relevant. The circumstances during the work process have influenced and partly controlled the degree to which the ability to provide accurate information has been achievable. The parts of the sites that I use to connect craft environments should now be correct, however, and are reported by feature number. There is a discrepancy between the total amount (109.39–128 kg) of kilos of pottery presented and analysed in the report (Borna-Ahlkvist et al. 1998) and the number of finds in the find list in SHMM's database, which is not possible to sort out within the framework of this study.

3

Artisanal Skill at Pryssgården

Archaeological ceramics is one of the largest groups of find material, and since the beginnings of archaeology these ceramics have formed the basis for interpreting ancient times. Pottery in what is today Scandinavia is the foundation—and starting point (often as a cultural marker)—of a large part of archaeological research. The typology developed by archaeologists at the end of the 1800s and beginning of the 1900s (see Hildebrand [1866, 1899] and Montelius [1872–1873, 1876, 1885]) forms the structure we archaeologists today still build on and refer to with regards to archaeological finds. In a discussion on source criticism, various topics can arise, such as how ceramics were studied and which finds were used. What does the material look like and what conclusions can we draw from it. From an artisanal technical perspective and interpretation of the finds, practical knowledge can contribute to an increasing understanding of prehistoric pottery and other ceramic finds that is over and above what a number of other scientific methods offer. Within archaeology, pottery is interpreted through methods that determine chronological and typological relationships, complemented today with analyses taken from different areas of expertise (primarily scientific).

Through the artisanal interpretation of Pryssgården's pottery, I will be able to provide additional information that will form the basis for new, clearly related interpretations of the empirical data (see conclusion and discussion).

3.1 Artisanal Interpretation of Pryssgården's Ceramics

3.1.1 Previous Research

The bulk of the ceramics discoveries from Pryssgården was in the pits belonging to different building phases of the settlement. The largest amount of finds (about 75 kg) was found in the settlement pits scattered across the excavation area (Stålbom 1998:109). Stålbom describes a general topological connection which is particularly evident between the buildings and deposited rusticated pottery from the Late Bronze Age, where he says that it is particularly evident in area E, which contained the largest amount of ceramics—60 kg of the 109.39 kg total. Registration took place in the field, and a modified version of Birgitta Hultén's registration model from 1974 was used for reporting the finds (Stålbom 1998:103), adapted for their specific needs and questions. The goal there was to build up a chronology for joining or separating different phases of settlement. The research was intended to help compare chronologies from different areas (Stålbom 1998:103–107). The author chose to refer to 'layers' and 'house

remains' in the report where he deemed it meaningful for the discussion. Stålbom concludes by determining that the ceramics in most of the find spots belong to the Late Bronze Age periods IV, V and VI. The pottery was said to have been produced mainly during the Late Bronze Age and is very fragmentary (see fig. 5), likely due to extensive use of the land (Stålbom 1998:111–113).

3.1.2 Implementation and Selection

In my investigation, I have visually and briefly inspected the entire material, which consists of over 9000 individual finds. These include all the ceramics: not just the pottery that can be identified as vessels, but all other categories consisting of ceramic materials fired to at least 600°C, which are included in the category 'ceramics' here. Categories like fired clay, industrial ceramics and furnaces may contain unexpected finds, something which I have shown in earlier surveys (report Botwid 2014 and Botwid in press) when I found a deliberately produced oxide crayon used for colouration but catalogued as 'bränd lera' (fired clay) in a material category of archaeological finds from the Roman Iron Age .

The reason that all categories are included in this study is to enable me to carefully examine whether materials for providing colour as mentioned earlier on or ceramic tools can be found among stone artefacts, for example, or bones. In new research, a broader starting point can give totally new results. The number of finds in the find register under the category 'pottery' (vessels) is 7100. The first step in the process was to identify finds by their interpretative qualities. Vessels that are too fragmentary can be analysed and discussed from a craft perspective, but the fragments are small and are not sufficient to allow an evaluation of the level of artisanal skill: they can provide only a tendency. Therefore, I have chosen to go through the material and localise the finds which can be individually interpreted artisanally with a high degree of surety—these finds are sufficient to allow this. The finds that I have categorised as being able to study consist of 349 of the total ceramic finds, or c. 5%. Here vessels from different contexts must represent the possibility we have to get information about artisanal skill for the entire bulk of the material since only a few vessels are dated (thus, the dates do not either constitute a selection criterion).

Through an artisanal interpretation of the chosen 'interpretable finds', this interpretation can be made with a high degree of certainty. In a similar study of the ceramics from Gustavslund, Backen and Ramlösa farmsteds (Helsingborg, southern Sweden), I was able to estimate the level of artisanal skill for every find and presented the results of the

FIGURE 5. Boxes with the ceramic finds from Pryssgården.
Photo Katarina Botwid.

certain interpretations as a part of the study. Following this, due to the high degree of fragmentation of the other finds, I made a more hypothetical artisanal interpretation. The resulting tendency allowed an estimation of how the ceramic skill found in the different farms related to every other one and even the conditions within them (Botwid 2014:231).

The Pryssgård material, as previously described, has more than 9000 finds: thus, it is impossible to study each one in the time available. A general ocular examination has been made however on the ceramic finds, burnt clay, technical ceramics and even organic material, stone and bronze finds. In the following section after the description of the material and limitations in the work, I shall present an artisanal interpretation of the material based on the artisanal skill at the site from the Neolithic to the Early Middle Ages.

3.2 Presentation of the Results

When the ocular inspection of the entire find material was made and those finds which permitted artisanal interpretation of the level of skill were chosen, each object could be examined according to the parameters used in the ceramic artisanal interpretation (presented in 2.2).

After the brief ocular study of all the finds, 349 remained that were sufficiently clear to allow an interpretation with an as high degree of accuracy as possible. It is possible to study certain parameters in very fragmentary material, for example, what temperature the material was fired at, whether it is thin or thick ware, and whether it is similar to the rest of the material or deviates typologically or technologically. All the parameters can be assessed in a well-preserved vessel or even in a well-preserved sherd that allows the entire vase form to be determined in spite of some parts being missing. That one parameter is missing gives a somewhat less secure interpretation, but there is enough, in my opinion, to permit an interpretation if the vessel was chosen for a study of crafting skill. The study is performed by carefully and repeatedly feeling each object tactilely until an assessment can be made based on the tactile and ocular impressions. A more in-depth ocular examination follows using a good magnifying glass with a sharp enough lens in proper lighting conditions. Following this is an analysis of how the vessel was made and the level of skill determined by the traces of production left in the material: these together with the parameters indicate the total skill result for the interpreter. The assessment is written down and recorded in one of the three skill levels PAS (Professional Artisan Skill), GAK (Good Artisan Knowledge) or AK (Artisan Knowledge). In the registration record there is a place to write down the

vessel's biography in a descriptive text based on the documentation that the vessel itself provides (see vessels as documents in the discussion of readability in Botwid 2016 in press in the thesis manuscript from Medbo 2013:13). Here, the descriptive nature of the registration can be augmented with photographs and even earlier archaeological assessments if such exist. The aspect that is of primary importance for me here is the *skill* in this entire artisan group working with ceramics. The distribution of skill in the skill-interpreted vessels from Pryssgården can be seen in fig. 6 below. The results of the skill interpretation indicates that 349 finds could be artisanally interpreted with regard to all aspects and to a high degree of certainty.

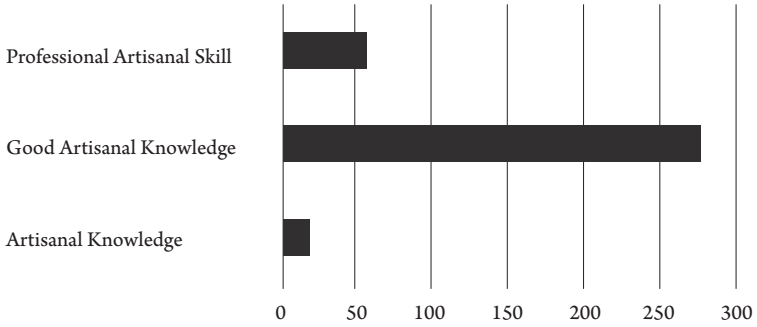


FIGURE 6. The figure shows the distribution of the 349 artisanally interpreted finds by skill level. The finds comprise 4.9% of the total ceramic finds.

All the levels of skill are clearly represented at Pryssgården but they cannot be correlated to typological dating due to initial registration matters. The pottery still found in the ceramic material can be interpreted as being everyday objects. The great majority of the vessels belong to daily life—this includes the 349 objects as well as the fragmentary vessels that could not be assessed regarding skill: these latter finds can be registered with enough parameters to indicate that they have the same kind of variation as the other finds of everyday objects. Some finds are unusual in form but on the other hand do not belong to a particular skill level. The large group of vessels fall into the category GAK (Good Artisanal Knowledge) and represent all the various activities that can be associated with eating, preserving, storing and cooking food.

The facts that the ceramics were normal, everyday vessels and that there was no greater artisanal-skill variation over time could be seen as disappointing results for a study of this size. The deeper I penetrated

into the material, however, the more just these facts interested me. The knowledge that existed was not found in the finished product or in special aesthetics. Vessels that appear to be simple and robust can have been made with a very high degree of skill, and vessels categorized as fineware can have been made very clumsily. Were the vessels demonstrating only artisanal knowledge (AK) made by beginners? Can a highly specialized person with PAS knowledge make everyday ware and form rusticated storage vessels? The large group of craftsmen with a GAK level seem to have made all kinds of pottery.

Some few finds seem to give evidence of contact from outside, which can have contributed to new impressions (see the section entitled Anomalies). The results are discussed further in chapter 4 with the final analysis results. In the following discussion the results of the artisanal interpretation will be taken up as well as how the outcome and certain conditions can create the composition of the find material.

4

Ceramic Crafts at Pryssgården

Being a ceramic artisan in the Nordic Bronze Age was a normal part of everyday life—people made the objects they needed in every facet of their day-to-day existences, work and small-scale farming. Certain crafts require special knowledge, and knowledge of ceramic crafts was, as I believe, found at Pryssgården. There are many different aspects in the ceramic craftsmanship which for the most are taken for granted. Collecting the raw clay, tempering it, forming, decorating, drying, and firing the ceramic object are somehow self-evident and have been described in this manner (see App. 1). But how do you actually do it? How long does each step take and what kind of time perspective do you need? The effects and use of the climate in an artisanal situation are seldom discussed. Taphonomy and reuse as well as various preparation processes, firing processes and annual cycles are rarely taken up.

Which crafts belong together and how does this look? In the Bronze Age, pottery looked different than in the preceding period. It became coarser and thicker and sometimes had plastic decorations, for example, knobs or ridges. A large amount of pottery is now found in the settlement as opposed to earlier ceramic periods when the majority of ceramics were seen in connection with graves and various funerary contexts.

It is often assumed that artisans worked out of doors in this period. Regarding metallurgy, a 'hot' craft, it is thought that metalwork had to be performed inside in order to see the shift of colours which indicate when various steps should be made. Ceramics is also a 'hot' craft but consensus today says that the artisans worked outside. In the Bronze Age, there were small buildings, so-called pit houses and four-pillar buildings. They are interpreted as smaller farm buildings and sometimes as workshops, though without being connected to any specific activities. Were there workshops already in the Bronze Age? By studying the ceramic craft more deeply at this site, many questions which can apply to other, contemporary places as well will be interpreted and answered. My ambition is to show how ceramic craftsmanship worked hand in hand with other crafts, with buildings, activity areas and the surrounding landscape. Once in a while it will be seen that ceramists were inspired to express themselves in a manner that suggests long-distance contacts.

4.1 Anomalies

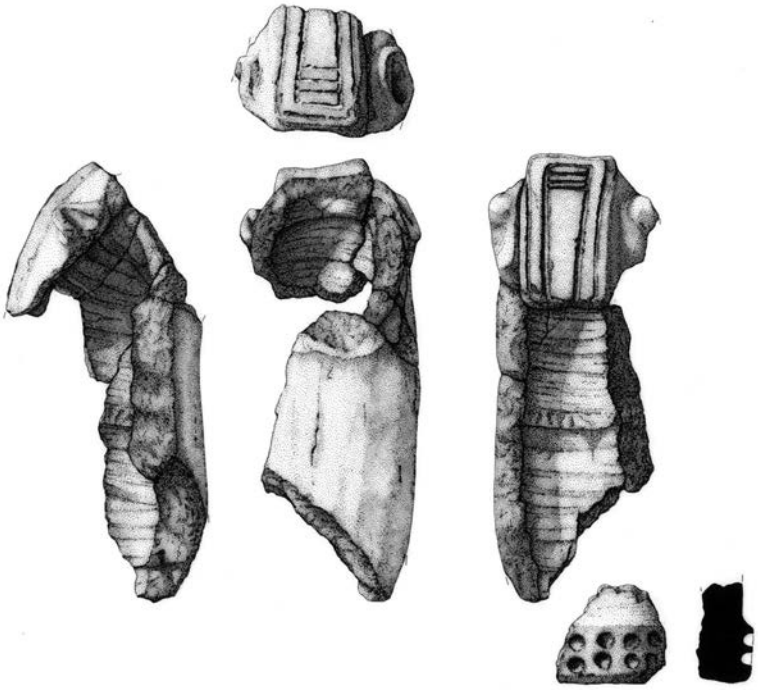
Certain finds cannot be placed in an archaeological find context—in the worst of cases, they are not worked up or treated, or even ignored. In other cases they are raised to a level which can be misleading. In an artisanal interpretation which is built on statistics, finds which deviate can simply

disappear as they do not meet 'the normal'. For example, a vase form which usually has a wall thickness of 2 cm but which deviates and is made very thin and different, represents a deviation in a quantatative investigation, something that moves it from the highest skills level to the lowest one where the statistical analysis hides that which deviates in frequency (see Budden *Bad, Good and Excellent* and where the finds are placed in a 'Pearson Chi-Square test'). If this vessel was a stage in a development or an unusually well-made vase, it falls out of the 'normal' category. Such a placement works if the question posed is which tradition is aimed at and whether one is studying which forms are most commonly produced and what degree of time and knowledge are invested in the object/objects (Budden 2008:2–14). In a qualitative analysis, all the finds can be divided up on the basis of the skill that can be seen and is incorporated into the body of the object regardless of form. The fact that it differs from some sort of value 'norm' is irrelevant. After that, these 'anomalies' can be described even more if so desired and the reasons why they are found at the site can be interpreted. The vessels can thus acquire a biography and be further interpreted in their relation to the 'normal'. This type of find can express changes in technic and design, which provides a possibility to capture changes in the mass material early on.

4.1.1 Special Finds That Indicate the Unique in a Common Place

4.1.1.1 The Pryssgården Figurine – a Woman Without a Face

The Pryssgården figurine is the most renowned find from the excavations at Pryssgården. The technical description tells the reader that the object is made of coarsely tempered clay. The marks on the inside indicate that the figurine was formed around an object wrapped in organic material, which Stålbom imagines was burnt in the firing. The various parts are considered as one unit originally. A frieze around the bottom has small, round impressions—this part was assumed to be the base and went all the way around (see fig. 7) (Stålbom 1998:130–132). Stålbom chose to interpret find no. 5918 as an anthropomorphic figure, and further, a woman, something unique in Scandinavia. The closest parallel is a unique female figurine from today's Deszczno near Poznan in Poland. Along with the interpretation was a suggested reconstruction (see fig. 8). The figurine is c. 15 cm high and is conical. The three largest pieces are reconstructed as the body. On the head and down the 'back' is something which has been interpreted as a plait. There are two ears, but the face is missing.



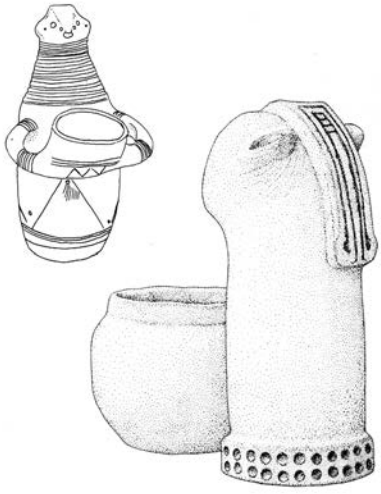


FIGURE 7. Find 5918. Illustration Richard Holmgren, ARCDOC.

FIGURE 8. In the upper left, a figurine from Deszczno (Late Bronze Age) near Poznan in today's Poland. To the right is a suggested reconstruction of the Pryssgård figurine seen from the back with a vessel in front of her. The figurie is dated to 902–807 BC (Stålbom 1997:131). Illustration Richard Holmgren, ARCDOC.

The figurine is interpreted as perhaps being connected with a fertility goddess cult in the Late Bronze Age society, a cult which people claim existed in Scandinavia then and which could be a connection to a common northern European belief. The lack of a face is also interpreted as the result of a deliberate action. Her face was struck off her head because someone wanted to take away her power. Stålbom believed that the female figure could be a merging of man and animal and that it in principle follows the interpretation of female beings who can have been considered as gods at that time (Stålbom 1997:112). The interpretation of the figurine has been discussed by Thrane (2006) and Goldhahn & Østigård (2007:101ff) and has been discussed continuously in archaeological circles.

My interpretation is more similar to the later ones and differs from Stålbom's in several ways: it will be presented below.

4.1.1.1.1 From Figurine to Tuyère – Practical Use for an Animal-Shaped Blast Nozzle

There are several aspects of craftsmanship: knowledge-wise, practical, aesthetic, visual and emotional aspects. Artisanal skill raises emotions, not least in archaeology. In this interpretation, I shall deal with the earlier beliefs around the Pryssgården figurine step by step. This will be a contrast which will not necessarily turn the figurine into a boring, functional part of a grey past. By working with an artisanal interpretation of the find, I reached totally different conclusions than Stålbom. What is unusual with my interpretation is that I build it on practical and theoretical artisanal knowledge, I gather clear technical characteristics and I start from these bases to which I add knowledge about technical ceramics. After this I discuss abstract aspects that can be glimpsed in the social structure of the Late Bronze Age, based on my archaeological knowledge and understanding. In my opinion, the concrete and practical are not necessarily opposites of the abstract and otherworldly, if you will. An object that makes transformations in the heat of the work can be very visual and auditory, a kind of happening or artistic event, and could therefore have been important even if we can never know the impact (impressions) on the Bronze Age humans.

4.1.1.1.2 Artisanal Interpretation of Find 5918, the Pryssgården Figurine

Shape-wise, the find closely resembles rolled out, tubular objects from different parts of the world: the technique itself is common and is used

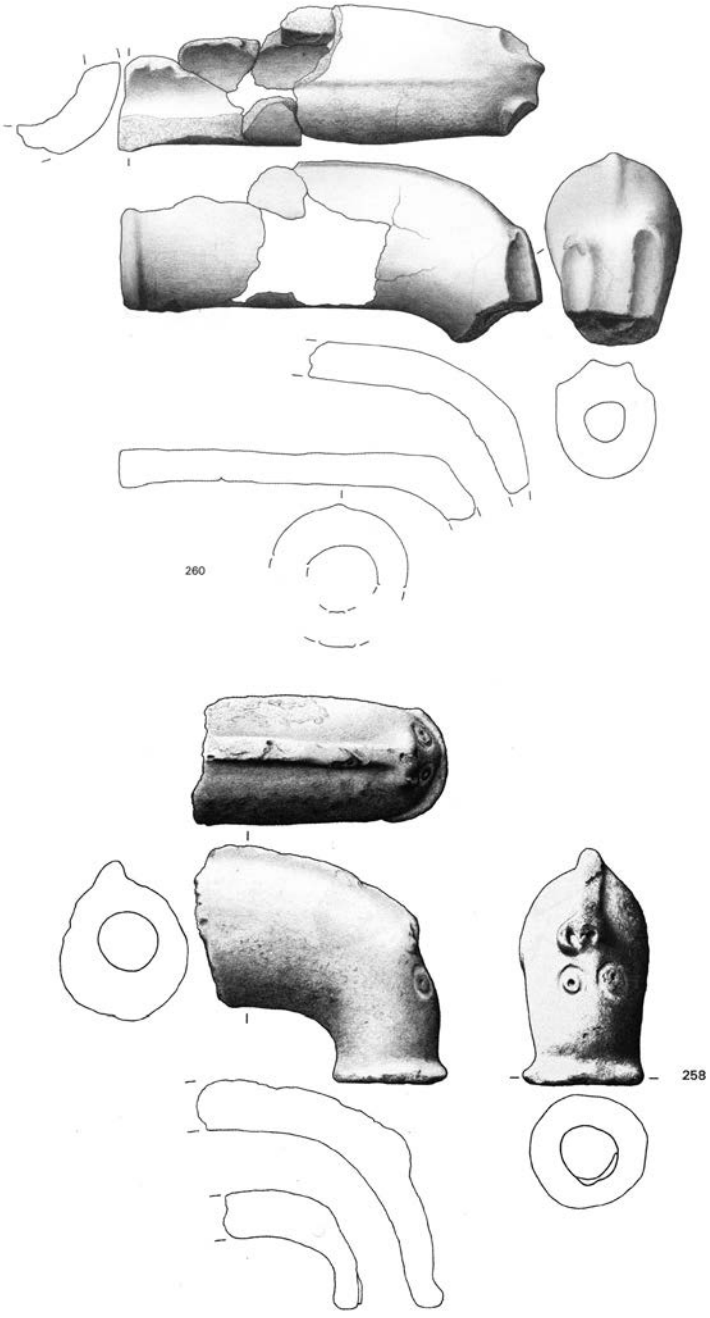


FIGURE 9. Horse-shaped tuyères from Stora Heddinge and Balslev, in Jantzen 2008 (Tafel 57, 56), presented by Thrane as a comparable shape, published in Fornvännen 2008.

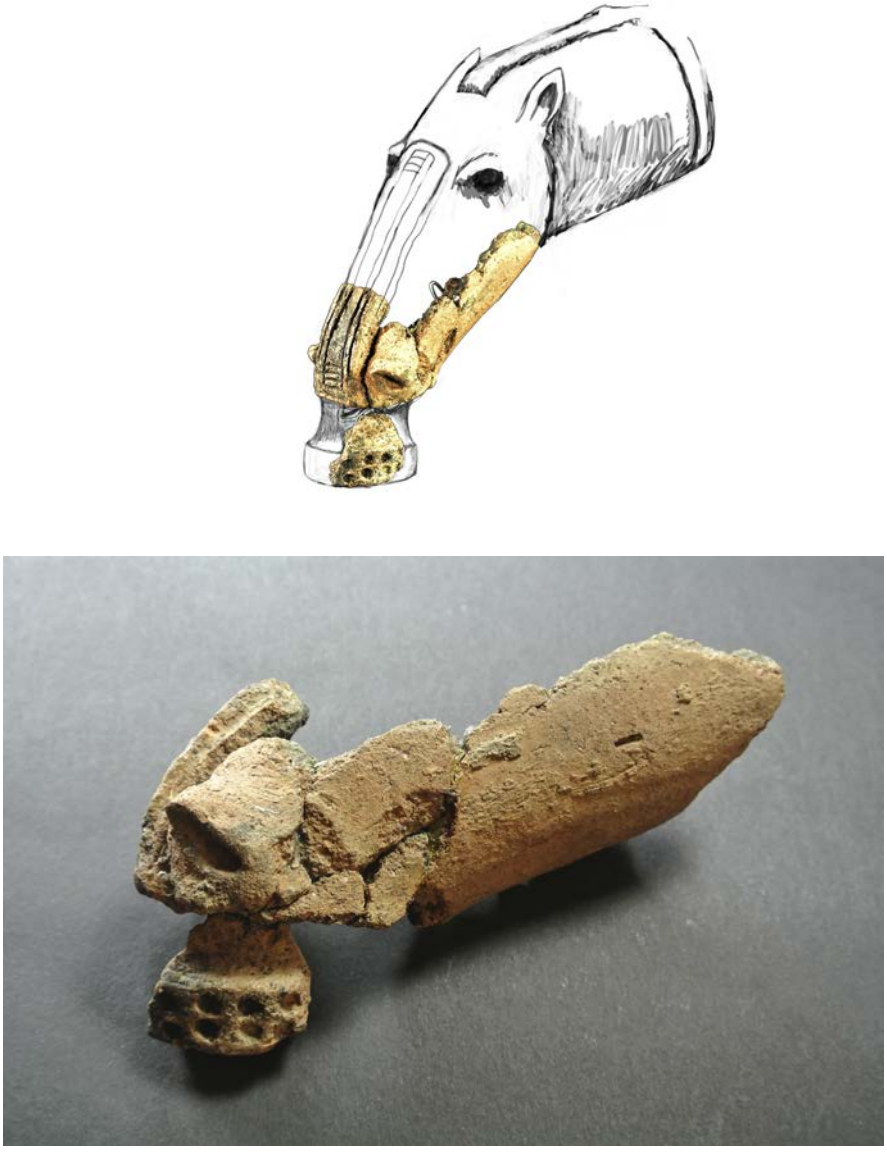


FIGURE 10. The Pryssgården Horse, a Zoomorphic Reconstruction and the actual find F5918. Illustration and photo Katarina Botwid.

primarily in ceramic craft groups who do not use the potter's wheel. In my opinion, find 5918 consists of parts of a cylindrical blast nozzle, a so-called *tuyère*. A tuyère directs a stream of air from a bellows to a crucible. Its use will be presented later in this interpretation. I suggest that the rolled-out tube is c. 30 cm long, bending at one end and opening at the other end towards the hypothetical bellows of wood and leather in order to protect it from the heat. It is slightly conical in shape.

The circular, hollow form continues down from the bend, ending in a round, impressed-circle-decor edge which about 5 cm in diameter. The inside diameter of the opening is about 3 cm. In shaping the object, in my opinion the prehistoric craftsman chose to form the pipe like a horse. What was previously interpreted as a plait is interpreted by me as a blaze. On the sides of the blaze down by the turn, there are two pinched nostrils. What was earlier considered an impressed-circle frieze here is now interpreted as an impressed-circle-décor opening whose function was to show when the heat was high by glowing in the opening (see fig. 18 below). This function is both visual and informative. The horse is thought of as serving an important function in the Bronze Age world of symbols. (Ling 2013:33, Skoglund et al. 2006, Kristiansen & Larsson 2005:324ff, Jennbert 2010): the artisan chose a horse shape for this tuyère. The reconstruction is seen in fig. 10. The shape is turned in the right direction in my interpretation and can be reconstructed like the horse-shaped tuyères from the Late Bronze Age in Denmark (Thrane, 20)(fig. 9).

In his text about the Pryssgården figurine, Thrane says he believes it is probably a tuyère, referring to the Danish tuyères in his interpretation, but does not provide any additional arguments. Goldhahn supports Thrane's interpretation of the figurine as a tuyère (Goldhahn & Østigård, 2007). My further reasoning is supported by the latest interpretations but I intend to strengthen the arguments with more archaeological reconstructions and experiments.

After having tested the shape's various possibilities and features on both living, snorting horses, photographs and Bronze Age forms, I decided to make a zoomorphic reconstruction of the figure. In my opinion it is a horse with flaring nostrils. The significance of the horse in the Bronze Age and the interaction between man and animal is clearly seen in both artefacts and rock carving representations (Kristiansen & Larsson 2005:324ff). Making a tuyère in the shape of a horse has no practical importance—a simple, straightforward tubelike ceramic object would have served as well. What I mean here is that visuality in crafts has an expressed significance.

One feature which can be of technical importance is the impressed-hole décor around the opening: as practical experiments have

shown, at a certain temperature the thinner surface closer to the inside gives off a red-orange glow. When this glow is visible, one knows that the temperature is higher than 800 °C, and when the colour becomes lighter, one can judge the vitrification point by the light up to 1300 °C: a really light orange determined through either experiential knowledge or comparisons with Munsell (see the Munsell colour theory and information (http://munsell.com/) is between 1000–1100 °C. The temperature can be measured as well with different types of pyrometers. An experienced potter, smith or bronzecaster is used to successfully making visual judgements of the temperature.

4.1.1.1.3 How Was the Tuyère Made? An Artisanal Analysis of Tubular Objects

As can be seen in the drawing (fig. 7), the figurine has clear technical evidence of manufacture on the inside walls: it was not thumbed or drilled, but built around a padded core. Ocular examination indicates that this core was organic. Per Lagerås (Paleoechologist SHMM) can determine that this particular bound core was straw: he cannot tell however what was the original grain that the straw came from since there is no reference material for straw as yet (pers. comm. July 26, 2014). In order to form a clay tube without seams (seams would make the ware vulnerable in changing temperatures), there is a rolling technique which is perfectly suited and which leaves the kind of traces we see in 5918 (see fig. 12 below). This rolling technique is not described in the ceramic literature to my knowledge, but through the experimental knowledge I have of craftsmanship, I reproduce it here (see fig. 11). In my opinion this is the method used by prehistoric ceramists to produce such clay tubes. The series of pictures shows how the different stages result in a tube. The tube produced here is formed around a wooden stick which is covered or wrapped with bast fibres, chosen because this raw material existed in the Bronze Age, and is easily accessible. The rolling technique is based on the clay being rolled from the inside of the tube. If the craftsman is skilful, the clay will be even in thickness and the hole will be circular and centred in the middle of the shape.

A well-prepared clay with semi-coarse to coarse temper is kneaded and then squeezed around a stick covered with organic material. The length of the stick determines the length of the tube, plus 15 cm on each side of the tube to allow place for one's hands when rolling. Before the clay is applied to the stick, the stick is wrapped or covered in some way to prevent the clay from sticking to it: this can be with bast, strips of cloth or

FIGURE 11. The pictures above show the rolling technique that is used to form the tube that serves as the basic element of the tuyère. It is a very simple and sure technique for making a hollow tube without seams. Photo Paul Pettersson.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

FIGURE 12. The pictures show artisanal traces from the technique of rolling from the inside. Top, the inside of the Pryssgården figurine F5918 where the traces of the wrapped material are extremely obvious: continuing study of the character of the fibres will be made. Middle, a reconstruction of a rolled tube with only fibre bast wrapped around the stick. Bottom, the tube-shaped clay object is found at the MHM (Malmö Historical Museum) and comes from Fosie IV (1993), here rolled from the inside with a twisted string and straw as the organic release material. It is interpreted as a tuyère. Photos Katarina Botwid and Paul Pettersson.

some other organic material which can be tied on with string or wrapped around. Once this is done, the clay is squeezed onto the organic surface and is rolled back and forth on a flat surface. The clay should not be too tempered—it needs to be relatively fat so it will not crack or segment. After it is rolled, it is dried a little so that it keeps its tubular form—after that it is easy to make the desired shape.

This rolling which occurs from the inside out makes the tube considerably larger (it gets stretched out) than the diameter of the stick, which means that the organic material does not remain in the tube when being fired, as was previously suggested (Stålbom 1998:131). In my opinion, the soot in the hole comes from the object's being used in bronze crafting. The tube that is rolled can be utilised in various ways, but before it is possible to continue working with it, the tube must be dried in a controlled manner. Depending on the prevailing temperature, the tube is spun with the stick remaining inside it around every twentieth minute until a stable condition is reached and the stick can be removed. At this stage the tube can still be bent or squeezed together at one end. Gradually the tube becomes leather hard (1–5 hours depending on the humidity in the air) and can be given its final form, be decorated, polished, or once it is bone hard, even glazed.

The final drying now occurs under controlled conditions—it should be even and not too fast (Hamer 2004:115–117). When the form is completely dry and perhaps heated near an oven or furnace up to c. 100 °C, it can be fired together with other ceramic objects. The tuyère which has been reconstructed here was used to protect the bellows, which was considered as being of leather. With the help of the tuyère, the air stream is directed, which raises the temperature when bronze is melted: the process is described more in the section called 'How does the reconstruction work in practice?'

The whole craft-technical process applies to all tubular objects, but forming angled tubes requires that the tube is bent shortly after it has set, before the clay becomes leather hard and so stiff that it breaks. The shape dries in different steps, and can be given the features that the ceramist desires. Fibre bast, which was used in the experiment concerning the lines on the inside of the tube, leaves imprints that are too weak to be those seen on the interior of find 5918: however, the type of imprint seen on the reconstruction is found on a newly discovered tuyère from Lund (find 511) (see figs. 13 and 14) and on the tubular shape from Fosie IV (Björnhem & Sävestad 1993:79) (see fig. 12) there seems to be yet another type of straw or grass attached to the stick with a string. In renewed practical experiments, straw from naked barley or wheat will be tried. In my opinion, it is this technique that was employed in the production of find 5918, Fosie IV and find 511, where traces of production are very evident.

4.1.1.1.4 From Tuyère to Tuyère? ESS Object 4

As finds of tuyères have been considered to be (and even in reality are) unusual in Sweden, attention has been focused in other directions, as has been seen with the Pryssgården figurine. A shape similar to find 5918 is find find 511, discovered in connection with a contract excavation outside of Lund, southern Sweden (the ESS area in Östra Odarslöv 13:5). The only comparable find from a modern contract excavation is find 5918 from Pryssgården. Through the reevaluation and interpretation of the Pryssgården figurine, find 511 was compared with it and is now thought to be another tuyère: even the shape of the one from Fosie IV was compared. To clarify the similarities, 511 is presented below:

Find 511 is shaped like find 5918 (see fig. 13 and fig. 14): the part of 5918 that is preserved is the top and the side, although in contrast, find 511 has a preserved underpart. Through analysis of the shape it is possible to understand the whole form: this complementary and comparative analysis strengthens the reconstruction of find 5918. Find 511 could theoretically have had figural decoration which is no longer preserved. Below (fig. 15) are both finds and the reconstruction in the same picture to back up this hypothesis.

The practical use of this tubular object is reconstructed and discussed in the following archaeological experiment.

4.1.1.1.5 How Does the Reconstruction Work in Practice?

While working with this material, it was necessary to test the strength of the hypothesis by means of archaeological experiments. The experiment is based on my knowledge and experience of 'hot' work.

In order to be able to determine whether the tubular object, originally considered a figurine, would work as a tuyère used for melting bronze, an actual melting situation was planned and carried out with the assistance of Andreas Nilsson, a doctoral student in archaeology at Lund University specialising in bronzecrafting and casting in soapstone moulds, and of Paul Pettersson, who examines technical ceramics at the Dept. of Geology, Lund University. Both Nilsson and Pettersson have years of experience with practical experiments in metalcrafting. The starting point for the experiment is the hypothesis that the Pryssgården figurine was actually a horse-shaped tuyère. In discussions with knowledgeable colleagues at conferences and presentations, it seems that the strongest indication for the use of ceramics in metalcrafting is traces like the sintering of technical ceramics. My experience from ceramic crafting is that

FIGURE 13 Find 511 is dated to c. 790–540 BC (KAL 2 sigma). The find is from a contract excavation for an ESS project outside of Lund, southern Sweden. The shape corresponds to the Pryssgården figurine, and has an angled underpart and the flat mouthpiece still in place. The tuyère is very similar in shape and size and is rolled in the same way. Photo Henning Cedmar Brandstedt.

FIGURE 14. Find 5918, the so-called Pryssgården figurine. Photo Henning Cedmar Brandstedt.

sintering (which produces a glass-like surface) can clearly occur in certain situations but that it happens in connection with the exhausting of the material (the same artefact being used many times) when the degree of use finally leads to the sintering of the ware. My belief was that incorrect usage could speed up the sintering process—this was one of my questions to the material in this experiment; further, does the reconstructed tuyère work in melting bronze? Is there sintering on the tuyère when used? What traces are found on the inside of the tuyère?

4.1.1.1.6 Reconstruction

Tuyère 1 was not fired before use and was then used for ten hours. It is a little sooty on the rim and a bit inside. Tuyère 2 was biscuit fired to 800 °C. once in an oxidising atmosphere and was used for two hours. Tuyère 3 was biscuit fired and used for two hours (see fig. 16).

4.1.1.1.7 The Result of Using the Reconstructions of Find 5918 from Pryssgården

In order to be able to demonstrate different usages for tuyères (see fig. 17), three reconstructions were rolled (from the inside) of which two were fired and one remained unfired but was very well dried. In figure 16 one can see the results of the different features visible on the goods in accordance with how the tuyères were used.

In addition to the three pictures of the rims of the tuyères in figure 18, one can see in the fourth picture how tuyère #3 was used. I put a lot of charcoal around the rim to show how sintering can be achieved through reduction and through closer contact with a metal oxide flux. Sintering is interesting archaeologically as it gives evidence that bronzecrafting took place at the site. In my opinion, however, sintering is most likely undesirable for the working artisan, as metalworkers do not want melted clay in their bronze melt. Further, I maintain that this way of using a tuyère signals a lack of practical knowledge of 'hot' crafts. Allowing the charcoal to reduce the clay around the rim leads quickly to material sintering (see the experiment made by Julia Heeb 2014:44) and runs the risk of corrupting the metal material. In our experiment we melted 1 kg (2.2 lbs) of bronze (small pieces of scrap metal of varying quality) in two hours without any visible traces on the rim of the tuyère (Botwid & Petterson in press).

It is perhaps those tubular objects that are angled and that have an inside wall with traces of the rolling method of production (and which can

FIGURE 15. This figure shows, from left to right, the reconstruction of find 5918 used as a tuyère for ten hours; following it is find 5918, and to the right, find 511. Note that none of the finds are sintered. Photo Katarina Botwid.

FIGURE 16. The reconstructed and used tuyères, from the left to the right nos. 1, 2 and 3. Photo Katarina Botwid.

FIGURE 17. Reconstruction placed over the crucible with bits of bronze. Photo Katarina Botwid.

FIGURE 18. The pictures show the opening for the reconstructed tuyères that were used: upper left, tuyère #3, sintered and used for 2 hours; upper right, #2, used for 2 hours. It has metal percipitate on the rim and did not sinter; lower left is #1, not fired originally and used for 10 hours; lower right, tuyère #3 in use. Photo Katarina Botwid.

be sooty) discussed above that can be interpreted as tuyères. Find 5918 has these characteristics, which in my opinion can indicate bronzecrafting. If this is the case then it is possible that the tuyère is underinterpreted in the Scandinavian material in the same way as technical ceramics previously in earlier research, and that by looking for tubular parts with winding traces inside, more examples can be found. Together with visuality in crafting, the possibility for melting bronze and for bronzecasting will be discussed in the final discussion and conclusions.

4.1.1.2 Skilful Child Ceramists – or a Particular Individual

Identifying individual artisans in a large mass material like the one from Pryssgården is unusual. While working with the 7100 ceramic finds I discovered some with clear fingerprints (F4768, F9127, F1355, F9110) and one which I judged could have come from a child (F5889, a partially reconstructed vessel). An artisanal observation shows that the prints of the finger pad, angled vertically and pressed into the wall, are very small and close together. The placement of the thumb on the inside and the fingers next to each other on the outside are all around the vessel in a rhythmic and regular manner. The thumb reaches down and 'lifts the clay' by squeezing it towards the two fingers on the outside (fig. 19). An unusually small adult's fingerprints could be confused with a child's, but the probability of the prints belonging to an adult is small: it is difficult for an adult to place her fingertips so close to each other with normally developed finger joints and the tendons and muscles surrounding them. I can find no archaeological technique or anatomical research which can explain these concrete differences in the fingerprints as having been made by an adult. Thus, there are finds with fingerprints in the fabric, but in the entire mass material, this vessel is the only one where I can clearly distinguish something which could possibly have been made by a child. In my opinion, there was a skilled person who had the interest and time to transmit her/his artisanal knowledge to an individual who could have been six or so years old when s/he started learning and was now between eight and nine when the vessel was made.

4.1.1.2.1 How Was Vessel Find 5889 Made?

Artisanal interpretation indicates that the vessel was formed rythmically, the wet clay was well processed for its use and had the right degree of plasticity and amount of temper for this type of storage or cooking pot.

FIGURE 19. The child's finger pads fit into the imprints in the pottery find. Photo Katarina Botwid.

It was made with the so-called 'paddle and anvil' technique (see fig. 20), which means that the craftsperson starts with a small thumbed bowl and builds up the walls with thick rolls of clay (see appendix 1 III:1). After each coil of clay has been attached, it is paddled towards an 'anvil', which could be a stone or a fist on the inside of the vessel (Stilborg 2014:21). After this coil of clay has dried a little and been carefully formed with the hand and the paddle, the next ring is attached and paddled. The vessel is built up in rhythmic movements until the desired thickness of the walls is reached and the artisan has got the desired height and width for the vessel.

The paddle and anvil technique is complex and requires care and attention in the work process. This vessel is made with good artisanal knowledge (GAK).

4.1.1.2.2 Vessel Find 5889

Vessel F5889, a bronze age pot with small fingerpad prints, which have been carefully measured to 7.2 mm, is seen in fig. 21. On the right there are no visible fingerprints: this find (F6616) was polished with a stone or a piece of wood and then given a rusticated surface with a high percentage of sand seen either as decoration or applied for practical reasons (Stilborg 2002:82). *If* this vessel (F6616) had been made by a child, any traces of this would now be hidden by the craft technique used, as well as any way to determine whether more children than the one discussed above were making ceramics. Is it possible to determine the age of a prehistoric artisan? By comparing the impression from the fingerpads of the index finger of a child and an adult, I can show a possible tendency, as seen in a preliminary investigation in the next section.

4.1.1.2.3 Comparison of Fingerpad Prints, Preliminary Study of the Age of the Ceramic Artisan

Careful observation revealed that the artisan used his/her index and middle finger for the imprints on the outer side. To see whether my idea about a child artisan could have any validity, I tried to measure the fingerpad imprints and compare them with modern fingerprints of an adult and a child (see fig. 22). I took into consideration the shrinkage (4%) of the clay from firing in order to get some guidelines for how big a child's imprint should be from artisanal traces (see fig. 23).

FIGURE 20. The figure shows a reconstruction of how the 'anvil' is held against the inside of the vessel and the paddles beat each attached clay ring upward, thinning it out and adding height to the shape. In this reconstruction the technique is passed on from an adult to a child. Illustration Henning Cedmar Brandstedt.

FIGURE 21. Vessel F5889 and vessel F6616. In the one above, the small fingerprints are clearly seen, while the one below shows how the rusticated surface treatment can hide fingerprints. Photo Henning Cedmar Brandstedt.

FIGURE 22. Two groups of fingerprints. The larger ones are those of an adult woman (55 years old) and the smaller, those of a nine-year-old child. The fingerprints were made by putting the fingerpads flat on a piece of white paper, and the colour was from a red crayon.

Find 5889 and a qualitative, comparative study of technological traces in the vessel				
Fingerprint mm (average)	**Index Finger**	**Shrinkage 4% (after firing)**	**Middle Finger**	**Shrinkage 4% (after firing)**
Adult woman	12.3 mm	0.5 mm = 11.8 mm	12.7 mm	0.50 mm = 12.5
Child nine years old	8.3 mm	0.3 mm = 7.9 mm	8.7 mm	0.35 mm = 8.3
Differens	4 mm	3.8 mm	4 mm	3.8
Find 5889		7.2 mm		

FIGURE 23. Table showing the qualitative and comparative study of the fingerpad imprints found on vessel F5889, shown here both before and after firing and compared with the prints found on F5889.

The results of the calculations in this very limited pilot study show that the index and middle finger imprints of the nine-year-old are closer in size to the imprints left on the vessel than are the older woman's. The calculations of the nine-year-old child's fingerprint, even taking the clay shrinkage into consideration, is somewhat larger than the prehistoric one—0.7 mm larger (see fig. 23). In my opinion this very limited study can strengthen the hypothesis that skilful children participated in the production of ceramics at Pryssgården.

The fact that a child can acquire fundamental artisanal knowledge by watching and being in a day-to-day crafting environment is of course something that influences her/his level of skill. In ethnological studies, scholar such as Lave & Wenger (1991) observed and studied learning situations: these studies show that such situations exist even today. They describe a situation where the individual who is learning is first only an observer and becomes familiar with an artisanal situation, which then draws her/him in towards the centre of knowledge (i.e., towards the knowledgeable, those doing the crafting) and finally attracts the artisans' attention and interest. After a while these peripheral individuals are given minor tasks which suit them or the knowledgeable one for the time being. As time goes on the newcomer becomes more and more secure in her/his activity and can finally be given tasks which are important for the artisanal group. This learning process is called 'situated learning' (Lave & Wenger 1991).

FIGURE 24. Reconstruction of how 'situated learning' can be understood. A ceramic artisan at the height of her abilities prepares the clays and kneads coils for very skilful but perhaps less strong and/or less experienced people. Illustration Henning Cedmar Brandstedt.

This find (F5889) shows that this individual, whom I consider to be a child, was given a well prepared and kneaded clay to work with. The child thus could work with a suitable material, which makes it easier to practice her/his shaping skills. A clay that is too short and unworked or a too plastic clay body would be hard to work with. This means that the child learns under the guidance and instruction of a skilled craftsman. Recent research on learning indicates that knowledge transmitted within a generation can give quick cognitive changes, which means that technique development does not necessarily require long periods of time, since the human brain's ability to change cognitively is possible even in shorter intervals of time (Högberg & Gärdenfors 2015:119). This knowledge about our ability to develop could explain 'technical leaps' in archaeology (quick, sudden technological changes occurring in short intervals). The new knowledge is implemented and carried on within a tradition or social milieu. Learning continues and occurs later in a situation or within a tradition which wants to preserve knowledge over time (Tehrani & Riede 2008).

In my judgement, the individual should have at least three years' experience in the craft in order to be able to work in this way. The artisan in this case started practicing method and construction technique at roughly six years of age.

The time that the skilled artisan put into this and the care that is evident in this case means in my opinion that a society or a group views craftmaking as a self-evident part of its daily life (see the concept of 'community of practice' in Lave & Wenger 1991:91ff). The child is considered competent and can participate in the daily tasks as a young individual. (see fig. 24).

4.1.1.2.4 Comments on Craft Interpretation

The complex learning process in ceramic craftsmanship means that there are many steps to be taken before one can start making vessels. The artisan needs knowledge about where s/he can find the right raw materials and know how to collect the clay. Then s/he needs to have knowledge about how the weather and climate such as frost and the storing of prepared base clays affect processes, and knowing how the clay should mature in the right way. In working with production, s/he needs knowledge about tempering and additions of other clays. Then s/he has to know which mixtures of different tempers like chamotte or fire-cracked rock stone are best suited for the function of the particular vessel-to-be. When all these choices are made, the materials have to be incorporated in the clay mass with an advanced kneading technique to insure even distribu-

tion in the clay. Added to this, the artisan needs to know about different shaping techniques, decorative methods and surface treatments. When the vessel is ready, it needs to be carefully dried and taken proper care of until it is completely dry and can be fired. Knowledge and experience of the knowledge-intensive work implicit in firing is a must, with different types of bonfires, holes or furnaces. The perfect balance between air and fuel to reach the necessary firing temperature is knowledge that takes years to acquire. In my opinion, a younger child has not developed sufficiently to be able to grasp the complexity of the whole process. On the other hand, children who can spend time with knowledgeable artisans in a good learning situation can become surprisingly skilful. In the case of find 5889, something happened in the process which prevented the final stage in the shaping to take place. Here we see that the vessel dried too quickly so that hand-smoothing or rustication was not possible: this is why we see the small fingerprints all over the vessel wall, the thumb on the inside and the index and middle fingers together on the outside of the wall. Thus, in this material I found a child who was skilled in crafting. Perhaps there are more fingerprints of skilful children hiding under paddled, hand-smoothed or rusticated surfaces in the find material.

4.1.2 Three Bowls – Original and Imitations

An attempt to imitate or copy a vessel is difficult to trace. There is a vessel that I consider an original in this case: it is made in a technology totally different from what is common to the site but seemingly from local materials (Stålbom 1998:129). In addition to the original, which will be reported on here, there are four bowls which seem to be have been made in an attempt at copying the manner of production but failed because the artisan did not understand the technique. In the Pryssgården material, there are a smaller number of objects shaped in a different design idiom than the rest of the ceramic objects. In the report, they are called imports, and the author attempted to assign a place of origin to them through thin-section analysis. The analyses indicated that the local artisans used a different composition for the temper (see above) but that the clay and its mineral composition could not be differentiated from the local raw materials, which were used for the great majority of ceramics (Stålbom 1998, comments on report from Ceramic Research Laboratory [CRL] in Lund). These forms can have been inspired by having seen similar vessels somewhere or by artisans who demonstrated their way of working, or produced by ceramists who were temporarily at the settlement and worked with local materials for a longer time.

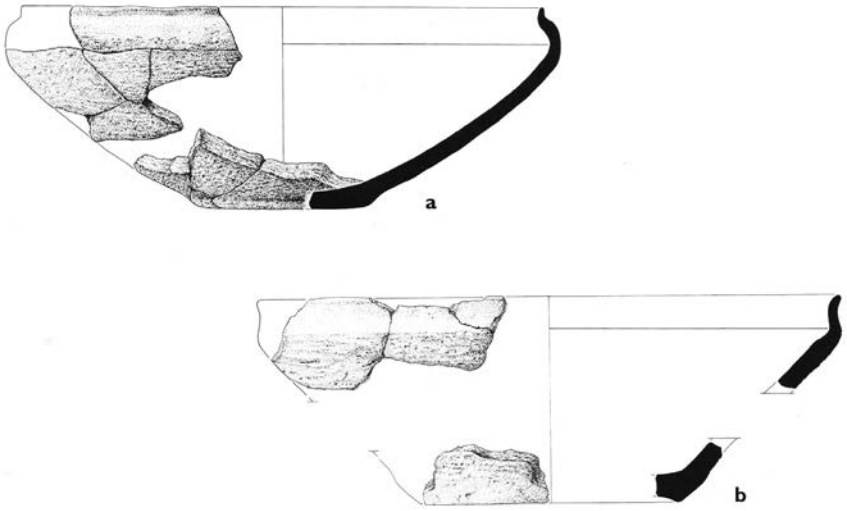
Another possible interpretation is that someone from the farmstead travelled and learned new shapes or techniques from somewhere else (Botwid 2015 submitted). At Pryssgården ceramic production does not seem to have been influenced by these unusual shapes to any greater extent. In my opinion, they were produced by visiting artisans who were at the farmstead for a shorter period of time. A ceramist from Pryssgården, or one who resided there for a longer period of time, would have had the possibility of influencing the craft through transference of knowledge for a longer time. It is possible that this person could have died before s/he had the chance to teach his/her techniques to the local ceramists. One example which illustrates this hypothetical interpretation is find 6032, made in a completely foreign technique (described below). There are a number of interesting observations here. This vessel is an anomaly which either in connection with its production was 'copied' by a Pryssgården ceramist or at a later date this ceramist tried to make a similar vessel but did not understand the entire process. The original was probably made by a ceramist from another place who wished to use the Pryssgården ceramists' pottery expression. The Pryssgården ceramists tried to make vessels in the same way later by imitation or copying.

4.1.2.1 Analysis of Crafting

In my opinion, vessel F6032 (see fig. 25a) is a bowl which was made using a completely different ceramic technology. It was described first as a possible import from the Lausitz area (present-day Poland); however, later analyses indicated that it was made of the local clay (Stålbom 1998:129).

Artisanal analysis: the find was produced by hand rolling—the ceramist flattened out the clay and then rolled with a rolling pin. The technique can be described in the following way: a round, well worked mound of clay is flattened and beaten with diagonal blows at a 45° angle from the middle and out while the ceramist slowly turns the mound. When after several spins the disc is about 1.5 cm thick, it is rolled out flat using light pressure. The disc has to dry to an almost leather-hard state after which it is put over a convex form (of clay, stone, or wood). Light pressure is applied to carefully push the disc down over the form and then it iis left to dry even more (see fig. 26).

When the future bowl is leather hard, it is lifted off the form and turned 180°. The bottom of the bowl is tapped very lightly against a flat surface of wood or stone to flatten the base (see fig. 27). The basic shape of the bowl is now finished. The ceramist rolls out a thin roll, which is attached to the burnished, leather-hard top of the bowl. The bowl is then



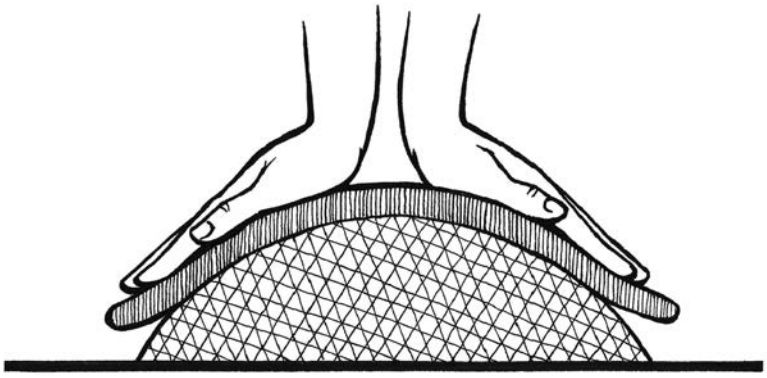


FIGURE 25. Reconstruction of vessels F6032 and F6021. Illustration Richard Holmgren, ARCDOC, Borna-Ahlkvist et al. 1998:129.

FIGURE 26. Forming the rolled-out bowl. Illustration Henning Cedmar Brandstedt.

turned with one hand while the other forms a rim in the wet clay. The whole bowl is now left to dry to a leather-hard state, then burnished and scraped (with a rib or a little knife of metal or flint) on the inside. Following this, the bowl is decorated or covered with a slip (engobe) on the inside (see fig. 27). This slip, or slurry, is the same clay as the bowl, but levigated (Hamer 2004:210) several times until only the finest clay particles are left (the same procedure as when making *terra sigillata*). It is a time-consuming method but results in a strong light-red and smooth surface on the vessel. The slurry in this case had added red iron oxide—probably roasted, very finely ground magnetite—or else was mixed together with an especially iron-rich clay (there are indications of oxide crayons—see Botwid in press (paper 2 this volume)—in the find material but further analyses must be made in the future on them).

In addition to the slipped inside surface, there is an unusual rustication applied on the outside one (see fig. 27). The usual rustication normal for vessels from this site is very coarse compared with the one on this bowl; further, this one had very fine sand mixed with the slurry and was paddled onto instead of being pushed over the outside surface.

4.1.2.1.1 Copies and Attempts

There are several other bowls (see fig. 28) which I consider to be attempted copies or imitations of F6032. Here you can clearly see that the shape is built right-side-up, covered with coarse rustication, and is not slipped with a supplementary iron oxide slurry. Bowl no. 1, F6021 (see fig. 25b) is made with a fair level of skill, while nos. 2 and 3 provide clear indications that the artisan formed them without waiting for the clay to be leather hard.

Comments and further analysis based on artisanan-technical observation: in my opinion it is clear that there were long-distance contacts with Pryssgården. The first bowl is a hybrid which was connected to the ceramic tradition at the site through the application of a weak rustication on the outside surface. Apart from that, the bowl was made in a totally different manner, using techniques which do not appear in the rest of the find material or to my knowledge at any other crafting place in the Late Bronze Age in Sweden.

FIGURE 27. F6032 with a slipped inside. There is some engobe still left on the inside of the bowl. It is described as oxidised to a strong red colour in the earlier archaeological analysis. Observe the smal and flat base, the fine rustification on the outside and the shallow form. Photo Katarina Botwid.

FIGURE 28. The bowls that were copies are characterised by their totally misunderstood technology. From top to bottom, nos. 1 (F6021), 2 (F6021) and 3 (F7188). Photo Katarina Botwid.

4.1.3 Black Vessels at Pryssgården – the Beginning of a New Tradition?

In the material there are two vessels (A50579, F6209) (Stålbom 1998:121) that in my opinion show clear connections with the so-called 'jydepottetradition' (Danish ceramic tradition from Jutland, Denmark), a technology which in recent times (16th to 20th centuries) has been recorded (Guldberg 1999:35), as women transferred their knowledge to other women. The pottery (sortepotten) is thin, black, burnished and fired in a reducing atmosphere with slow cooling to avoid the risk of reoxidation, which would turn it red again. This black pottery was common in the Late Iron Age. It is possible that the vessels were dried first in a smokehouse—there are remains of one such building on the farmstead (see section 5.3.1, building 256, below). Around 500 BC, climate deterioration is a possible factor which could have affected how craftsmanship developed: if the climate became more and more damp, one might have needed a drying house. In AD 580 (Tvauri 2014:30ff) a clear connection with the climate can be seen in ceramic crafting and in the tradition that later came to be called the 'jydepottetradition'. Here it is the production and firing itself that demonstrate craft-technological processes—both the jydepots and other black vessels have changed typologically over time, which is a question of cultural preferences and shorter time intervals. In my opinion, the technology can be a more general Nordic/European craft technology which survived into historic times on Jutland. This pottery tradition is now being discussed or named as a possible comparanda in Swedish archaeology (Botwid 2009b, Ericsson 2009). Within ceramic craftsmanship, the idea that the jydepotte women's craft went back to Late Iron Age times has been presented by several scholars (Lyngaard 1972:30, Vincentelli 2003:27). The largest work on creating links between the jydepotte tradition and archaeology was made by Axel Steenberg, a curator at the National Museum, Copenhagen. Stenberg documented the last jydepotte women and their work on film in 1938, but for some reason, the tradition still lands somewhere between history and archaeology (Guldberg 1999:40–41). Craftpersons active in the craft movement of the 60s and 70s were looking for their roots, and trained ceramists investigated this specific practice. They learned it as adults and lacked the practical continuity that an unbroken tradition creates (cf. the earlier discussion on situated learning). With the reconstruction of the jydepotte craft and the existence of contemporary Danish craftsmen who with great knowledge of the material and the techniques thanks to the extant vessels and the documentation succeeded in recreating this tradition unique to Scandinavia: hopefully, the tradition will live on. The fact that attention

within the field of prehistoric Nordic archaeology now aimed at the technological can provide new insights into how black pottery was made even in prehistoric times.

Examples of such possibilities are experiments from the Lejre Centre for Experimental Archaeology and Education, Lejre, Denmark where historical-archaeological experiments in producing jydepotte pottery have been made, carried out by potters such as Grethe Andersen and Edel Hildebrandt. Their work and experiments can be seen in the film *Jydepotten* from 1987 (Guldberg 1999:42–43). Today there are ceramists who have long experience in making jydepots: one example is Inger Hildebrandt, who has been teaching Inger Heeball for three years (pers. comm.). At Lejre the tradition is shown but has not been connected to archaeology so often, even if there are certain exceptions.

In the next section, I shall argue that the jydepotte tradition can have roots going back to the Late Bronze Age, and that the way of working can also have been a craft technology in Sweden.

4.1.3.1 The Oldest Swedish 'Sortepotte'?

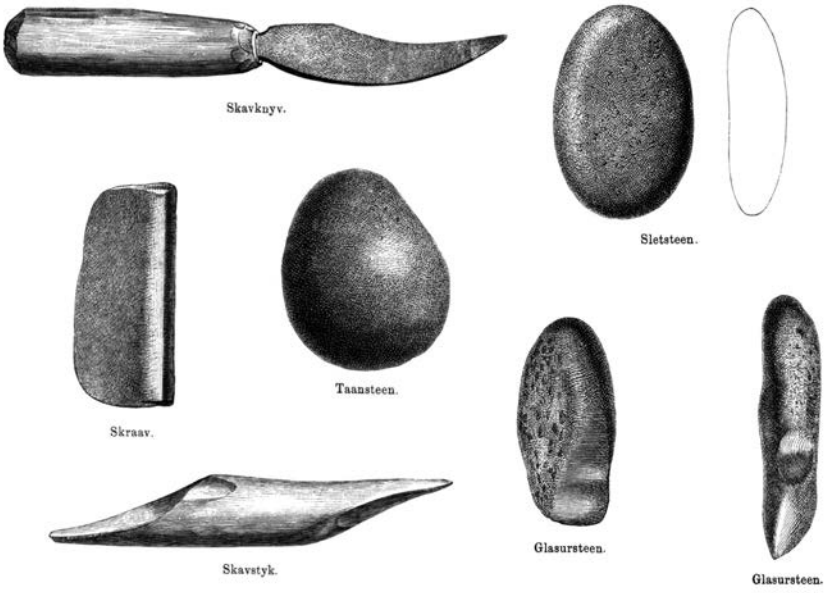
In figure 29 is seen find 6209, a low, burnished bowl with a wide handle which is black-fired cooling in a total reduction. The vessel shows that the craft-technological aspects here are shared with the jydepotte technology. The analysis of craft skill places it in the 'good artisanal skill' category. There is also a find in the material which I believe to be a tool, a smoothing stone (F5014—the find is registered as a whetstone. The smoothing stone is part of the jydepotte women's equipment along with several tools that have archaeological and historic roots (fig. 30). The 'whetstone', now recatalogued as a smoothing stone, is one of the few surviving ceramic tools that might have been used in the Late Bronze Age on black-fired, hand-built shapes and carried on through to the Danish tradition, which had continuity until 1947. Burnishing is a common surface treatment throughout the entire world even today (Vincentelli 2008 passim).

The vessel from Pryssgården is a well-crafted, smoothed bowl with a handle and traces of burnishing that match the tool that was found (see fig. 31). This find has clear craft-technological evidence that can be linked to the jydepotte tradition and is, if this *is* the case, an example of a tradition going back to the later phase (A phase) of the Late Bronze Age (Stålbom 1998:127). The firing and a possible drying house can have originated in connection with damper and colder climate intervals or periods, since ceramic crafts in particular are much affected by dampness in the air.

FIGURE 29. The black bowl with the wide handle and a tool—the picture shows find 6209, the bowl, and a smoothing stone, find 5014. Photo Katarina Botwid.

FIGURE 30. In the picture from 1881 is seen the entire set of tools that the jydepotte women used. Notice the various shapes of the smoothing stones and scraping knives. Digitally processed from F. Sehested 1881.

FIGURE 31. The picture shows how the smoothing stone is used when the vessel is leather hard (see appendix p132). The vessel is burnished with short, rhythmic strokes to a high shine. The shine depends on whether or not the clay was dried to the correct state. Photo Matilda Kjellqvist.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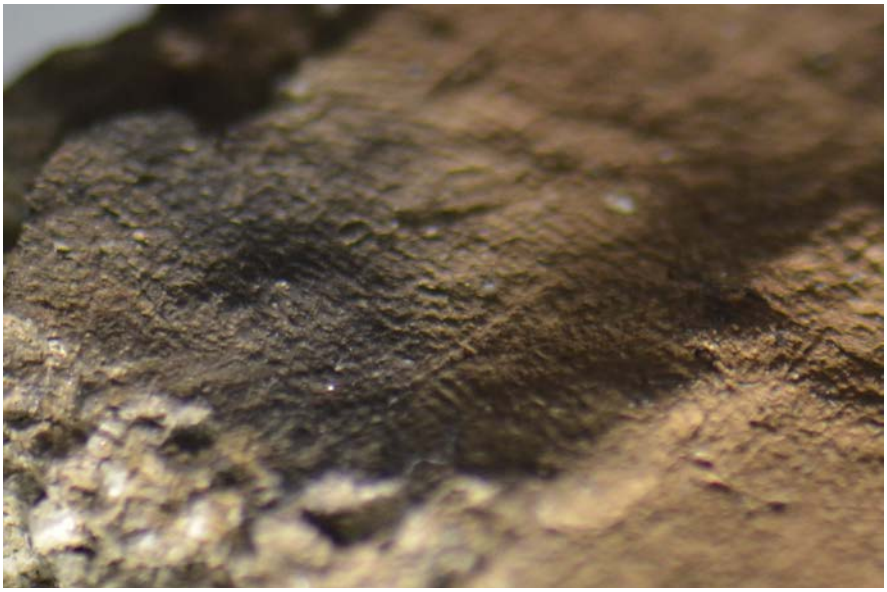
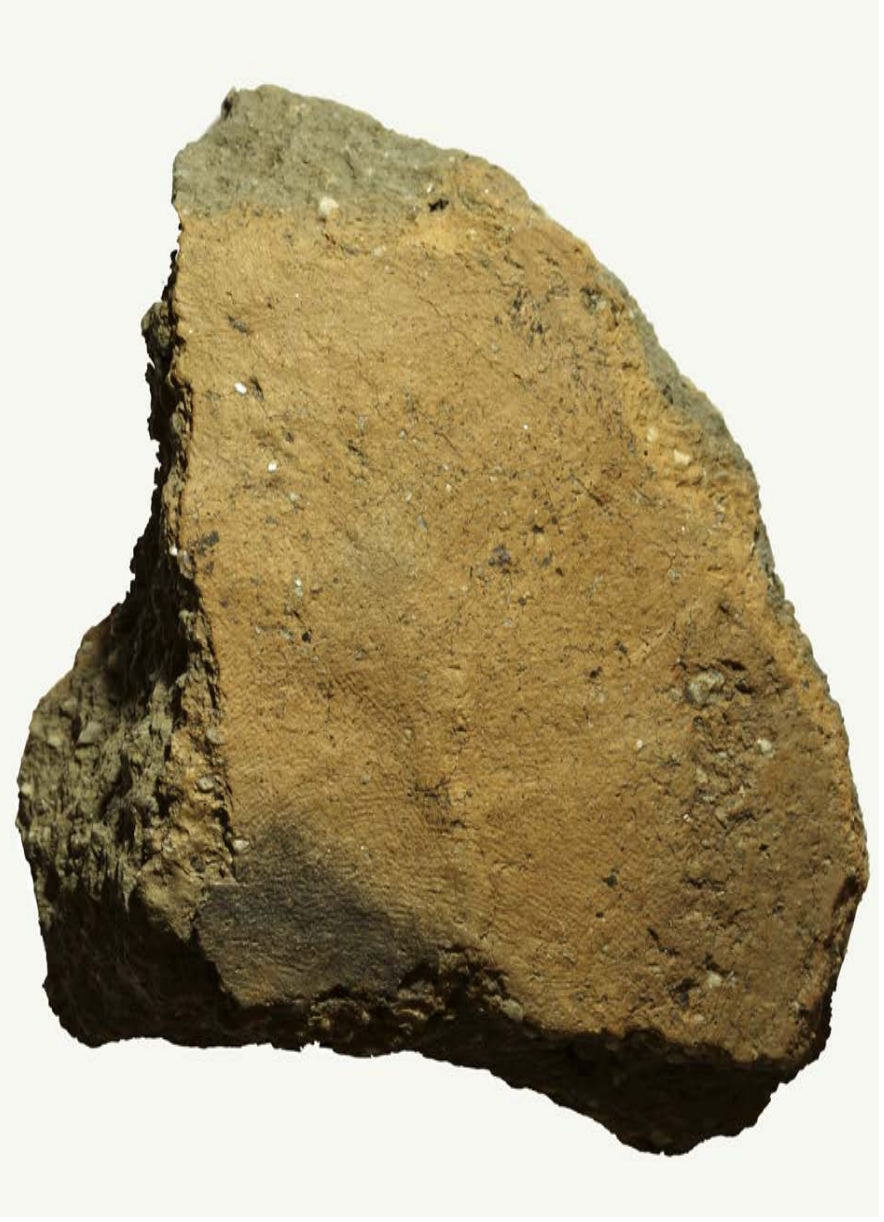


FIGURE 32. F6776, close-up and entire ceramic sherd which has irregular textile imprints of a plain-weave fabric of flax or nettle (textile analysis made by Eva Lundwall (Textile Conservation Department at the Swedish National Heritage Board). Photographs, close-up Katarina Botwid, sherd Håkan Thorén.



4.1.4 Ceramics with Traces of Textiles and Technical Ceramics

Other crafts can become visible in the ceramic sherds: as in the case with the tuyère, ceramics can point towards other crafts even if we cannot see the craft production or process *per se*. The hidden crafts, processes or tools appear in other ways. In area A1 (Find 6032), textile imprints can be seen in ceramic sherds, and, as here, in preserved loomweights—estimated to at least 10 (Stålbom 1998:46). Two of the vessels from Pryssgården have textile imprints (see fig. 32), enabling textile analysis (Stålbom 1998:138). Here we come into contact with both which textiles were used in Pryssgården and how textiles were used in ceramics. Textile imprints in the clay in the one sherd, dated to the Late Bronze Age, revealed after an ocular analysis by Eva Lundwall (textile conservation department at the Swedish National Heritage Board) that it was a "woven twill made of wool with 12 threads per cm in warp and weft." (Stålbom 1998:138).

The other sherd, which was found in area E, has an imprint of a fine, plain-weave fabric probably made of plant fibres, where the thread density in both the warp and the weft is 20 threads cm (Stålbom 1998:146).

My analysis is that the artisan in this case covered the vessels with a damp cloth to prevent them from drying out. When it was warm or when a ceramist was constructing several vessels simultaneously, the pots would be covered. This would prevent interruptions in the rhythm of the work that would cause the vessels to dry out (pass the stage where they could no longer be remoisturised to a leather-hard and flexible consistency).

In this case, the traces are partly smudged, which I believe means that someone consciously tried to smooth out the marks, but unfortunately the vessel had dried too much, no longer permitting this to be done, or that the ceramist did not need to remove the traces. My interpretation is that the imprints were not meant to be decoration.

In the same area A1 there are loomweights (see fig. 33) which are very similar to finds from a context outside of Scandinavia: the area which is today's Czech Republic (Belanova-Stolcova 2012:342). There could have been trade contacts between Pryssgården and Holubice, something which will be discussed below in the section called 'The big picture'. This group of special loomweights can thus indicate an unusual link outside of Scandinavia (assuming of course that this type of pyramidal loomweight really is unusual). In the same area, there are (according to Stålbom 1998:138) harder-fired ceramics, which he believes is indicative of a change in the way ceramics were made. This in combination with the unusual loomweights found here can further strengthen the idea of an exchange of crafts or craftsmanship.

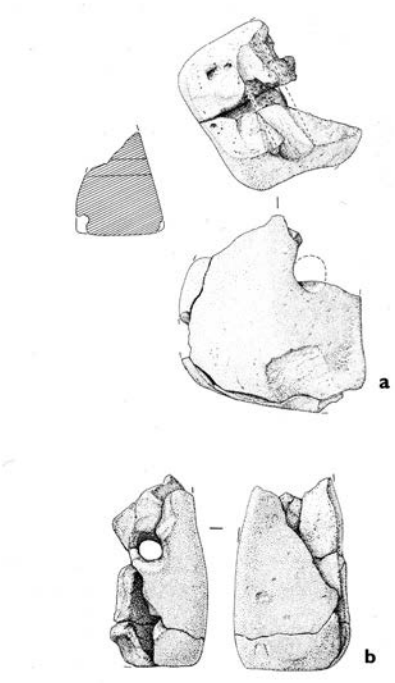


FIGURE 33. The documentation of the loomweights from area A1, Pryssgården. Photo Katarina Botwid 2015. Illustration Richard Holmgren, ARCDOC, Borna-Ahlkvist et al. 1998:146.

4.2 Use and Reuse of Textiles

In order to interpret the use of various craft products found at Pryssgården, there is good reason to reflect on how textiles can be used in pottery production or even as a covering material for clay left in a cool place to mature for a season (Köpingebro, House 4) (Tesch 1993:65). I assume that textile production was extensive. As mentioned earlier, we see in the material traces of both wool and flax (or nettles) being woven into textiles. In addition to textile artefacts, these are also used in ceramic crafting. The loomweights at Pryssgården in my observation were well fired and quite similar to the La Tène weights.

Here an artisanal analysis indicates that there is a possibility for developing the links between technical ceramics and household ceramics. This connection is often weak, for reasons that are not very comprehensible. My suggestion is that we should also speak here of technological textiles, since we see that they were used for purposes related to artisanal production. Through the imprints on ceramic sherds, we see the textile itself, which explains the presence of technological ceramics (loomweights) that in the next step show the connection to a larger contact net, like for example Holubice in present-day Czech Republic.

4.3 Summary of the Analysis Results and Discussion of the Ceramic Material in the Pryssgården Settlement

The results will be woven into an in-depth discussion in the section 'Final analysis results'. The pottery from Pryssgården is typical and characteristic for a Bronze Age settlement. The smaller amounts from other periods show no deviations from similar ceramic material—it can be viewed within the framework of a larger European context. Comparisons with other southern Scandinavian settlements do not show any differences, either (Stålbom 1998:128). The ceramics here are clearly connected with house and home, and with other crafts. Attempts to distinguish typological variations do not show any greater differences within the ceramic material—Ole Stilborg and I are in complete agree about this and, especially in the analysis of Rambodal's ceramics, our dialogue revolves around the similarities, with only small deviations between settlements. Based on the technical analyses of the material, even Stålbom says that the ceramics in Pryssgården follow a uniform and common pottery craft tradition that is evident in Bronze Age settlements. Some few finds at Pryssgården are different: these have been discussed above in the section called 'anomalies',

4.1. Based on my observations, there is no visible difference regarding a clear correlation between level of skill of the ceramist and the production: all the categories of ceramists produced all types of vases. In other words there was no work division dependent on skill: certain shapes are more difficult to make than others, but I can find no particular skill level connected to them. Perhaps there really was a community of practice at that time which was independent of status or economic considerations (unlike today, which can be said to be steered by markets). Contrary to any thoughts of economic organisation, we see at Pryssgården that there are different arenas from which I would like to discuss crafting. I find more and more questions in everyday life which affect the social side of craftsmanship. This discussion will be presented in the concluding archaeological interpretation.

5

Living in a Craft Environment – Placement of Buildings and Places for Crafting in Pryssgården

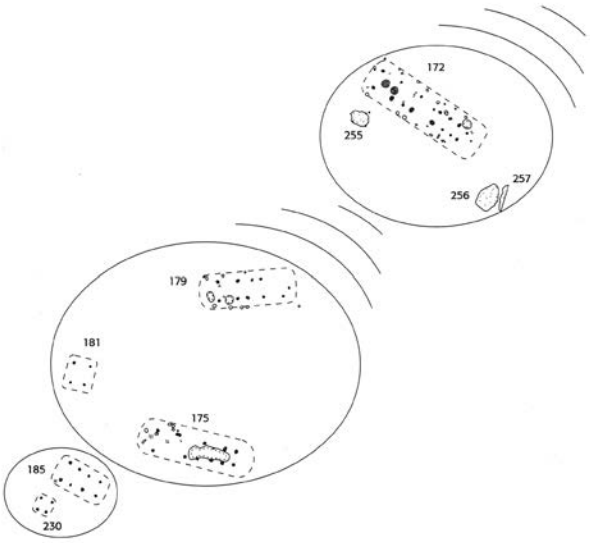


FIGURE 34. The hypothetical generations at the farmstead from the oldest houses 185 and 175, period IV (1000 BC), followed by house 179 and the youngest, house 172. These latter houses are also dated to period IV, Late Bronze Age but later (900 BC). (Borna-Ahlkvist 2002:143)

A difficulty in understand a prehistoric society like Pryssgården through its excavated material can be that the site feels 'clean': that is, that there are not many finds in the houses and thus there is a lack of interpretative source material in the context of the house itself. Clearly connecting areas of activity and smaller buildings to a farmstead can increase the possibilities of understanding possible links. The internal placement in the farmstead in the following interpretation takes up the various buildings at Pryssgården. One important part will be the reconstruction of the farmstead, which will represent the farm's organisation of crafts in the Late Bronze Age. The placement of the farmstead is chosen with care in order to be able to describe '*the house*' in a wider meaning, as Borna-Ahlkvist discusses in her thesis. She works with the social significance of the whole house and finds that three generations can have used a house construction. In her interpretation she emphasises that the *memory* of the house is found in the house construction that is left as it is or is incorporated into the next house generation, and ultimately by using building materials from the previous house to build the next one or else in some other way to allow a logical order to follow along to the new house generation. The idea of use and re-use is already present in this interpretation (Borna-Ahlkvist 2002:84–85).

I have chosen the longhouse and its outbuildings, house 172, for my interpretation. In a hypothetical chronology it is considered the youngest

of three house generations within the same time interval (see fig. 34) in area E2. House 172 and its outbuildings show the farm organisation I chose to use it as an example of the farm from an artisanal perspective. The analysis is based on the signs of craft production that I have seen. Finds from the same period in this area will be seen as active agents in this analysis as the find material is contemporary with the house regardless of the various find spots. On the basis of the picture I put together based completely on the finds and the farm buildings, I hope to be able to present a reasonable analysis. Any questions that remain after I have put the craftpersons in their proper contexts will be taken up in section 6.1 entitled 'The little picture' where these practical chores are discussed and I show what they could mean in an interpretive text.

5.1 Presentation of the Farmstead

The text and pictures in this section deal with the actual chores. The longhouse will be activated with the outbuildings and activity areas contemporary with the longhouse (see fig. 35). The smaller buildings are two pit houses, differently shaped from each other and with different functions (buildings 255 and 256). The activity areas are interpreted as a cooking pit (A59009), a grouping of pits (A59469) with many small internal features, and pit (A54275), which is a larger pit. Directly linked to it is a smaller but longer pit (A54588) (see below fig. 41). North of the activity area A, which is next to the longhouse, there is another activity area which in my opinion belongs to the extended farmstead area. It is about 15 m from the northwest wall of the longhouse to this area, which has 7 hearths (A50659, A50670, A50680, A62488, A53742, A53581, A53766), five storage pits (A61526, A51513, A51523, A53788, A54715), a group of pits (A53692) and some larger pits (A54766, A59153, A54733) (see below fig. 44). Between these features there are also some post holes which cannot have been used for any structure. These holes are connected with the groups of pits and hearths without being in the way for the work activities: the post holes will be interpreted later in the reconstruction, where my interpretation can provide answers to the questions about the activities. It will also be compared with earlier interpretations regarding rubbish or sacrifices (Stålbom 1998:132). Hopefully the reconstruction can provide a foundation for the analysis of what a person or a group of people living in the house actually did. The idea of sacrifice that Stålbom presented will not be discussed in connection with the reconstruction: however, in section 6.1 'The little picture' I will return to the possible organisation of the site.

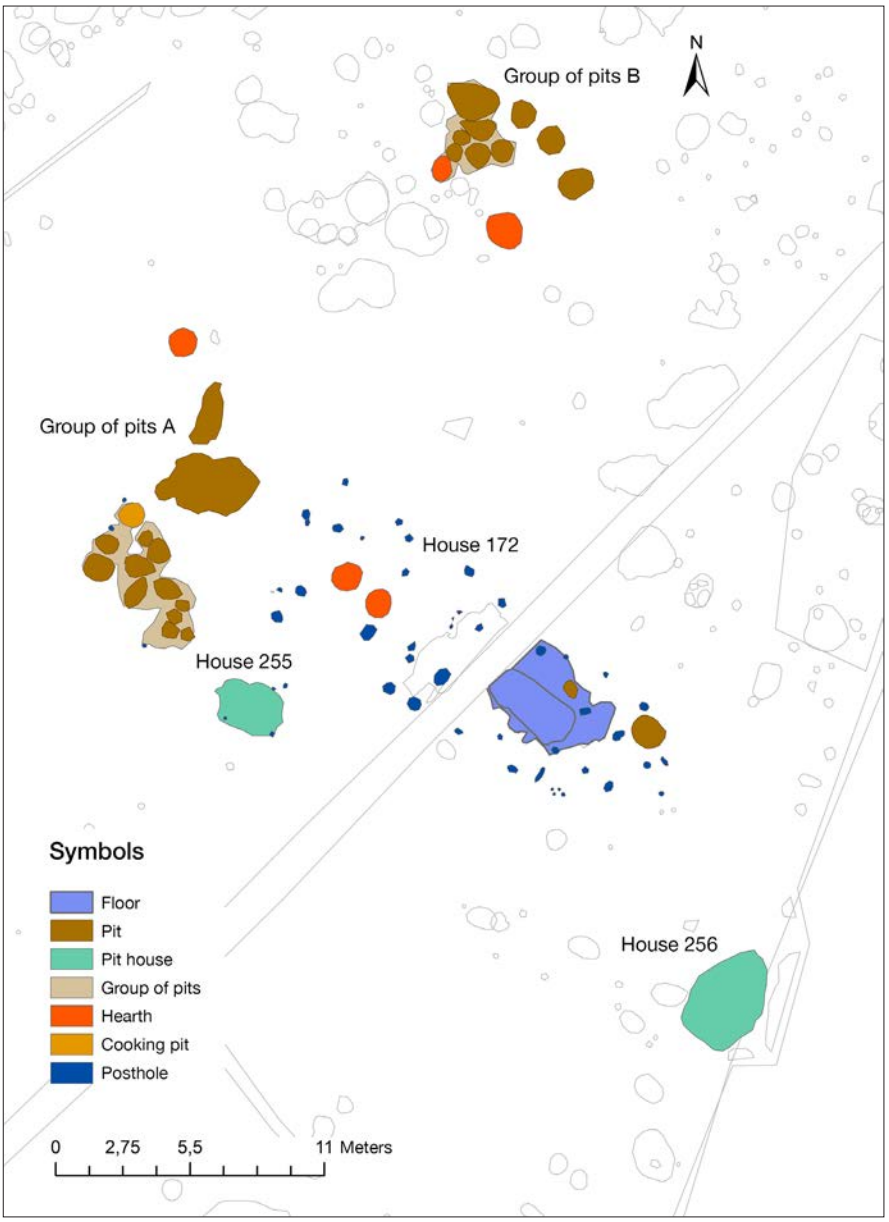


FIGURE 35. Farmstead house 172 and the feature numbers.
Karin Lund, SHMM.

5.2 The Farm

The reconstruction of the main house (172) is divided into functions according to the structures described by Borna-Ahlkvist (2002:6ff), where the hearths are in the western part of the longhouse and the working part in the eastern part in the Late Bronze Age (see fig. 36). The raised hearth which is in house 172 is found in only one other house (174) and is also dated to the Late Bronze Age. I have used and reconstructed all the parts that have been defined in the house along with the find material that was found *in situ*. The three-generation house has a living area in the western part where the hearth and raised hearth are found, and work areas, a loft and storage in the eastern part. There are no traces of animals quartered indoors in house 172. After the reconstruction of house 172 I will take up the reconstruction of house B14:VIII which was made by Sten Tesch in collaboration with the The Ekehagen Open Air Museum (see fig. 37). The reconstruction has been used as a model for the shape and external choice of material.

5.2.1 Pits at Pryssgården

In the area I delineated there are no pits of the type that Lena Lindgren-Hertz defines as preparation pits for preparation of food or crops. Those pits at the site are considered to be *groups of pits or pits* (A59469, A54781 A62569, A54766, A59153, A54733), *storage pits* (A48554, A50515, A61526, A51513, A51523) or *rubbish pits* (A54588) (Lindgren-Hertz 1998:87–88). Looking at them from a craft production perspective, some of the pits will get new interpretations, but for the sake of clarity they will be named by the definitions Lindgren-Hertz gave them above with the feature number connected to each attribution (for more specific information about the large category of pits and their definition, see Lindgren-Hertz's section in the report from 1998, pp. 72–102). In the current text, I shall take up only those pits I plan to work with.

5.2.2 The Farmhouse and Outbuildings

The farmhouse is a longhouse from the Late Bronze Age. It is 16.5 m long, or 18.5 m including the eaves. The width is c. 6.20 m, narrowing towards the southeast: the smallest width in the aisles was 1.45 m and the widest was 3.70 m. The hearth was radio-carbon dated to 1035–827 BC cal (Ua-6636) (Borna-Ahlkvist 1998:190). Close to the houses were

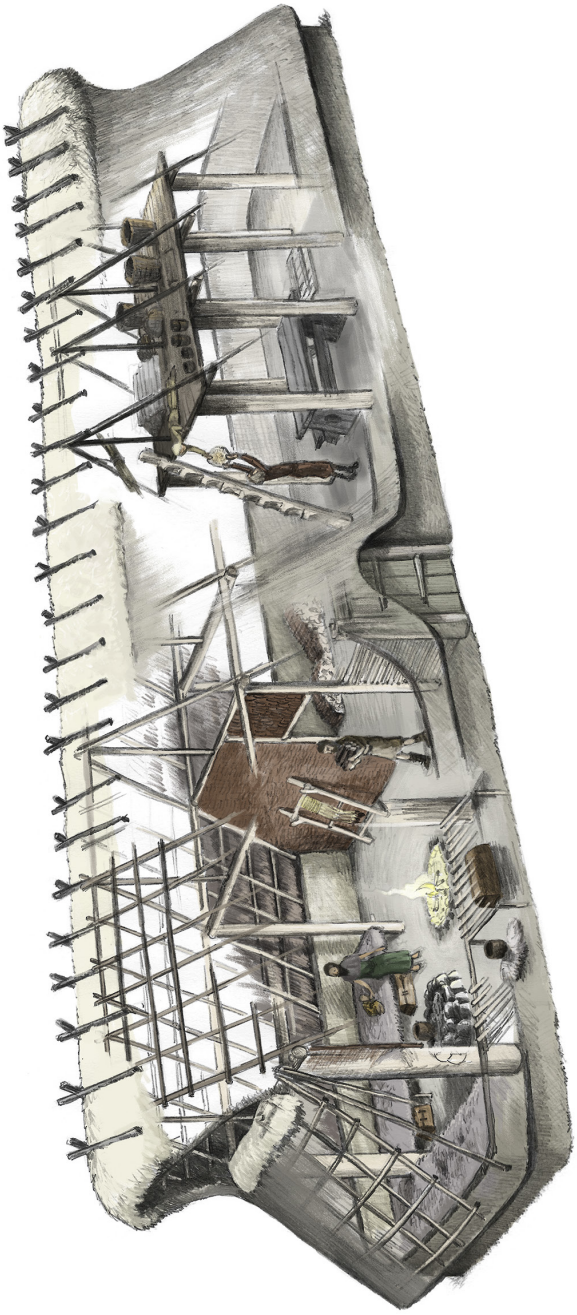


FIGURE 36. Reconstruction of the internal functional divisions of the longhouse based on Borna-Ahlkvist (Borna-Alkvist 2002:61ff). Illustration Henning Cedmar Brandstedt.

FIGURE 37. The longhouse from the Bronze Age. Sten Tesch's reconstruction of house B14:VIII from Köpingbo, southern Sweden, built on The Ekehagen Open Air Museum. Today, 20 years after it was built, the house is still standing and works well (2015). The room division is similar to that at Pryssgården house 172. The house had a package of clay wrapped in a textile (which left imprints in the clay) and was kept in a so-called storage pit well protected from frost. Already in 1984 Tesch reported it as a prepared clay package that was being stored for use in the farm's pottery production (Tesch 1993:165), an early artisanal-perspective interpretation. Photo Henning Cedmar Brandstedt.

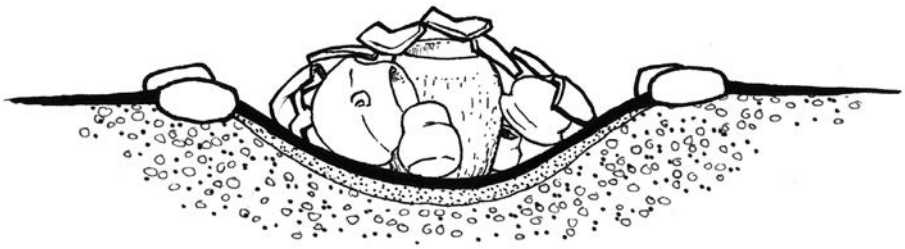


FIGURE 38. The construction of the farm is seen and its relation between the outbuildings (255 and 256) and the longhouse (172) and the near-by activity areas west and northwest of the longhouse. Illustration Henning Cedmar Brandstedt.

FIGURE 39. Large sherds, used as packing material in firing ceramics. The scale is that given for the feature considered earlier as a cooking pit. Illustration Henning Cedmar Brandstedt.

two pit houses which had been used in very different ways: the rounder one, no. 256, was built with 8 thin posts. I interpret it as a ceramic drying house. This activity will be more clearly described in the section called 'outbuildings and function', where I discuss and reconstruct several outbuildings in the same section. House 255 was used, in my opinion, as a storage building for the various needs of the farm. In the yard there are two work areas—judging from the associated finds, they were places for 'hot' crafts: in this case, bronzework and ceramics.

5.2.3 Crafting Pits in the Farmstead

To the left of the longhouse a complicated system of small pits, A59469 (fig. 38), 12 in all. This type of pit cluster is classified as work pits, are often in groups, and can be related to the Bronze Age houses at Pryssgården rather than to the Iron Age houses. The groups have an uneven distribution, which can mean that certain activities were connected to specific groups (Lindgren–Hertz 1998:87). By this I mean that we see a work area organised for ceramic crafting. In the cluster near house 172 there are finds (ceramics) and in the hearth at the northern end of the grouping there is something which is considered a cooking pit (A58990), with ceramics in it (56 g). The largest collection of ceramics is found in the biggest group in the work area (A54275), with 1546 g of pottery sherds. In my analysis of the different work pits, I believe that the largest one (A54275) functions as a pit for storing fired sherds that will be used as protectors and fillers in the pit firings when fired new ceramics (see the reconstruction [fig. 39] and 'filler' in the appendix).

There are two finds in the feature that are discussed by Stålbom and thought to have had influence from outside the Scandinavian area (1998:129), which will be discussed in connection with the work pits, which are located only 15 m north of this pit group. Finds F6032 and F6021, which were recovered in this feature, are presented in the section 'Anomalies' and will be discussed later along with the other features in section 7.2, 'The big picture'.

After this review of how so-called pottery stored in pits can constitute craft-technological traces of activity in ceramic crafting, the different activity areas for pottery sherds can be organised according to the following:

Based on the table in figure 40, which shows how reuse can be seen in the pit groups, you can see that at least three pits in the pit cluster (fig. 41 and 42) can have been used for containing sherd material sorted by size: the large pit (A54275) and two smaller ones (A59381 and A54526).

Table for the Reuse of Ceramics				
The table shows the different usage activities in the ceramic features for the reuse of fired clay for different purposes within ceramic crafting. The material is created, refined, altered or reworked in a craft-technological circulation. Different activity areas for fired clay—higher than 600 °C—for reuse, organised in pits, which is the point at which the clay material becomes ceramic in the technical sense.				
USAGE	SIZE OF CERAMICS	PREPARATION	Size of Feature	USAGE
FILLER	Big sherds	Direct usage	Big	To protect unfired vessels under and over the vessels (see fig. 39). When the big sherds become more fragmented (after firing), they fall into the next category.
TOOLS	Smaller sherds	Ground, sanded, reworked	Smaller	Tools can be scrapers, lids, heat protectors, and so on. When they break they are put into the pit for fragments.
TEMPER	Fragmented ceramics	Ground [chamotte] Note: in Bronze Age with handstones.	Smaller	Kneaded into the prepared clay to tolerate changes in temperature. As the material is already fired and of the same character as the clays they are worked into a very good temper.
BUILDING MATERIAL	Fragmented	Ground [chamotte]	Smaller	Used in wattle and daub for inside walls in the Bronze age (Jensen 2006:350–351)

FIGURE 40. Table showing reuse of ceramics. The circulation goes from broken pots to big sherds thereafter to fragmented sherds and end up as temper (chamotte) in new pots or as building materials. See the placement in the pits in the reconstruction in figure 42.

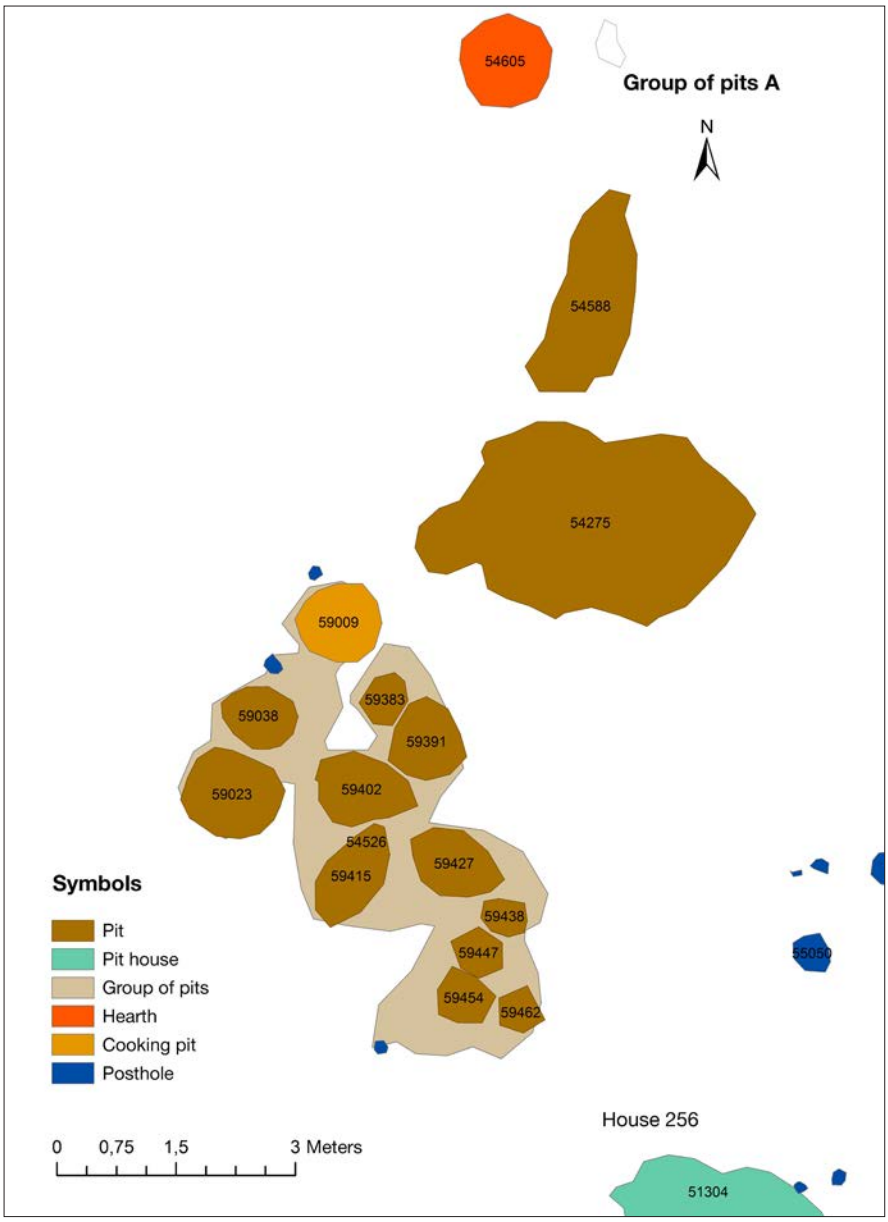


FIGURE 41. The figure shows the features with the feature numbers, new information after combining the finds and feature databases in August, 2015 (see the earlier section 'material and source criticism'). Karin Lund, SHMM 2015.

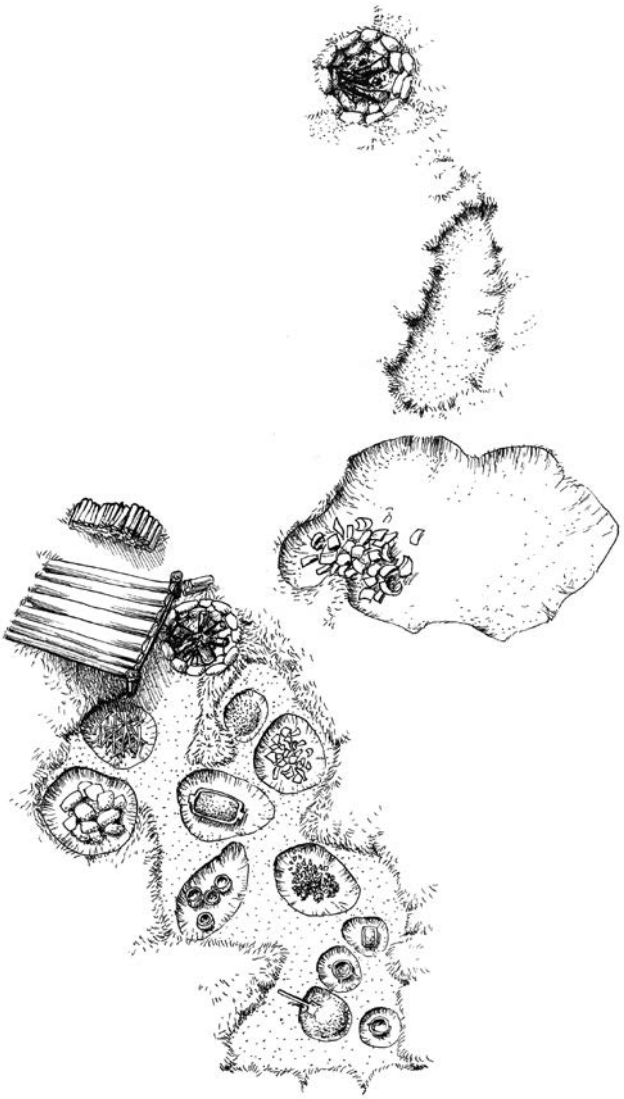


FIGURE 42. Analysis and reconstruction of the pit group (A594699) during the Bronze Age with the contents of the various pits. Illustration Henning Cedmar Brandstedt.

Brittle-burnt stone, crushed, ground brittle-burnt stone, and sand can be sorted into three more pits in the feature (A59469). Colour materials belonging to ceramic crafting and prepared within the framework for it leave traces that can be seen in archaeological Bronze Age material, for example in those parts of painted walls preserved at Kirkeberget in Voldetofta, Denmark, where parts of wall paintings with different red and red-brown iron oxide colours have been studied together with frieze-like decorative parts in ceramics of the building which might have framed a doorway (Jensen 2006:351–352). Another example, but later, from the Late Iron Age, around the birth of Christ is the red crayon which was preserved in Gustavslund and which indicates a more colourful past than what is usually assumed in reconstructions (Botwid in press). The materials which were prepared can be sorted into basic materials like selected parts of ash and hazel trees (1 pit), red earth (1 pit), and pulverised, dried, crushed clay which is untempered and cleaned (1 pit); material rich in calcium, like chalk (calcium carbonate) (1 pit); interesting materials which glitter (stone which looks like gold and which gives a gold shimmer to a ceramic or colour production) (1 pit); processed colours which can be preserved in small vessels (Stålbom 2004:128ff) with covers or leather covering (Ericsson 2009:82) to keep out moisture. These suggestions imply an interpretation that places these technically possible (probable) raw materials in the Late Bronze Age farmstead. One feature missing here is the larger incineration area in the organisation of this farm. My interpretation is that it was farther away from the house, at the edge of the work area (see fig. 43). Feature A54605 is considered a hearth: the definition of a hearth is a round or oval area that measures 0.2–2.0 m and which has layers of charcoal and soot, often with stone chips in the layers. The preserved depth at Pryssgården is 0.1–0.5 m (Lindgren-Hertz). In my analysis I put the farm's large incineration area in this feature. In the whole system of pits and hearths, there are remains of ceramics that weigh 3683 g, divided into different pits.

It is also clear here that the distribution of ceramics is found in 7 of the small pits in feature A59469, which strengthens my interpretation that it was sorted and makes the assumption about the ceramic-related base material reasonable.

5.2.4 Taphonomic Discussion of Ceramics

Pottery produced by professionally skilled artisans is better made, it does not crack as often in the firing process and does not break when used normally. Further, it is possible that it was well taken care of if it was

FIGURE 43. Here is seen a reconstruction of the ceramic workplace. Farthest away in the picture is seen a pit where ceramics are being fired, and next to the wind shelter, a reduction firing. The pit system is drawn in the area between the workplace and the pit house to the right. Illustration Henning Cedmar Brandstedt.

appreciated for its quality, and moved with the people when the household moved (Borna-Ahlkvist et al. 1998). The vessels run the risk in that case of being underrepresented in a settlement of this character (finds found in pits outside the house like in A79037) (Borna-Ahlkvist et al. 1998:109). Pottery made with good artisanal knowledge (GAK) keeps well despite frequent use (cooking over an open fire, for example) and there might be a larger percentage of such pots (made with GAK) where the effects of the usage on the wares are known. It is possible that people produced more cooking vessels than storage ones for this reason.

After they broke, many vessels were converted to chamotte temper that was included in both new pots and as temper for plaster for walls and hearths. As a result a great number of vessels disappeared. One thing left to interpret is that despite the degree of preservation and the size of the amount of finds, the material is much less varied that the original ceramic material might have been. If one gives too much importance to taphonomy, the dominating character of the mass material gives an incorrect picture of the amount and type of ceramics which were used on the site. On the other hand, the material gives an excellent idea of how it was reused. A good example of the long duration of cooking pots is seen by a reconstructed pot used at The Ekehagen Open Air Museum (near Falköping, Sweden) which was in use for ten years in making fruit soup to serve to the visitors (about 30,000) each year during the season from April to October (pers. comm. Maryam El Hattab 2013). The pot had been used on hearths both indoors and out of doors, which meant high risks. It was coarsely tempered, and fired at a medium temperature—it finally broke into two pieces in the summer of 2013. Judging from this and other experiences of long-term usage in similar cases, it is clear why it is very difficult to estimate the original amount of ceramics in a settlement or farm.

5.2.5 A Possible Work Area for Bronze Working

North of the farm and connected directly with the farmstead was another activity area (see fig. 44 and the reconstruction in fig. 45). 'Hot' crafting possibly took place here (see fig. 46, reconstruction/visualisation of craft event). The entire work area was in an area of 8 × 2 m. In the middle of the area was a row of posts, which did not disturb any feature. The cluster of pits A53692 is a smaller group with 6 pits and a hearth (A62488) on the edge. Lindgren-Hertz believes that the system was used for 'hot' crafts and considers the pits well defined, with flat bottoms and sloping sides. They are c. 30 cm deep. Directly connected to these are storage pits (1.5–2 m) north of the work pits in the system (Lindgren-Hertz 1998:94–95).

Reconstruction of the work area according to my interpretation as follows: In the pit group A53692, despite the small amount of spillage from metalworking in the pits themselves, some pits were thought to have been work pits for bronze casting. The layout and structure is similar to the group of pits used for ceramics as described above in fig. 42. No soapstone moulds have been found but there is clay in the feature, which could have been remains of lost moulds close to the pit group. In its southern end is a hearth (A50680) that contains find F5918, the 'Pryssgården figurine' (now redefined as a tuyère-see above, section 4.1). The tuyère shows clear signs of having been used—the clearly sooty interior by the rim indicates this. If it had been handled correctly, it could have been used many times. I base this on the archaeological experiments which were conducted during the reinterpretation of the so-called Pryssgården figurine as mentioned above: a tuyère which is handled correctly can melt a kilo of bronze in two hours with no signs at all of sintering.

There are finds of crucibles typologically belonging to bronze crafting which exist in the material: however, the measurable values of metal found after x-ray fluorescence analysis are too weak to make a definitive conclusion. This in itself of course does not exclude the possibilities that the crucibles were newly produced or had not been used often (Botwid and Eklöv-Petterson in press). In the same feature was found a miniature vessel which could possibly be assigned to bronze crafting: many stone chips and soot in the hearth, which could indicate hot crafts (A50680). Just behind the group of pits in the area are storage pits. They have not been described in any great details but are considered by Lindgren-Hertz as possibly belonging to the work area and according to her interpretation were all open at the same time (Lindgren-Hertz 1998:95).

Bronze finds are few—in total there are 30 g of bronze from 11 findspots in the entire find material (Stålbom 1998:147). An example of objects is a bar button (F2954) (Stålbom 1998:140), an unusual bronze knife (similar to iron age) (A16517) and a bronze fitting (A16113) (Stålbom 1998:141). Two finds from the Late Bronze Age were found in area E2 where the farmstead is located, the one being a four-sided thin bronze bar and the other, a slightly bent bronze bar with an oval cross-section, considered a piece of a bracelet or neck ring (Stålbom 1998:141–142). If the finds of snipped-off thin bronze bars were made locally at Pryssgården is uncertain, but these thin bronze bars can be understood as bronze scrap metal for reuse in bronze casting (pers. comm. Andreas Nilsson Oct. 26, 2015).

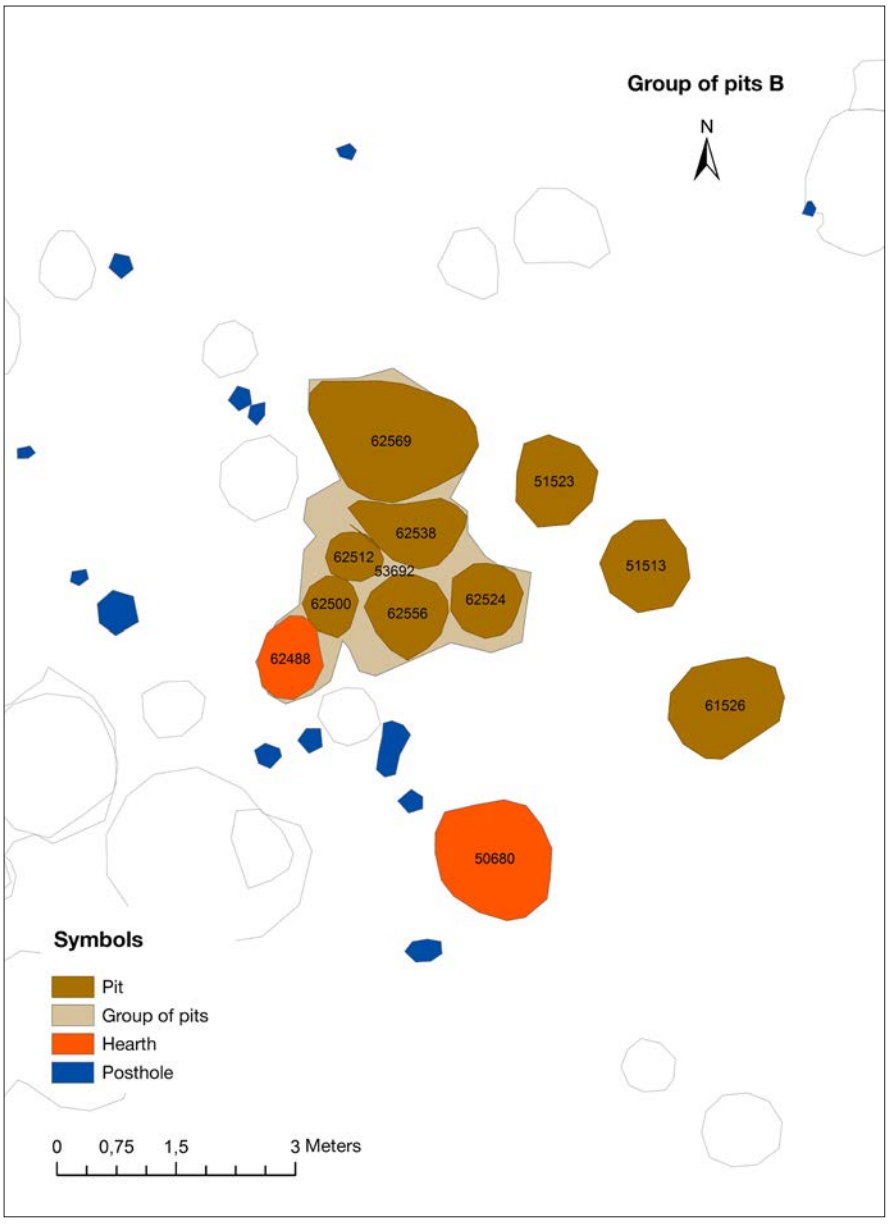


FIGURE 44. Site of bronze working with the various pits and postholes. New information after combining the find and feature databases in August 2015 in collaboration with Karin Lund SHMM (see the earlier section regarding material and sources).

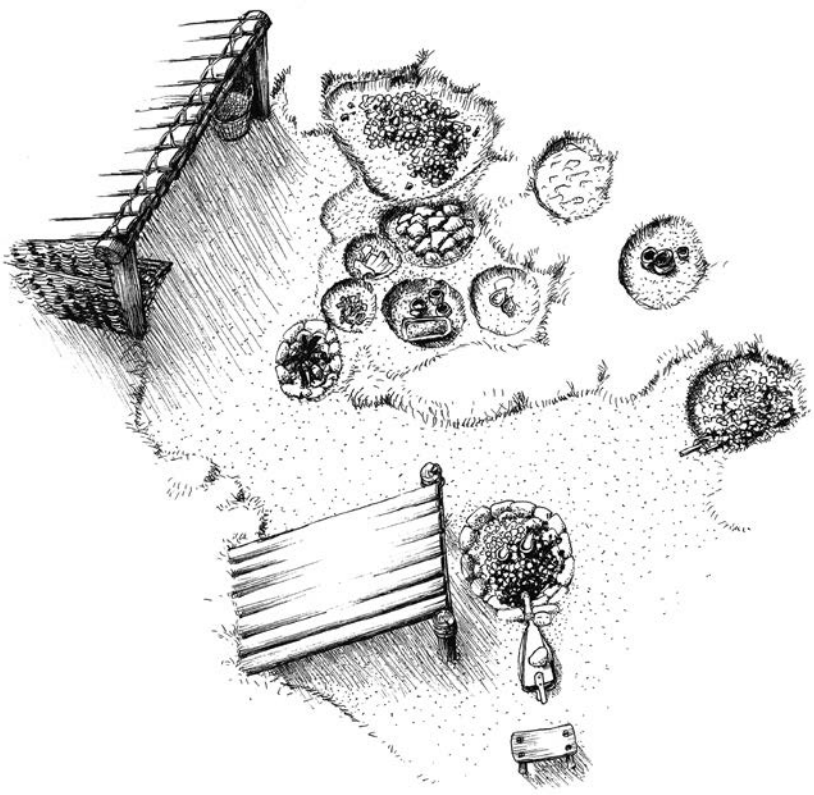


FIGURE 45. Reconstruction of activity and work areas in pit group B. Illustration Henning Cedmar Brandstedt.

FIGURE 46. The visual aspect of bronzeworking at Pryssgården. The illustration follows the plan that was shown in figure 45. Illustration Henning Cedmar Brandstedt.

5.3 Three Bronze-Age Buildings in Pryssgården – Analysis and Reconstruction from an Artisanal Perspective

The research on the buildings in Pryssgården (see fig. 47) has been based primarily on comparative and chronological studies. For more in-depth analyses, there is an extensive chapter in the report (Borna-Ahlkvist et al. 1998:53–71). The catalogue for the buildings in the same volume gives a building-archaeological interpretation, and divides the buildings into various subcategories (Borna-Ahlkvist et al. 1998:167–258). In her thesis *Hällristarnas hem* (Borna-Ahlkvist 2002), the author advances the idea that the buildings on the site were clustered together on the farmstead, with activity areas and outbuildings connected to the longhouses (Borna-Ahlkvist 2002:130ff). In addition to an in-depth study of the buildings' chronologies and probable building phases, there is also an interpretation of the importance of the buildings for the population (Borna-Ahlkvist 2002). In this presentation a small number of structures represent farmsteads from the Late Bronze Age along with the longhouses, outbuildings and work areas.

The longhouse (172) is reconstructed (see fig. 36) based on the (probable) number of people who lived in it. Here Borna-Ahlkvist considers the house as a three-generation dwelling (Borna-Ahlkvist 2002:61). Belonging to the house are two outbuildings considered pit houses (255, 256) and the two activity areas described earlier. The various features on the farmstead have been discussed above and the suggested reconstruction has clarified which activities I consider reasonable to discuss from a craft perspective. The following reconstructions I suggest within the functional divisions of the buildings follow as closely as possible suggestions and reconstructions of them which were presented earlier (see among others, Tesch [1993:166], and plate 6/3 a–d; [Tesch 1993] and Borna-Ahlkvist [2002:60–62]).

The insides of the buildings with their equipment, furnishings and possible work places are suggestions, not definitive interpretations, linked to the finds at the site and follow the empirical data as closely as possible. Buildings 255 and 256 in this way of thinking are outbuilding with different functions related to the activities of the farmstead. Building 256 is reconstructed as a drying house for ceramics, and 255 for stores and storage. The interpretation and reconstruction of the house and outbuildings aim at constructing a picture of the entire farmstead.

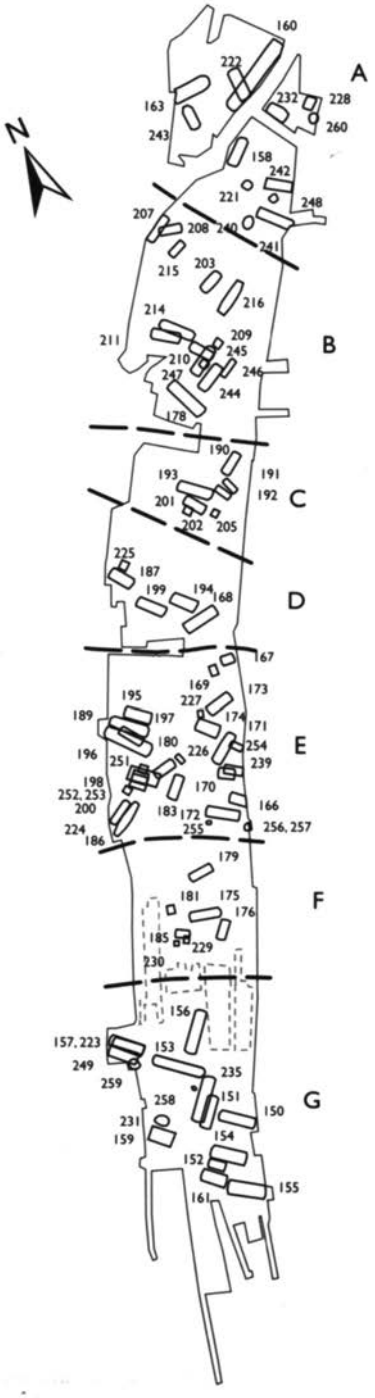


FIGURE 47. The whole excavation area and the placement of the various buildings. Borna-Ahlkvist 2002:18.

5.3.1 Outbuildings and Functions in the Late Bronze Age – Three Examples of Reevaluation of the Building Remains from a Craft Perspective

After having carefully studied the report on the various outbuildings in the catalogue of the houses (Borna-Ahlkvist et al. 1998:167ff), I shall delimit my study to three outbuildings from the Late Bronze Age. The houses have different characters and are considered to have completely different constructions: by looking carefully at the stratigraphy and types of each building, I could determine which suggested craft activities I could find believable. Houses 255 and 256 contributed to the choice of the farmstead around house 172, which is from the same period: together with the activity areas in the same farmstead area, they formed a suitable starting point. Building 152 is a three-aisled outbuilding and has been chosen as a candidate for a craft building. The house can be multifunctional, but is interpreted and reconstructed in the following as a building used for ceramic crafts.

5.3.1.1 A Step-By-Step Reconstruction of the Drying House for Ceramics – Building 256 in Area E

House 256 (see fig. 48) belongs to the farmstead and is situated far to the east in the farmstead area. It has been interpreted as a pit house and dated to 991–820 cal (Ua-7191) (Borna-Ahlkvist et al. 1998:254). In order to describe how I understand their interpretation and description of the house, I reproduce their text below:

> Description. The house is interpreted as a pit house. The house had a somewhat oval shape. The dug-down walls of the house were straight and the bottom was flat. Around the pit were 8 thin post holes with an average diameter of 0.5 m and an estimated depth of 0.3 m. The post holes are most likely a part of a wall, the remains of a wattle construction. In the northwest part of the pit was a 'wreath' of stone chips which could have been like a low wall around the house. Either the stone chips strengthened the wall or they are the remains of some production activity that took place inside the house. The fill in the house was composed basically of five levels. In the bottom of the pit there was a 0.05 m layer consisting of greasy, somewhat sooty humus soil, interpreted as a floor level. Above that are two layers, interpreted as collapsed structures, consisting of sooty humus with some few stone chips. On top were two greasy, sooty layers with humus soil: both contained many stones chips. The layers were considered infill. There were finds in all the layers with the exception of the bottom layer. The finds give no indication of the function in the pit house. (Borna-Ahlkvist et al. 1998:254)

5.3.1.1.1 Outbuilding 256 Interpreted as a Drying House for Ceramics

In the description above there are several different pieces of information which indicate that this building was a specific drying house for ceramics. The absence of bones or other types of food remains like grains or similar types of foodstuffs allows the function of the structure to be interpreted as an activity not connected with food preparation. The activity suggested here—that of ceramic production—is based on the stone chips: stone when repeatedly heated up crystalises and becomes brittle. My analysis of the function of this building is based on the fact that during the Late Bronze Age the weather became colder and damper, culminating about 600 BC (Tesch 1991:126): the need to dry newly-made pottery can have arisen. The stone chips were used for strengthening and the flat bottom for building up drying racks in the low pit house. The thin post holes functioned at that time to stabilise the wattle wall in the construction (see fig. 49). Cut-out sections of sod or turf were mounted on the outside of the wattle structure to make the construction airtight. The ceramics were placed with the vessels upside down and several vessels nestled in a layer of fired sherds often three-and-three. These sherds in their turn were put on split poles which created a grid that rested on the stone-set rim of the pit. The ring of stones around the pit rim contributed to the stability the ceramist aimed at in his/her work. The door to the right in the picture is made of wattle which is loose and covered with sod or turf and fits into a frame set into the wall of the house.

The craftsperson works from the inside and out, towards the opening in the structure. S/he lays down a layer of sod on the bottom of the pit and put two poles across. Then s/he puts the large already fired sherds on top of the poles that now make a 'floor' in the middle of the construction. Thereafter s/he put in the vessels to be dried on top of the sherds. The sherds are used to protect the vessels against high temperatures and possible humidity from the wooden poles and the bottom sod. As the artisan works his or her way towards the door, s/he continues the procedure until all the vessels to be fired are resting on top of a layer of large sherds that in their turn rest on the grid of poles. When the grids, the filler, the sod and the new ceramics are all in place a small fire is set in the sod layer by taking some coals from a hearth and 'sprinkling' them along the edge of the sod blocks—the coals are only supposed to glow. Then the opening is closed and the drying house is carefully watched and new sod is added to the smoke-fire for a day or two. The ceramics are then carried out still hot to the firing pit, which was prepared the day before and which is stone or clay lined and dry. If it is raining or windy, the planned firing day

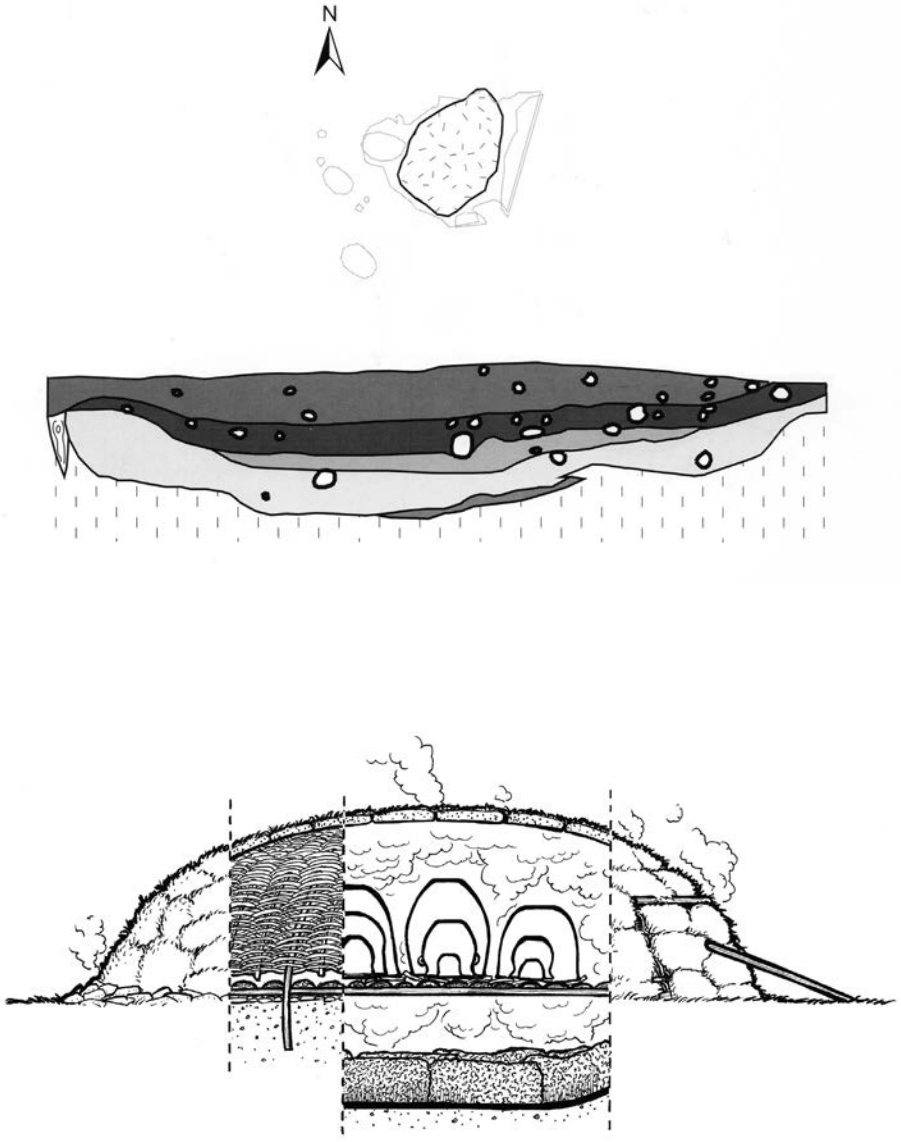


FIGURE 48. Outbuilding 256 (pit house, c. 4 m long and 3 m wide, with a depth of 60 cm) plan and section from the catalogue of buildings in Borna-Ahlkvist et al. 1998:254

FIGURE 49. Reconstruction of outbuilding 256 as a drying house for ceramic production. It is c. 4 m long and 3 m wide, with a depth of 60 cm. Illustration Henning Cedmar Brandstedt.

FIGURE 50. (opposite side) Jydepotte women at two different types of drying houses which can structurally be compared with pit houses from the Late Bronze Age. The figure shows two examples of ceramic drying houses: the one with the ceramist standing is more like a hut. The poles on the bottom are clearly visible. The other model is more like a pit house where you clearly see how the craftswoman takes out the hot vessels and places them on a bed of fired ceramic sherds so that the cold, damp earth will not cause them to crack or split. Thus the sherds that were not considered earlier to be connected with the pit most certainly were in my opinion. A.G. Jensen, Jydepotten – vort lands ældste haandværk. 1924:37.

is postponed and the drying house continues to keep the unfired pots warm and dry until it is possible to fire them. This hypothetical scenario is based on experience of artisanal craftsmanship and on the long European craft-technological ceramic tradition which was carried forward up to historic times on Jylland—the so-called 'jydepotte tradition' taken up above. Extensive descriptions of the craft technology are found on pages 9–46 in Andreas G. Jensen's book *Jydepotten – vort lands ældste haandværk* (The jydepot – our country's oldest craft) published in 1924. I used the pictures there of two drying houses as the source for my analysis of how they could have been constructed (see fig. 50). Jydepots were mentioned in written sources for a long time (Claud-Hansen 2012:197; Guldberg 1999:41; Lyngaaard 1972:30; Jensen 2006:358). These techniques are still practiced today in ceramic production even if the drying house has outlived its usefulness as heating in workshops and slow firing in electrically heated kilns has facilitated production the last 50 years.

5.3.1.2 Step-By-Step Reconstruction of the Storage Structure 255 in Area E

Building 255 is interpreted as a pit house and is 3.3 m long and 2.7 m wide, with a depth of 40 cm (see fig. 51). The building is dated contextually to the Late Bronze Age. It has a flat bottom and four post holes that are thought to have supported the roof. The posts were 20 cm in diameter and 10 cm in depth. The finds were of a general nature (Borna-Ahlkvist et al. 1998:253).

I have included building 255 in my interpretation of the buildings at Pryssgården as there is nothing that implies crafting, heating, hearth or firing in the building. Its sunken bottom and more slender posts can indicate a simpler construction, one which is fine as a building for storing things needing a cooler climate, similar to those root cellars or more shallow, covered pits which existed in to historical times. In the reconstruction, various items and commodities are stored: both the things being stored and the physical structure are hypothetical. According to Stålbom (1998:113) rusticated storage vessels are limited at Pryssgården to the Late Bronze Age.

In my interpretation of the house as a storage building (see fig. 52), its contents would be those parts of the family's basic needs that would not fit into the longhouse. In such a storage facility, very low temperatures are not required for keeping foodstuffs like seed, flour, root crops, pickled vegetables and dried fruit and berries in pottery vessels. They are kept dry if the pots are porous and made from a relatively coarse-

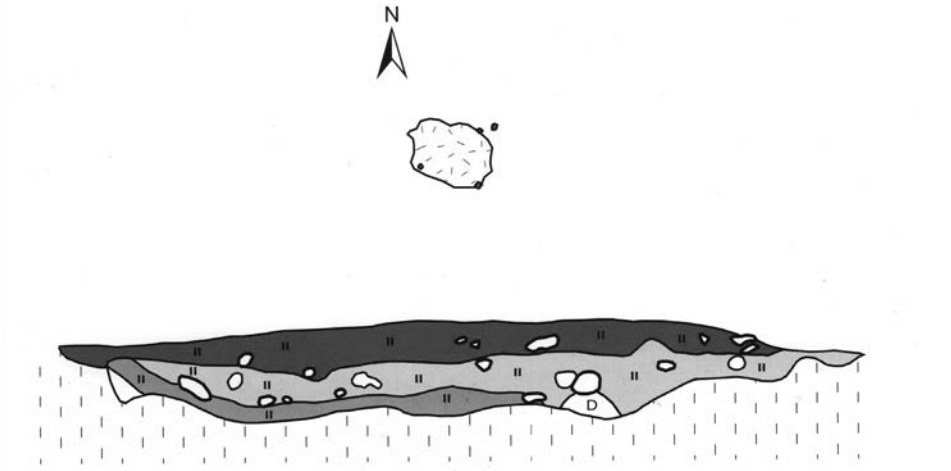


FIGURE 51. Plan and section of outbuildning 255 (pit house, 3.3 m long, 2.7 m wide, with a depth of 40 cm) Borna Ahlkvist et al. 1998:253.

FIGURE 52. House 255 is interpreted as a storehouse. Illustration Henning Cedmar Brandstedt.

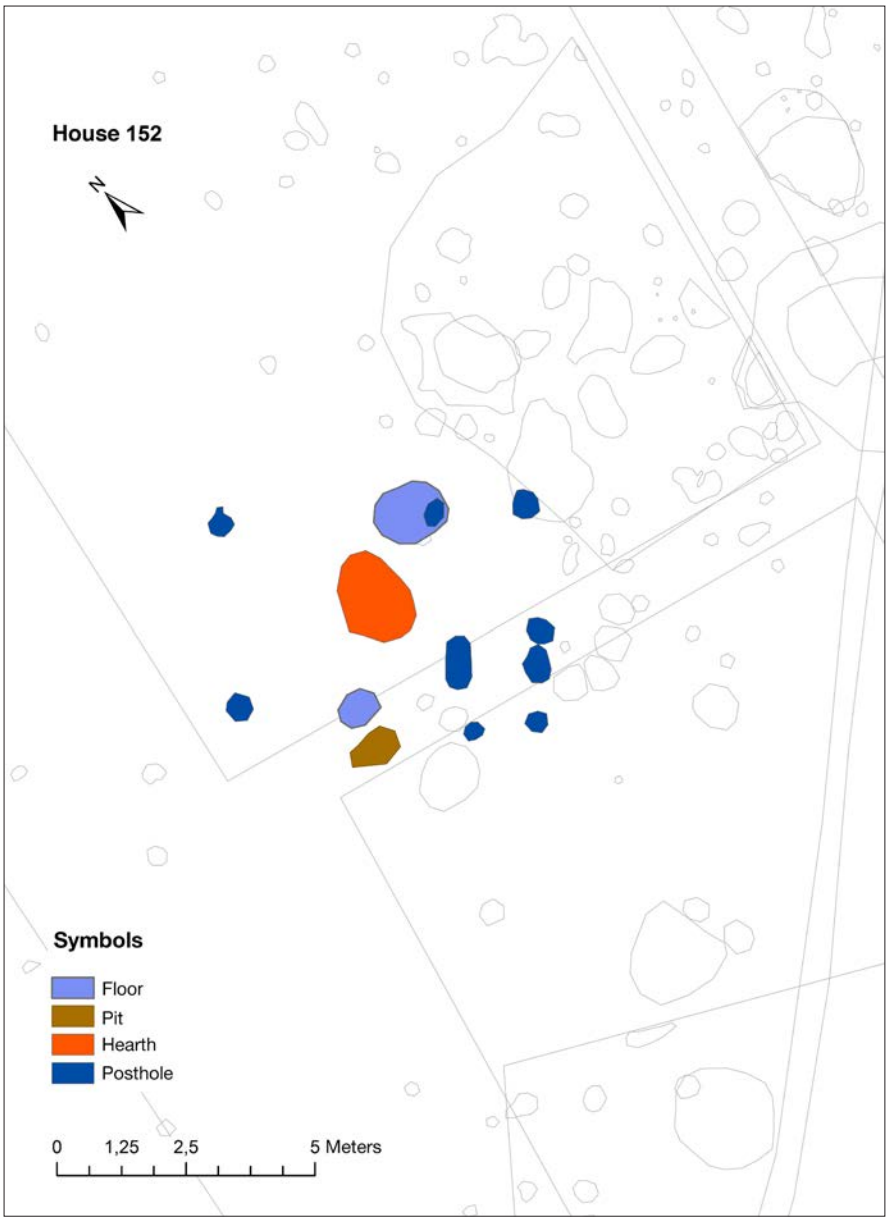


FIGURE 53. Plan of building 152 in area G at Pryssgården, interpreted as a workshop (Borna-Ahlkvist et al. 1998:171). Karin Lund, SHMM 2015.

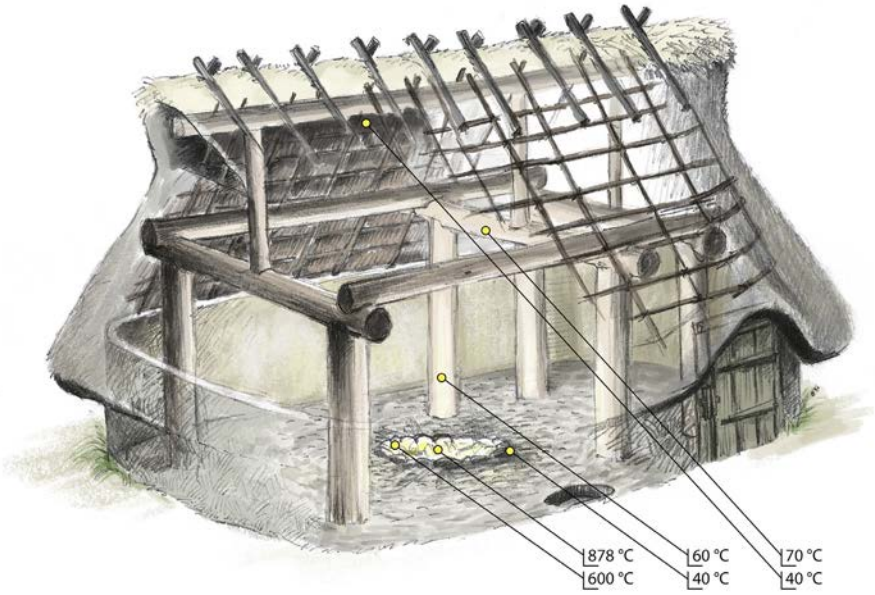


FIGURE 54. Reconstruction from the plan of building 152, area G, interpreted as a ceramic workshop. The temperatures around the hearth have been measured and can be considered safe when firing ceramics. Illustration Henning Cedmar Brandstedt.

tempered clay. To insure drying, the vessels have to be completely dry and filled with totally dry commodities. Some foodstuffs like cheese and butter could be stored and kept cold in the longhouse by taking advantage of diffusion in the porous ceramic vessels, which requires that the vessels are constantly kept damp.

5.3.1.3 Step-By-Step Reconstruction of the Ceramic Workshop 152 in Area G

Building 152 is in area G. The hearth is dated to 1129–910 BB cal (Ua-6567). The structure is categorised as a little three-aisled building. In the description of the building, it is interpreted as a smaller farm building or a workshop (Borna-Ahlkvist 1998:171).

Based on my search for workshops prior to 500 BC, this building with a large hearth (1) is a good candidate. The house has a stone floor (2) and a storage pit with a flat bottom 90 cm in diameter and is 20 cm deep (see fig. 53).

The big hearth shows that the house in some way was used as a workshop. According to the interpretation of the smaller farm buildings at Pryssgården, these and similar structures in the Iron Age have been considered too small to be dwellings. The big, low houses are close to each other and have been considered earlier as dwellings for people. One objection to my interpretation of these houses as hypothetical ceramic workshops for firing local pottery to cover the families' needs and building bigger storage vessels has been that it gets too hot in the houses, which would lead to their catching fire and burning down. My experience with hot crafts prevented me from accepting these objections. As a result, on several occasions I measured the temperature on near-by wooden structures when firing ceramics at Vitlycke Museum's workshop where I was conducting archaeological experiments and firing (in 2014 and 2015). The posts in Vitlycke's reconstruction are very similar in diameter to the posts in building 152 at Pryssgården and the crossbeams in the ceiling are at the distance which is most often used in reconstructions of Bronze Age houses (c. 2 m).

When the firing was at top temperature, the heat in the hearth was 878 °C and the post closest to the hearth after two hours of constant exposure to the heat measured 60 °C at the hottest spot, the crossbeam was 70 °C and the thatched roof, 40 °C: the hearth itself on the outside of the surrounding stone ring was 40 °C, and 600 °C on the inside. Thus it can be established that a controlled and well tended firing should not risk setting the building on fire (see fig. 54). The temperature was measured

with a KIMO Kirav 300 IR thermometer, calculated and set for ceramics ε=0.92. The instrument, which takes both surface and IR measurement, has optics of 50:1 and can measure up to +1850 °C, which allow a very good margin for measuring the temperature for hot crafts. There was also a dug-out storage pit which I believe belonged to ceramic crafting since prepared clay for crafting has to be kept frost free.

In the table below (see fig. 55), the pit in building 152 is considered to be a clay-storage pit. The clay was made into smaller parcels and wrapped with a cloth. The calculation of how many parcels of clay could fit into the available space is based on the table below and thus corresponds to the amount needed for normal ceramic usage: 10–15 kg per parcel. It shows the calculations of the size and weight of each parcel and the amount of textile cloth necessary to cover one. Textile imprints are found on clay parcels from the Late Bronze Age in three of four small buildings in storage pits in the farmhouses in Köpingebro (Tesch 1993:165). In Pryssgården's ceramic material there are imprints of textiles on ceramics that dried too quickly (Stålbom 1998:138).

Table of dried clay store with calculated volume of clay and reused textile			
Clay store in building 152	**Calculation interpretation**	**Amount of kilos of clay**	**Amount of reused textile**
Frost-free storage of prepared base clay	⌀ 90 cm average ⊥ 20 cm deep (120 × 60 × 20 cm = 144 dm^3)	1 dm^3 equals 1 kg normally tempered pottery clay	50 cm wide c. 400 cm
Clay parcels in the pit	10 parcels		4 m

FIGURE 55. The clay stores and technical textiles calculated for building 152 in area G, Pryssgården.

The term resused textile is employed here in situations where the textile that is used supports or indicates another craft (see earlier sections about technical definitions). In my interpretation of the use of textiles, my starting point is that the textile employed is 'recycled'—its use here is *not its primary one*, and therefore becomes a 'technical textile'. Later on, this already frayed textile could be reused once again as packing material and

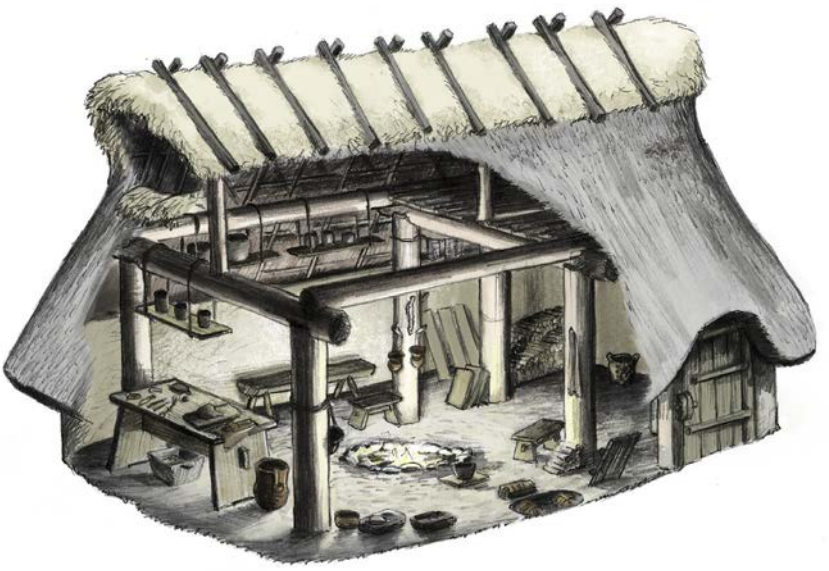


FIGURE 56. Building 152 interpreted as a ceramic workshop with tools and interior furnishings in the reconstruction. Illustration Henning Cedmar Brandstedt.

is therefore considered as rags and could be used with some other organic material such as wool as a reinforcement or strengthener in plaster or clay vessels. In the next section, I reconstruct and interpret how the workshop could have been organised.

The organisation of the workshop follows the routines and tasks of the craft. Visual observation of the ceramics which are representative for the Late Bronze Age at Pryssgården indicates a number of tools and certain furnishings which had to be present there in order to produce ceramics.

Ceramic crafting is sensitive to wind, strong sun and moisture. The Late Bronze Age and the transition to the Early Iron Age are seen as a time period which became colder and damper and thus a special building for ceramic production is reasonable. The building could have been multi-functional, but in this interpretation, the whole house is designed for ceramic manufacture. The interpretation is based on my personal experience of ceramic crafting and the arrangements necessary to create vessels with prehistoric technologies. I have also been inspired by the jydepotte tradition regarding details like certain tools, modelling plates and furnishings.

In the storage pit there is *prepared clay* (see App II): this is a ready-to use basic clay (see App I:III) *wrapped up in cloth*. In order to give a picture of the work which goes on in a ceramic workshop, which is directly related to the objects I have placed in my reconstruction, I give a short presentation here. Depending on the intended use, the base clay is reworked with the suitable temper: fine, coarse, or organic. *Chamotte* is ground up with a grinding stone to the desired degree of coarseness/fineness or to a powder. It is added with a special kneading technique. The temper is added in a series of stages which ends up with kneading (App II:II): cutting the clay into slices, covering with the desired temper, folding the clay up and around the temper in a pyramidal form, and working it until the temper is evenly distributed throughout the clay. Badly worked clay is a risk for forming, drying and firing.

The vessels in Pryssgården have been formed by various techniques—this can be studied through the traces and marks of the material (modelling plates and stone) that the vessel were made left on the underside of the vessel. Thus there should be several kinds of material and furnishings (see fig. 56) which in my opinion were used for ceramic production in Pryssgården during the Late Bronze Age. The workshop building is the last stage in this hypothesis that I present as the basis for a total interpretation at Pryssgården from an artisanal view. In the final chapter, this totality will be discussed and the bigger picture that I have worked from through the examination of all the parts and processes will be presented.

6

Final Discussion and Conclusions

The ceramic finds in the Pryssgården material demonstrate that the people who lived there had a knowledge of how to use the appropriate natural resources around them for ceramic crafting. From the Neolithic to the early Middle Ages, artisans knowledgeable in making ceramics were in the area and at times lived at or visited the site. My interpretation is based on the idea¸ as suggested earlier by Borna-Ahlkvist (2002:25) as well, that there was a continuous settlement at Pryssgården from the Late Bronze Age to the Early Middle Ages. My craft interpretation for the applicable vessels is valid for the whole period, but my in-depth study of the farmstead's activity areas for various crafts and the understanding of the functions of the longhouses and smaller structures concern the Late Bronze Age. In this period, both ceramics (used in metalcrafting) and bronze crafting existed on the site, and thus, ceramics and the ceramic artisan could also have collaborated with producers of various other 'hot' crafts, especially as knowledge about temperatures and firing already existed from early times (Weiler 1994:50ff).

Bronze is acquired from external sources, which implies contacts with the outside (Ling & Uhnér 2015). This situation could mean that at least in the beginning, artisans working with bronze casting could have introduced this craft to different places: suitable places were those where the craft could spread and catch on and where the raw materials (bronze, or copper and tin) could be gotten through maritime routes. Near Pryssgården, at the settlement called Rambodal to the east, a soapstone mould was found and recently discussed in a new article (Nilsson & Sörman 2015). Tin and copper could possibly have come to the region from middle or south-eastern Europe (Ling et al. 2014). As Pryssgården had contact with the outside world via the Baltic Sea and constitutes a port towards the inland to the large lakes Vättern and Vänern, it is not difficult to see the pattern of movement which emerges.

There was also early on, as I described in the introduction, a movement from the west to the east in the area, where agriculture and settlements move out towards the coast in the Early/Middle Bronze Age, to later be incorporated into a larger European connection (Weiler 1994:97ff). Pryssgården was, in my opinion, a place for the exchange of knowledge in ceramic crafting. Certain finds, such as the Pryssgården figurine, have been reinterpreted in an artisanal-technological way. In this concluding interpretation, the little picture of the farmstead with its houses, buildings and features is shown against the background of the artisanal interpretations and perspectives I have presented, along with the earlier research. I believe that when the little picture is connected to a bigger context, this results in a more vivid picture of artisanal craftsmanship.

6.1 The Little Picture – the Home and the Crafts

Using the building as the starting point and the farmstead as the playing field, I want to sketch out here in words and pictures the archaeological interpretation I believe I have achieved through my cross-disciplinary viewpoint and method. I will demonstrate how the various activities can be connected to each other and how people and activities at Pryssgården interacted together in a well-meshed rhythm. The focus will be on crafting but even many other aspects of their lives will be touched upon more or less briefly. I believe people live in a craft environment where all the parts are intricately interwoven in a *chaîne opératoire* (Lemonnier 1986) or through 'entanglement' (Hodder 2012) with each other. Having a home and activities are basic needs. The little picture leads to the big one, in my opinion. People whose basic needs are not met have difficulties in making social contacts, networks, alliances and subsistence beyond the absolutely necessary. Belonging to a house in practice can be belonging to a house in other ways as well: I shall discuss this on several levels and link it to the big picture directly afterwards.

6.1.1 Living at Pryssgården as an Active Person

The farmstead has been defined as a *social unit* in an ongoing discussion about the settlements of the Bronze Age (Borna-Ahlkvist 2002: 151–155, Gröhn 2004:280ff, Kristiansen & Larsson 2005:32–38, Artursson 2009:181ff and 231, Tesch 1993:212, Welinder et al. 2004:231).

In this presentation, the farmstead's various physical buildings—longhouses, outbuildings, pit houses, huts and other lesser posthole structures—have been connected to different crafts and activities. It is thus an artisanal-theoretical interpretation which is linked primarily to an artisanal perspective. I imagine that the suggestions I have presented, which move activities and actions into buildings and fill activity areas in the surrounding spaces, can be developed and widened into interpretations of individual settlements. This will continue to occur in future discussions about craft activities, artisanal wastes, storage and recycling outside of the buildings, on the farm and inside the built structures. My hope above all is that we can discuss different aspects of collaboration, learning and social structures within the sphere of crafts and crafting artisanship.

Regarding patterns in population and a mobile or permanent population in primarily the Late Bronze Age but even down into the Early Iron Age, there are several possible interpretations in my opinion.

6.1.2 The Settlement

Borna-Ahlkvist in her interpretation of the Bronze Age is of the opinion that Pryssgården in specific seems to have been a permanent settlement: this view is the foundation for my interpretation of *crafting* on the site. That there were also smaller huts outside the settlements for seasonal agricultural work seems to have been the rule during the greater part of the period (Tesch & Olausson, 1991:73–77). It is possible that materials necessary for various crafts were found far enough away from the settlements to require temporary dwellings.

Some interpretations claim that people during the Bronze Age travelled between 'houses' or farmsteads in a movement caused by the fact that livestock need larger grazing areas in order to be fed on a larger scale. In the article "Herder communities: Longhouses, Cattle and Landscape Organisation in the Nordic Early and Middle Bronze Age" (Holst & Rasmussen 2014), the authors describe the physical and social landscape during the *Early/Middle Bronze Age*. Their theory is that during this period, a completely different social and spatial pattern emerged. They based this on the idea that a new life style arose when the transition to the exploitation of large plains became important: now domesticated animals were introduced and were being bred, and large land masses were needed. Agriculture was more closely connected to the farm.

A picture now emerges with grave barrows, maritime communication and the introduction of boats on a large scale creating a greater sense of social community which included using large land areas. According to this interpretation, this socio-economic picture appeared in the vicinity of maritime routes around the whole of Zealand (located in today's Denmark): the settlements are found in clusters along the maritime routes, followed by burial barrows. That this use of land is not built on territories but on a common use of the land does not mean, according to the authors, that land use was not regulated. They present an interesting interpretation which I have found can well be applied to Pryssgården in the big picture. In my preface I reflect on economic terms: in Holst & Rasmussen's hypothetical suggestion for this (Holst & Rasmussen 2014:99ff) , they speak of a *transhumance* organisation as a model for the Early/Middle Bronze Age which continues into the later part of the Bronze Age. *If* a similar organisation existed during the Late Bronze Age, then it is possible to see the geographic location of Pryssgården as a transit site to the inland. In that case, even the anomalies, with their different craft technologies, anomalies, fit into the picture. In a transhumance organisation like the one suggested, some of the population move and some stay in the vicinity of the farmstead: this is a step towards being able to have access to the

raw products grown or found in the various geographical areas (Holst & Rasmussen 2014:107). This theory is not contradicted by the idea of either a hierarchical organisation (Weiler 1994:170, Artursson 2009:230, Kristiansen & Larsson 2005:334ff) or a permanent farmstead (Borna-Ahlkvist 2002:190), but can in my opinion rather be connected to mobility and similarity in the making of artefacts and to the transfer of knowledge between places and the spread of raw materials. The farms should not be seen as isolated dwellings but rather as small units which have a relationship to the surroundings: some form of exchange should have taken place in the sparsely populated areas also (Artursson 2009:231).

6.1.3 Food and Vessels

During the entire Bronze Age the relation of hunting to raising livestock decreases. Individual breeding of domesticated animals and putting them out to graze increase continuously up to the Late Bronze Age when the domesticated animal bones (mammals) increased to at least 95% (Welinder 2004:105–108). At Pryssgården the distribution is as follows: 48% beef, 32% s ovicaprids, 12% swine and 8% horse (Petersson 2006:40).

The percentage of fish is more difficult to interpret but in coastal settlements in southern Sweden Skåne (Sandeplan, interpreted as a fishing settlement—Welinder et al. 2004:192) and Blekinge (Sunnanasund, Norje—Boethius 2015 manuscript, in press), there are archaeological studies which indicate that the amount of fish in the diet at that time is underestimated. In a site like Pryssgården, fish should belong to the everyday menu. It is difficult to estimate the amount of carbohydrates (through agriculture and wild foods) in the daily diet but should have been included by this time, as well as fresh milk, cheese, and eggs from wild birds. In the Late Bronze Age, agriculture and crops (hulled barley, emmer and spelt wheat) were considered to be the same over the whole area of what is today southern Sweden (from Skåne to Uppland) (Welinder et al. 2004:105).

In Lindahl & Matenga's *Present and Past: ceramics and homesteads*, a study of ceramic crafting and usage patterns in an agricultural settlement in Zimbabwe in the beginning of the 1990s, it is seen that the amount of ceramic vessels used in a household consists of 2–5 cooking pots and 8–12 storage or serving vessels (Lindahl & Matenga 1995:22). The authors believe also that a lack of vessels in the abandoned settlements they studied means that the artisans saved and reused sherds in various ways (1995:101–108). This observation can be directly applied to a craft perspective and can be made in modern archaeology even if the find categories are often applied to features interpreted as deposits, sacrificial

or hoards. Stålbom discusses deposition patterns in ceramic rubbish from the Late Bronze Age: he asks himself whether there is any abstract significance in these depositions, and believes that it is important to make spatial studies of the material culture to further develop an understanding of why these deposition patterns look like they do. His interpretation implies that the sherds that are put into pits are *passive* and can be considered as rubbish (Stålbom 1998:147ff). In my opinion a craft perspective in some way comes closer to the spatial division Stålbom suggests. I do not share the opinion that the ceramic sherds would be passive, however, as different sizes of sherds serve functions (as seen in fig. 40, above) and thus are *active* agents in various steps in crafting, which I showed in my interpretation of work pits and reuse processes. I argue that the features are 'recycling' pits and they are a part of the circulation of material which is normal in an artisanal environment. Reuse at Pryssgården has been discussed in earlier chapters: I believe the system of pits situated in the farmstead near house 172 is for reuse and as work pits belonging to crafts (ceramics, textile and bronze production). The idea that what was left behind on the site should be considered as rubbish after the people moved from the site is one that I totally share with Stålbom (Stålbom 1998:147).

In conclusion, earlier research shows that people moved together into larger households: their subsistence was based on agriculture combined with the local animals and fish living at this time in the area in the Bronze Age, especially the Late Bronze Age. A lifestyle like the one described above requires good artisanal knowledge. Regarding ceramic crafting, it is absolutely necessary to be able to make vessels suitable for all stages of food production. Food has to be dried, stored, kept, pickled, boiled. The settlement at Pryssgården is considered an ordinary settlement (Peterson 2006:49) but is well chosen and is situated in a very strategic geographical location (Borna-Ahlkvist 2002:187). In my opinion, the placement itself can have served several functions beyond the obvious one of subsistence. Even if the site is considered an ordinary one, it *can* at the same time have been special. In the next section I shall discuss; how we can understand the socio-economic organisation that could explain the contacts that occurred between people spread out over a larger area.

6.2 The Big Picture – Petroglyphs, Mobility and Transit Places

Via the waterways that go inland from the Baltic Sea, one can reach Lake Vättern, and by travelling through Västergötland, reach Lake Vänern and the North Sea and Bohuslän (Borna-Ahlkvist 2002:188). Emphasis is

often placed on the fact that Pryssgården can be reached from the entire Baltic Sea region, but despite the fact that the area is rich in Late Bronze Age remains, little has been mentioned about how the site could have been a transit area for contact with the entire inland of present-day Västergötland. The site can have been chosen because it was possible to reach places by boat via the Baltic Sea and/or controlling who could continue inland. Being able to go coast to coast in the southern part of today's Sweden allows control or use of the resources and raw materials. The geographical placement near Motala Ström, which creates a natural, controllable waterway between Bråviken Bay and Glan Lake, provides good possibilities for whomever can or wants to control passage by boat. It is impossible to know who could have exerted such control, but it is not impossible to imagine that given a certain amount of organisation, such a large settlement could control whomever and whatever entered and departed via the waterways.

There are rock carvings with boat motifs all along the route following clear paths, as is seen in the map, figure 57 There are also finds along this route of razors, soapstone moulds and scrap metal (bronze) (Weiler 1994:138–143). In this interpretation, Pryssgården constitutes a node in the network that is created when the waterways begin to be seriously used, which is also discussed in Wehlin 2013:185. In my opinion the movement of people, knowledge, bronze and artefacts passed along the entire interior of the region of Götaland and out into the North Sea and vice versa. These thoughts are in no way brand new: there are various suggestions concerning the distribution networks that later laid the foundation for discussion about how bronze was imported and soon led to local artisal work with bronze or with scrap metal which was melted and reused for casting new bronze objects. On the map (fig. 58) Weiler showed in part that which I now present in a wider framework. In the figure, she clearly shows the paths the bronze took, even naming the waterways in the interior of Västergötland.

This interpretation opens the way for a clear and distinct connection right across the country through waterways and large lakes, which links expressions seen in the world of artefacts and in rock carvings in this area.

In the interpretation of the use of boats in the Bronze Age, I use Johan Ling's research on ships or 'war canoes'. Ling shows in his work how different types of boats could have used these waterways in the Late Bronze Age (Ling 2008:226ff). For Ling, not only were metal crafting, horses and boats important in the Bronze Age societies but also knowledge about how to build boat and travel along the waterways. Ling refers to the Hjortspringskeppet boat which dates to c. 350 BC, but also says that the similarities to the Bronze Age rock carvings of boats, dated to c. 1600 BC,

FIGURE 57. The map shows the wider possibilities for travelling over shorter stretches of land to reach Lake Vänern and demonstrates that in this way, it was possible to travel all the way to the North Sea. Here we see the Bronze Age rock carvings follow the route and encircle southern Sweden. Now the pictures of ships become clear, the trip one makes or the travellers who can be seen from the land, cut into the rock by rock carvers, who also carved other important figures, people and animals, carts and swords. There are even abstract signs which have been interpreted as suns, moons and traces of goddesses (Kristiansen & Larsson 2005:334).

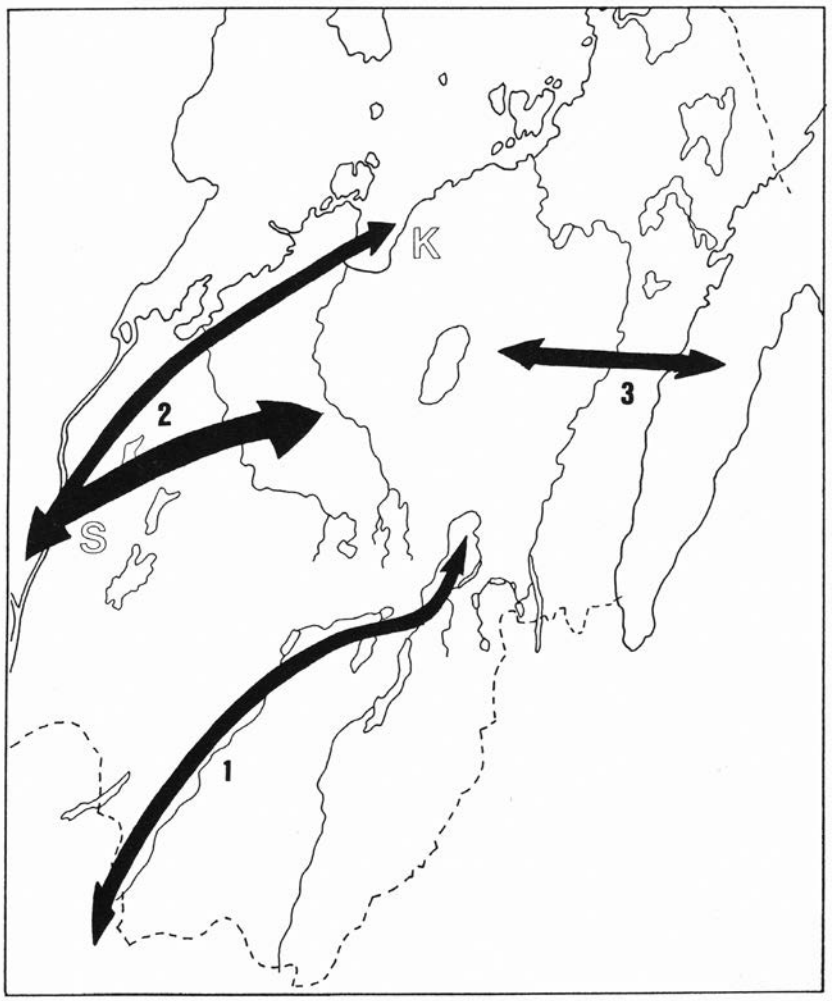


FIGURE 58. The path of bronze according to Eva Weiler (1994:98) in the area between Lake Vänern and Lake Vättern in the West of Sweden.

is striking. The reconstruction of the Hjortspringskeppet, which has been taken out in actual maritime travel, shows that it is possible to travel by sea with a skilful crew and a cargo of 700 kg from southwestern England for a distance of about 100 km per day, to the Swedish west coast: such a voyage, including stops along the way, would take about 10–14 days. Boats like the Hjortspringskeppet are considered to be skilfully built and well equipped for sea travel (Ling & Uhnér 2014:36–37).

The publication of the article "Moving Metal II" in *The Journal of Archaeological Science* (Ling et al. 2014), which is based on lead isotope analyses of copper and copper-based alloys and the routes the metals could have taken to Scandinavia from several different sources of raw materials of copper and possibly tin, provided new insights about the possible origins of Scandinavian bronze (see fig. 59). The figure shows which geographical places can be determined as having lead isotope fingerprints consistent with the raw materials. The selection in this analysis does not show the clear connection between Lakes Vänern and Vättern that I suggest above, but I believe it is possible that the bronze from the interior of Västergötland is close to the Scandinavian links which might have led to the sources of raw materials that Ling et al. examined. Future analyses from this area will hopefully show whether or to these indications are supported.

Thus, it becomes possible to connect small groups of varying characters and a multitude of solutions to a larger organisation. The development becomes clear now. For example, there are settlements (houses) that become more and more permanent for agricultural populations, local production or trade in raw materials, travelling artisans with specific knowledge or craft skills, shepherds and people raising livestock which move between settlements, boat builders and even troubadours and storytellers, adventurers and others, all of whom develop different social patterns and contact nets within a heterogeneous system which appears in the Bronze Age (Earle et al. 2015:1ff).

Metal is often the topic of discussion. In this bigger picture, however, if *the house* is the common denominator and people travel by boat between *houses* and have access to them as a part of this social and economic construction, we get a different picture of the Bronze Age. An artisan making journeyman trips can move about relatively easily in such a construction. Having access to raw materials and new technologies is an asset. The fact that ceramics do not greatly vary typologically over larger areas (Stilborg 2014) is thus logical if storage vessels, for example, are moved around and even travel with the potter from place to place. The ceramics which remain in a settlement should thus belong to the household in such an interpretation.

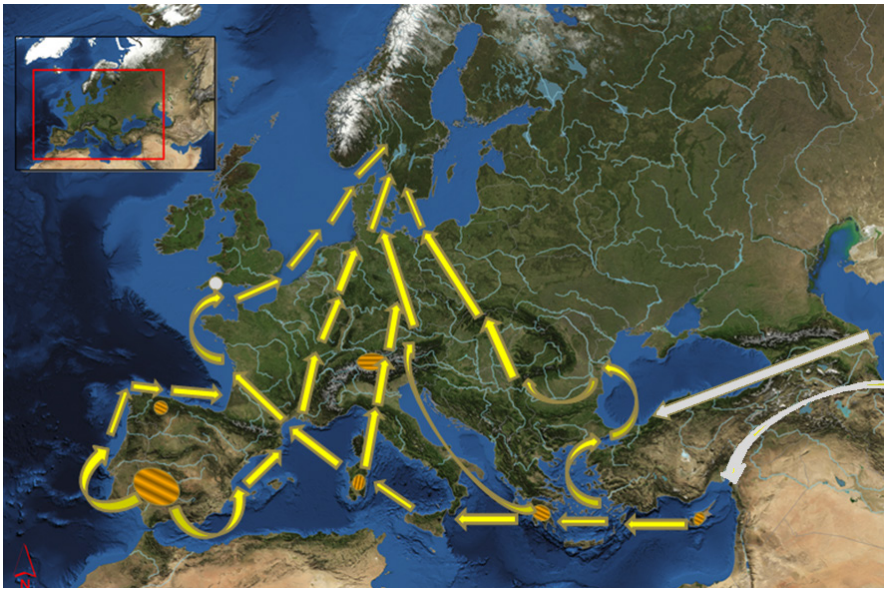


FIGURE 59. Based on the provenance analyses that *Ling et al. (2014:107)* refer to regarding metal mobility. They base their ideas of a possible mobility on analyses of the various lead isotope ratios found in bronze and copper—The picture shows the big picture of the possible flows of metals, coppar (yellow arrows) and tin (white arrow) (*Ling et al. 2014:129*). *The map is published by permission of Johan Ling 2015.*

I have now discussed the picture I have arrived at with the help of artisanal interpretation and perspective for parts of what is today southern Sweden. We see mobility by interpreting the rock carvings as 'road signs', marking the waterways for people travelling greater distances (Ling 2008:228–230) by boat. In my opinion, a mobile social organisation can be the reason for the minimal differences in ceramic design, differences which indicate local variations rather than different artisanal expression in different cultural groups. This is valid for all types of crafts—there are of course local variations but they are not significant. A *homogeneous* formal expression existing in a heterogeneous social organisation can be the most important factor for understanding who the passers-by were for a farm/settlement. It is objects, boats and people that allow recognition and identification.

7

Concluding Thoughts

Studying a mass material allows insights into the period of time being examined. Prehistoric times are often seen as short, intense snapshots created through specific finds. Making demarcations is a problem as the pictures that are created are temporary. If the whole material is used, one can achieve a more balanced view in terms of both the specifically unique and the more commonplace. Despite the fact that this is so, I have more or less no pictures of all the seemingly similar sherds which I examined visually. It is the deviations which catch the eye. Ceramics is one of the materials that has a high degree of preservation. Despite this, the archaeologist realises that by taking taphonomy into consideration, she or he can take a sherd weighing for example 47 grams and envision the entire vessel, weighing perhaps a kilogram or 20 times the size. The ceramics that were once created have disappeared, leaving only a smaller selection for us to work with. Pryssgården's 126 kilos is a large find. It provides us with information about life and mobility, about how people organised their lives and how they learned things. Despite this, however, it is only a miniscule fraction of the whole. This is why I believe that awareness and knowledge of production processes in various crafts create pictures of the organisation of the farms and how they are anchored in the bigger social structure. The craft perspective is a good indicator of all the time and all the knowledge moving back and forth between people and natural resources, all the physical efforts, work and risks involved in transport metals, for example, to places far away from the sources. All the boats that were built, all the walking that took place, and all the processing of materials that needed to be understood and learned … what position did people with knowledge have. Knowledge is a large part of that which can be incorporated into what we call economy (Helms 1988: ibid). How was knowledge valued in societies then and now? Craft knowledge, creativity and thinking out-of-the-box. A new social order like the one suggested by Holst & Rasmussen goes far back in time. Everything develops from something and grows into something else. The idea of transhumance and boat transport of metal is connected to ideas of mobility, trade and contacts. Thoughts about the great distances prehistoric people had to cover if they were mobile create scepticism and can even be met with disbelief. Despite that, and despite the seemingly ordinary life at Pryssgården, I am personally convinced of people's curiosity and interest in new things. Perhaps these things can be evaluated in economic terms. I do not do this—I try instead to extrapolate into human terms: impulses, inclinations, curiosity and interest in the world and the thought that several people together can enjoy small things as well as great things. In the picture that emerges in my interpretation, 'the house' in this meaning is the physical house. Belonging to a 'house' in a social meaning can be

belonging to a place. That you enter and leave the house, or simply 'are there', both physically and socially, is a question of temperament and conditions. In an organisation where people move between houses, there are also thoughts about there being groups who stay in place and use the areas in the farmstead and have different methods of subsistence. Through the transport routes by land and by water, not only raw materials special to one place or another but even crafts and agricultural products can be moved around in the transhumance group. Ian Hodder writes in *Symbols in Action* (1982:62ff) about how artefacts in groups who live far apart tend to resemble each other, while those of groups who live near each other do not. The groups living in close proximity to each other work harder at creating group identities. Such an interpretation could perhaps explain why artefacts and house constructions are similar despite great distances in the Late Bronze Age. Hodder's reasoning is clear and applicable here. Even the very complex organisation which is emerging here as more and more parts of life are interpreted can be linked to a greater thought, a thought about a lifestyle.

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Bibliography

Artursson M. (2009). *Bebyggelse och samhällsstruktur: södra och mellersta Skandinavien under senneolitikum och bronsålder 2300–500 f. Kr.*. Diss. Göteborg: Göteborgs universitet.

Belanova-Stolcova T. & Grömer, K. (2012). Loom-Weights, Spindles and Textiles? Textile Production in Central Europe from the Bronze Age to the Iron Age. In: M. Gleba and U. Mannering (eds.), *Textiles and Textile Production in Europe: From Prehistory to AD 400*. Ancient Textiles Series 11, Oxford: *Oxbow Books*.

Björhem, N. & Säfvestad, U. (1993). *Fosie IV: bebyggelsen under brons- och järnålder*. Diss. Lund: University.

Borna-Ahlkvist H. (2002). *Hällristarnas hem: gårdsbebyggelse och struktur i Pryssgården under bronsålder*, Stockholm: Riksantikvarieämbetets förl.

Borna-Ahlkvist H., Lindgren-Hertz L. & Stålbom U. (1998). *Pryssgården: från stenålder till medeltid: arkeologisk slutundersökning RAÄ 166 och 167, Östra Eneby socken, Norrköpings kommun, Östergötland*, Linköping: Riksantikvarieämbetet, Byrån för arkeologiska undersökningar.

Botwid K. (2013). Evaluation of ceramics: professional artisanship as a tool för archaeological interpretation. *Journal of Nordic Archaeological Science* (JONAS 18) 2002:31–44.

Botwid K. (2014). Från hand till hand – arkeologisk forskning ur ett hantverksperspektiv. *Att befolka det förflutna: fem artiklar om hur vi kan synliggöra människan och hennes handlingar i arkeologiskt material*: från Nordic TAG-mötet 2011 på Linnéuniversitetet, Kalmar: 54–71.

Botwid K. (2015). Visble Craft – tracing skill, knowledge and invisble tools through the artisanal perspective. *manuscript, submitted*.

Björklund, L-E. (2008). *Från novis till expert: förtrogenhetskunskap i kognitiv och didaktisk belysning*. Diss. (sammanfattning Norrköping: Linköping Universitet.

Budden S. & Sofaer J. (2009). Non-discursive Knowledge and the Construction of Identity Potters, Potting and Performance at the Bronze Age Tell of Százhalombatta, Hungary. *Cambridge Archaeological Journal* (CAJ) 19:203–220.

Collins, H. M. (2014). *Are we all scientific experts now*? Cambridge: Polity.

Claudi-Hansen, L. (2012). En keramiktraditions begyndelse: senmiddelalderens keramikproduktion og sociale forandringer. In: Laursen, L. & Nielsen, I. (eds.) KUML Årbog, Jysk Arkælogisk Selskab 185–203.
Goldhahn J. & Østigård T. (2007). *Rituelle spesialister i bronse- og jernalderen*, Göteborg: Institutionen för arkeologi och antikens kultur, Göteborgs universitet.
Guldberg, M. (1999). *Jydepotter fra Varde-egnen: produktion og handel ca. 1650–1850*. [Kerteminde]: Landbohistorisk Selskab.
Gröhn, A. (2004). *Positioning the Bronze Age in social theory and research contexts*. Diss. Lund: Univ., 2004.
Gustavsson, B. (2002). *Vad är kunskap?: En diskussion om praktisk och teoretisk kunskap*. Serien Forskning i fokus nr 5. Kalmar: Myndigheten för skolutveckling.
Helms, Mary W. (1988). *Ulysses' sail: an ethnographic odyssey of power, knowledge, and geographical distance*. Princeton, N.J.: Princeton University Press
Hodder, I. (1982). *Symbols in action: ethnoarchaeological studies of material culture*. Cambridge: Cambridge University Press.
Holst M. & Rasmussen M. (2013). Herder communities: Longhouses, Cattle and Landscape Organisation in the Nordic Early and Middle Bronze Age. In: Bergerbrant, S. & Sabatini, S. (eds.). *Counterpoint: essays in archaeology and heritage studies in honour of professor Kristian Kristiansen*. Oxford: Archaeopress.
Högberg, A., Gärdenfors, P., Larsson, L. (2015). Knowing, Learning and Teaching: How Homo Became Docens. *Cambridge Archaeological Journal* 25:847–858.
Jantzen, D. & Riederer, J. (2008). *Quellen zur Metallverarbeitung im Nordischen Kreis der Bronzezeit*. Stuttgart: Steiner
Jennbert, K. (2010). Animal mouthpieces for human properties and identity – a Scandinavian perspective. In: Kucera, M. & Kunst, G. K. (eds) *Bestial Mirrors. Using animals to construct human identities in Medieval Europe 03. p. 39–45* VIAS. Vienna Institute for Archaeological Science, Vienna University.
Jensen, J. (2002). *Danmarks oldtid. [Bd 2], Bronzealder 2000–500 f. Kr.*. 1. udg. København: Gyldendal
Kristiansen, K. & Larsson, T. B. (2005). *The rise of Bronze Age society: travels, transmissions and transformations*. Cambridge: Cambridge University Press.
Larsson, T. B. (1995). Maktstrukturer och allianssystem i östgötsk bronsålder. In: Elfstrand, B. Larsson, M., Toll, A. (eds:) *Samhällsstruktur och förändring under bronsåldern, Linköping*: 8–15.

Lave J. & Wenger E. (2005). *Situated learning: legitimate peripheral participation*. Cambridge: Cambridge University Press.
Lemonnier Pierre. (1986) The Study of Material Culture Today: Toward an Anthropology of Technical Systems. *Journal of Anthropological Archaeology* 5:147–186.
Lindahl, A. & Matenga, E. (1995). *Present and past: ceramics and homesteads: an ethnoarchaeological project in the Buhera district, Zimbabwe*. Uppsala: Dept. of Archaeology, Uppsala University.
Lindgren-Hertz, L. (1998). I*n: Borna-Ahlkvist, H. et al. (1998). Pryssgården: från stenålder till medeltid: arkeologisk slutundersökning* RAÄ *166 och 167, Östra Eneby socken, Norrköpings kommun, Östergötland. Linköping*: Riksantikvarieämbetet, Byrån för arkeologiska undersökningar.
Ling, J. (2008). *Elevated rock art: towards a maritime understanding of Bronze Age rock art in northern Bohuslän, Sweden.* Diss. Göteborg: Göteborgs universitet.
Ling J. & Uhnér C. (2014). Rock art and metal trade. *Adoranten*. Vol. 2014:23–43.
Ling, J., Stos-Gale, Z., Grandin, L., Billström, K. Hjärthner-Holdar, E. (2014). Moving metals II: Provenancing Scandinavian Bronze Age artefacts by lead isotope and elemental analyses. J*ournal of Archaeological Science* (JAS) 41:106–132.
Lynggaard, F. (1972). *Jydepotter & ildgrave*. København: Clausens forl.
Molander, B., (1996). *Kunskap i handling*. 2nd ed., Göteborg: Bokförlaget Daidalos AB.
Nilsson P. (2005). *Fem hus från yngre bronsålder: arkeologisk undersökning för fjärrvärmeledning vid Bråvallaområdet Pryssgården 1:1, Östra Eneby socken, Norrköpings kommun Östergötland: arkeologisk undersökning*, Linköping: Avdelningen för arkeologiska undersökningar, Riksantikvarieämbetet.
Nyberg P. & Nilsson P. (2012). *En bronsålderssgård och gåtfulla medeltida gravar:* RAÄ *151, Rambodal 1:3 m. fl, Styrstad socken, Norrköpings kommun, Östergötlands län: särskild arkeologisk undersökning*, Linköping: Avdelningen för arkeologi och byggnadsvård, Östergötlands Museum.
Nilsson, P. & Sörman, A. (2015). En gjutform av täljsten från den yngre bronsåldern: spår av bronshantverk vid Rambodal i Norrköping. *Fornvännen (Print)* 110:2, 84–96.
Olausson, D. (2008). Does Practice Make Perfect? Craft Expertise as a Factor in Aggrandizer Strategies. *Journal of Archaeological Method and Theory* 15:28–50.

Polanyi, M. (2013). *Den tysta dimensionen*. [Polanyi, M.: The tacit dimension 1967, translated from English by Eva Backelin 2013] Göteborg: Daidalos.
Pye, D. (1968). *The Nature and Art of Workmanship*. Cambridge: Cambridge University Press.
Sehested, F. (1881). *Jydepotteindustrien*. Kjøbenhavn: J. Jørgensen & Co.
Skoglund, P, Broström, S-G & Ihrestam, Kenneth (2006). *Hällristningar i Kronobergs län: motiv, myter och dokumentation*. Lund: Department of Archaeology and Ancient History, Lund University,
Stilborg, O. (2014). Rambodal i Norrköping: om keramik och identitet under den yngre bronsåldern. *Fornvännen* (Print).vol nr 109 pages 167–183
Stålbom, U. (1995). Hus, grop och fynd: preliminära resultat från den arkeologiska undersökningen vid Pryssgården utanför Norrköping. In: *Samhällsstruktur och förändring under bronsåldern*, (red) Larsson, M. Elfstrand, B. Toll, A. Linköping: UV Linköping, Avd. för arkeologiska undersökningar, Riksantikvarieämbetet, 1995:54–66.
Stålbom, U. (1996). Waste or what?: rubbish pits or ceremonial deposits at the Pryssgården site in the late Bronze Age. Lund archaeological review (LAR). Lund: Institute of Archaeology, University of Lund, 1996–.: 21–35.
Stålbom, U. (1997). Figurinen från Pryssgården. *Fornvännen* 92:3–4, 109–114.
Stålbom, U. (1998). In: Borna-Ahlkvist et al. (1998). Pryssgården: från stenålder till medeltid: arkeologisk slutundersökning RAÄ 166 och 167, Östra Eneby socken, Norrköpings kommun, Östergötland. Linköping: Riksantikvarieämbetet, Byrån för arkeologiska undersökningar. IBID.
Tehrani, J. & Riede, F. (2008). Towards an archaeology of pedagogy: learning, teaching and the generation of material culture traditions. *World Archaeology* (WA) 40(3): 316–331.
Tesch, S. (1993). *Houses, farmsteads, and long-term change: a regional study of prehistoric settlements in the Köpinge area, in Scania, southern Sweden*. Diss. Uppsala: University.
Tesch, S. & Olausson, D. (1991). 1991. The Late Bronze Age landscape. Settlement and society. I: Berglund, B. E. (red.), *The cultural landscape during 6000 years in Southern Sweden. The Ystad Project*. Ecological Bulletins 41: Copenhagen: Munksgaard: 73–74.
Thrane, H. (2006). "Figurinen" fra Pryssgården: et alternativt tolkningsförslag. *Fornvännen* (Print). vol. (101): 268–273.
Vincentelli, Moira (2004). *Women potters: transforming traditions*. New Brunswick, N.J.: Rutgers University Press.

Welinder, S. (2004). *Jordbrukets första femtusen år: [4000 f. Kr.–1000 e. Kr.]* Vol. 1 . (*Det svenska jordbrukets historia*.. Myrdal J., Welinder S, , Pedersen, E. A. & Widgren, M. (eds.). Stockholm: Natur och kultur/ LT in collaboration with the Nordiska museet och Stift. Lagersberg.
Weiler, Eva (1994). *Innovationsmiljöer i bronsålderns samhälle och idévärld: kring ny teknologi och begravningsritual i Västergötland = "Innovative environments" within society and concepts during the Bronze Age: new technologies and burial rites in Västergötland.* Diss. Umeå: University.

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Electronic Sources

Munsell color chart, 2015 10 24 http://munsell.com/
Jensen; http://www.denstoredanske.dk/Danmarks_Oldtid/ Bronzealder/Nye_tider_1100-700_f.Kr/Pottemageren

Appendix

In the following appendix the technical steps in making a ceramic clay will be described and considered. These technical preparations of the raw material can be visible and connected to the activity areas unearthed by archaeological excavations. What actually took place at these areas is often hidden. By *describing* these concealed work steps, which are part and parcel of the craft, new archaeological interpretations can be made. In order to provide a clear picture of how the prehistoric ceramic craft was carried on, I will describe here some of the lesser known technical processes which are necessary for making the ceramics we find traces of at Pryssgården. This description can be used in other connections and in more extensive interpretations of the activity areas. Illustrations by Henning Cedmar Brandstedt.

1 The Path of the Clay

Here the whole process necessary to have a good ceramic clay for ceramic production (Hamer 2004:387) is described briefly and connected to the finds of work pits, preparation areas and storage places taken up and analysed in the text.

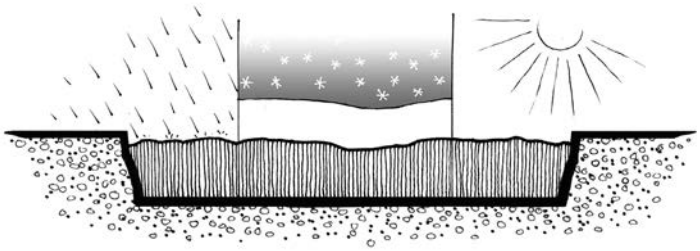
1:1 Clay Beds

The clay is dug up from the ground and laid out. *When excavating, the clay bed is visible as a pit with a rounded profile and clayey sides, soft, flat, smooth, and 'fatty' to the touch (if the wall is damp).*

1:11 Weathering the Clay

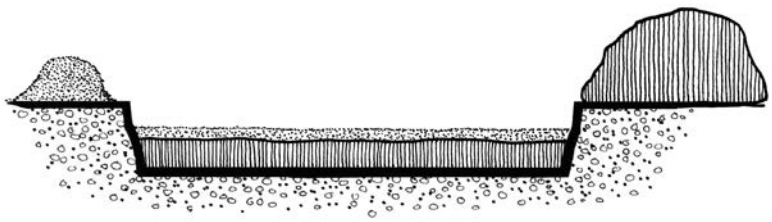
The clay is then dug up late in the summer when the ground is a dry as possible and the clay and earth are not soaked with water (which makes the work much harder). After this, the clay is put in a pit dug into the earth. The clay lies spread out 10-20 cm thick. It will be weathered by staying outside and freezing in the winter: this causes every clay particle

to separate from the other particles. Sometimes the bottom of the pit can be lined with stones, or if possible the pit is dug in a sandy place near the work place. In order to hold a ton or so of clay, the very shallow pit should be about 2–5 m long and 1–2 m wide. This continuing process now infuses/mixes the clay with water from the autumn rains. When the frost comes and the clay is frozen during the winter months, the clay particles make the prescribed change and when the warmth of spring dries up all excess water, the clay is 'weathered'. In warm climates, the same procedure is made by drying it in the sun. The warmth causes the individual particles to separate from each other in the same way, and also results in a weathering of the clay. This process is a speeded-up natural one which the prehistoric artisan understood and used. I will use weathering for Pryssgården where the climate during the Bronze Age and definitely in the Iron Age was cold or was exposed to frost in the winter

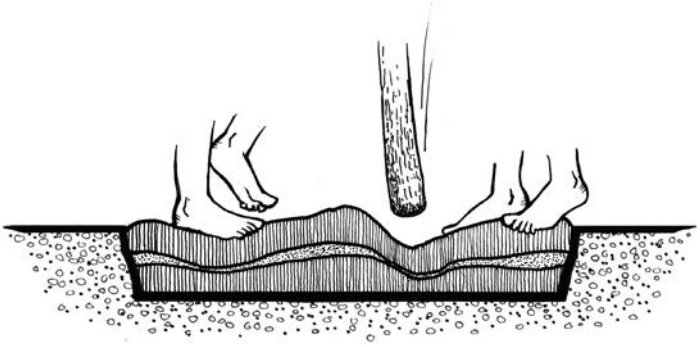


1:111 Preparing the Basic Claybody

The weathered clay in the spring is crumbly, which means that mixing in the basic temper is the next step in the process. Half of the clay is dug up and placed next to carefully chosen sand which was gathered and is now spread out in a layer over the clay that was left in the pit. The clay should be about 1/5 the volume of the clay, or a 20% sand mixture: this can vary somewhat depending the natural amount of sand in the clay.

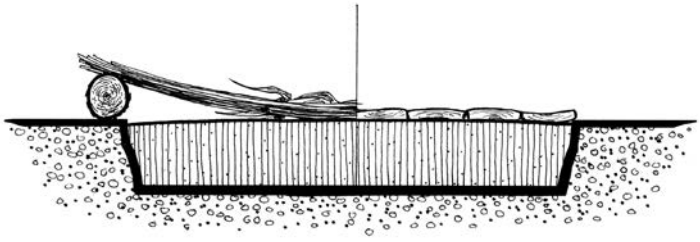


The dug-up half of the clay is put back and spread over the sand. After this, the clay is mixed with the sand by treading on it and/or stamping it with a club or similar tool to obtain as homogenised a mass as possible (see the picture below).



1:IV Maturing the Clay

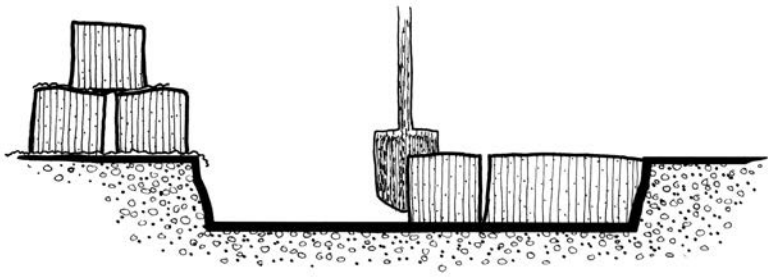
The clay is smoothed and allowed to rest for several weeks. It is protecting from rain or drying out with boards or mats woven from reeds. Before it is divided up into suitable parcels for storing, it is tested by rolling out a coil and making a knot. The clay should be plastic but not too 'fat'—if it is, more sand can be added. This test (Hamer 2004:387) is made throughout the tempering process described below. If the clay is 'short', the knot breaks before it can be completed.



1:V Dividing and Storing the Clay

The next step is to divide the basic clay into suitable carrying and storing bits. Several houses (the artisans belonging to the house) can take their shares and store them in a temperature-controlled (to avoid frost and

moisture) cellar pit as in building 172 at Pryssgården (see. Köpingebro house 4 Tesch 1993:165) or stored in shallow clay holes in the workshop—(see. Köpingebro 4 Tesch 1993:138). The clay parcel can be wrapped up in cloth which is sprinkled regularly with water in the cellar pit. If the clay dries out or freezes, the whole procedure must be redone from the beginning.



11 Preparing the Clay for Special Purposes

The clay parcels are plucked up when needed and mixed with a temper suitable for the function of the vessels. For large vessels it can be a very coarse temper with small pieces of brittle stone up to 1 cm in diameter. This extremely coarse temper is good for pots which must tolerate great changes in temperature but can also be a choice for making big vessels. For medium coarse, smaller pots for cooking, one sees often a considerably more sandy consistency for the brittle stone that is ground down with a grinding stone Sometimes the artisan chooses to add crushed, already-fired clay (chamotte) in the clay to be used for small and medium-sized vessels.

Mixing with chamotte 10–20%

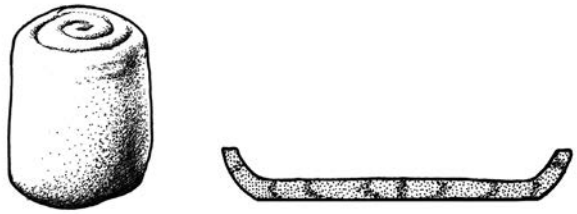
Mixing with additional fine sand (often from the mouth of the stream or the beach) up to 40%. Different kinds of temper can also be mixed with each other to achieve for example very tolerant technical ceramics. The choices of temper are one of the parameters than can be tracked over time: different artisans can have different backgrounds and thus choose very different tempers. In these cases, even though the mineral content of the clay in the ceramics does not differ from the local clays, one should be able to trace an unusual technical craft knowledge which most likely means that certain vessels were made in a non-local tradition (see the discussion regarding find F30059 from area E).

III Clay Ready for Forming

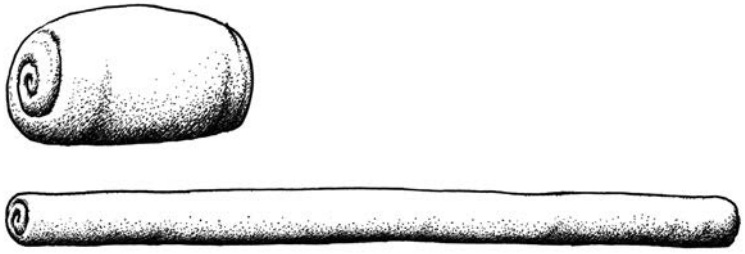
The processed clay is often put aside for a day to allow an even spread of moisture in the tempered, finished clay parcel. This parcel is then divided into several pieces which are kneaded according to needs and pinched or built up with the 'paddle and anvil' method (Hamer 2004:116 and 251).

III:1 Paddle and Anvil

This method is based on a pinched (Hamer 2004:264–265) low form designed to be the bottom with the right diameter. Thick coils of clay are laid on it and pushed down and then beaten with the paddle and anvil. It is important that the newly kneaded lump is placed one end (as shown in the fig.).



And is then beaten out to a slab and after that, pushed down to a low wide form with a well formed curve between the bottom and the sides to make it strong enough for handeling in the differenst steps in the manufacturing, drying and firing pricesses. A wellformed curve is important to make strong fired pots that will last for years in domestic use. The description in the example is the size of a cooking pot with a flat bottom and a thickness of 1 cm or slightly less. The low form is dried almost leather-hard.



The next step is to build up the sides. Rolls are rolled on a flat surface in the direction that the kneaded lump had so that the clay particles lie in a spiral form going in the 'right' direction—otherwise, it is difficult to get a roll that is even and equally thick to build up the wall with.

The roll is attached by the edge that has been roughened up especially for this purpose, allowing a greater fastening surface and can be made in a variety of ways. Each roll is attached separately and the clay is cut at a 45° angle on the ends for better attachment (this angle makes longer areas for fastening the clay coil in itselt). Then the sides are pressed and beaten up until the walls have the right thickness. Each coil must dry enough to hold up the next one without collapsing. The time needed to finish the vessels depends on the weather and the humidity in the air: also, working in direct sunshine, wind or rain is not good, either. Each ring is kneaded and rolled and applied before doing the next—otherwise the roll will break when it is bent (it starts to dry and stiffen immediately) and the joint will be more delicate if repeated repairs are made (more likely to break in drying and firing). An experienced artisan who is familiar with the technique can build three to five vessels at the same time in a temperature of around 20°: there is just the right time between steps and the artisan can work in a rhythm, gaining momentum. When the vessel is of the intended size, it is smoothed and then finished according to the tradition that the artisan and her/his group works in. Finishing techniques and decoration and firing techniques are discussed in the chapter connected with the Pryssgården finds.

Glossary

Glossary/definitions in ceramic crafting: These definitions are often of a comparative nature—one compares the various conditions of the material with other materials in order to describe the condition of the clay. The glossary is based on the expressions that are used in my own practice-based knowledge; in those cases where I explain concepts with the help of literature, there are references. There are a large amount of different expressions in descriptions in the world of crafts, but I choose here those which are used in this work.

Bon-firing: The dried objects are fired with the help of fires fuelled by organic material like wood, sod or manure directly on the ground.

Bone hard: Clay which is the last stage of possible working—it is 'hard as bone', which means that the surface can be burnished to a high shine, cut or etched into with very thin and exact decorations without the surface chipping or splintering, decorated by punching in with an instrument.

Burnishing: A traditional method for making a surface shiny and dense which makes the clay less porous after firing. In certain cultures it is used to make a pattern of matte and shiny ornamentation on the surface. Burnishing is done when the clay is bone hard.

Chamotte: Word to denote a clay temper made from crushed, already fired ceramic sherds.

Filler and packing material: Different kinds of material which are used as fillers and protectors in a ceramic kiln. The kiln is prepared for the firing by putting this material under and around the unfired vessels. They create a safe environment for the vessels. Nowadays the term is most often used for platforms or plates made specially for this purpose of inflammable material which protects the objects from each other or parts of the oven, which can be as much as 1300 °C. In outdoor firing, in pits and more simple kilns, large ceramic sherds are used to protect the newly-made objects from wood thrown on top of them or from getting damp from the ground.

Firing: Different heating methods to cause the clay to change to ceramics which means that the temperature must be at least 500 °C (932 °F). When the clay can no longer return to a formable material, it has become ceramics (Lindahl et al. 2002:30).

Leather hard: A leather-hard clay is no longer soft—it is sturdy and can be changed in form up to a certain point. It got its name because when you stroked the surface of the vessel it reminded you of leather—hard but pliable at the same time.

Oxidation: Total access to oxygen. In this connection both 'oxidation' and 'reduction' are connected to ceramic firing techniques. A simplification can describe the differences between these techniques: an oxidising firing is made with good access to oxygen, and the ceramics does not turn black or gray (think of brick, for example)—instead the natural color of an iron-rich natural clay is orange-red when fired. An open bonfire or a pit-fire is often an oxidation firing.

Paddle and Anvil: Is a hand technique which is often used when building larger ceramic vessels. The kneaded clay is rolled out in long rolls which are then put on top of each other and joined to each other. Used often in combination with pinching.

Pinching: Pinching is a hand technique that means that one takes a piece of kneaded clay from a clay mound or a lump and sets one's thumb in the middle, slowly stretching out and forming the clay until by rotating it by hand one creates the underpart of a vessel, its base or bottom.

Pit firing: A firing similar to an bonfire firing but occurring in a pit. This type of firing is more controlled than open-air firing. Sometimes the pits are covered over with organic material after firing so that the vessels cool more slowly, a method which brings out the red-grey-black surface that is so characteristic of pit-fired objects.

Reduction: Limited access to oxygen while firing or cooling—in this connection the iron in the clay (Fe_2O_3) reacts by returning to the black or grey tones (depending on the degree of oxygen insufficiency) that iron has when it is not oxidised. Reduced iron has lost oxygen atoms, which occurs when the lack of oxygen 'takes' the good three (O_3) oxygen atoms and only reduced iron gives colour to the fired wares. This lack of oxygen is achieved either consciously (black ware) or accidently on undersides of vessels where flammable material was still there when the vessels were cooling.

Reoxidation: When the artisan fires in pits or open flames that are covered with flammable material, s/he is often conscioulsly 'reducing' the ware while it cools. If the ware is taken up too early or the flammable material gets overheated and starts to burn, the reduction (creating an oxygen-free atmosphere) disappears entirely or in part. If it vanishes in part, the effect can still be seen as a grey stripe in the middle of the ware. Normally the reduction disappears completely and the ware returns to a brick red colour throughout

the fabric. Reoxidation can also occur when someone uses everyday ceramics which were originally black and puts them into an open fire: the high temperature and presence of oxygen returns FeO to Fe_2O_3.

Smoothing: Smoothing is a polishing technique which is used mostly on the inside of the vessel in order to scrape away excess and end up with a perfect inside. It is used on both storage vessels and thin ceramics.

Soft clay: A soft clay is completely formable and plastic. It is saturated and is somewhat damp; it should not be 'loose' or 'hard', however—one should be able to freely shape it.

Sooting: A simple technique for making ceramic goods totally black and shiny. One can either 'grill' the object above an open fire so it gets covered in soot, or throw it hot in a pit with straw (bigger vessels can be covered with flammable material which it begins to glow, leaving soot on the vessel surface) and then polish it with bee's wax until the surface is compact and and black. In addition to the desirable surface treatment, sooting also has a practical function—it makes the vessel impermeable so that the porous, unglazed ware does not lose as much moisture.

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