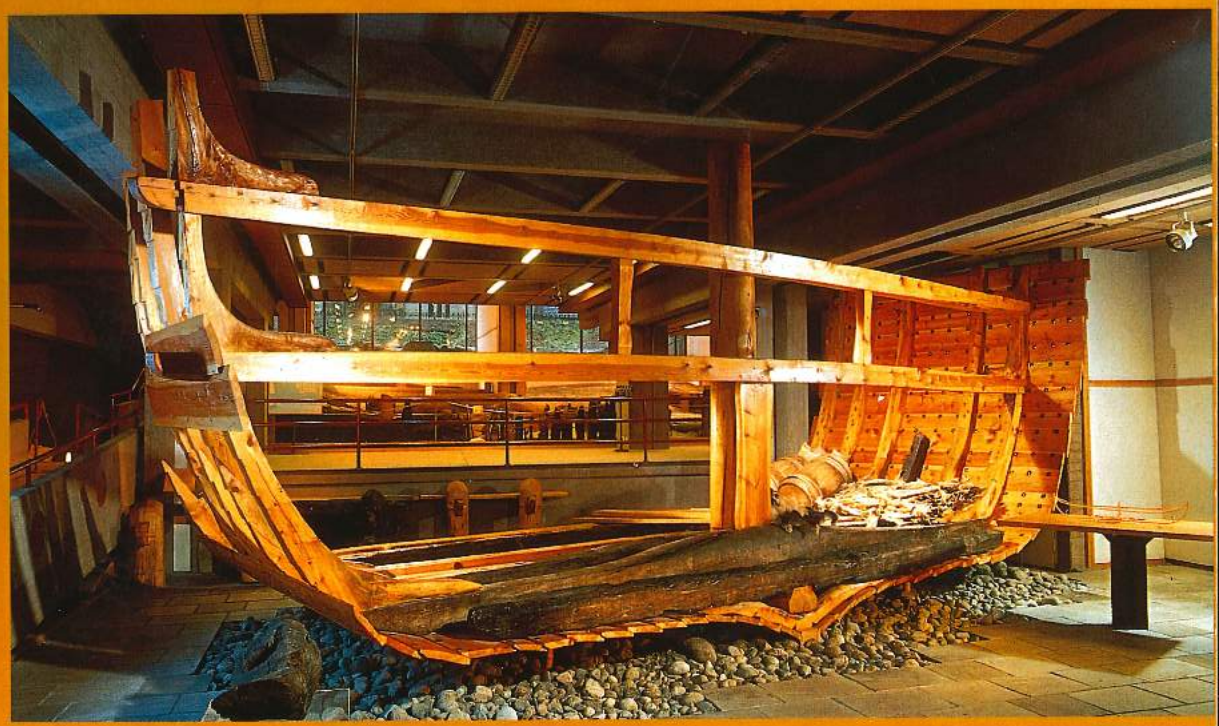
THE BRYGGEN PAPERS

Ships and Commodities

Supplementary Series No 7



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give a scholarly presentation of the archaeological finds from the excavations at Bryggen and other medieval and early modern sites in Bergen.

The papers consist of two series, *the Main Series* and *the Supplementary Series.*

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Contents

Foreword

The Supplementary Series of the Bryggen Papers contains studies on central subjects, preliminary results and thematic presentations. The aim is also to stimulate interdisciplinary approaches, as well as methodological and theoretical issues.

The present volume focuses on ships and commodities. Selected objects and themes of high relevance to the urban development of Bergen are studied from new perspectives and with new methods. The Bryggen "Ship Stick" and the "Big Ship" represent two of the most famous finds from Bryggen. In two articles an art historian and a runologist look more closely at the carved motifs and the written text of the "Ship Stick", in order to throw light on mental and technological images of ships. The volume further includes four articles on problems concerning the dating of the big Bryggen ship. Its dating has been revised by new dendrochronological and stratigraphical analyses and it turns out that it was built several decades earlier than hitherto assumed, towards the end of the 12th century – at the same time as the Bryggen quay-front expanded towards deeper waters. Imported pottery forms the most common and numerous artefact group in Bergen, and the final article deals with the late 16th and early 17th century Weser and Werra Wares. The Early Modern Period has so far been largely neglected by archaeologists. Consequently, the present study is an honourable exception, presenting the finds in a broad cultural-historical context, comparing aspects of life in the German production centres as well as in Bergen.

The editorial board responsible for the publication of the series consists of Senior Executive Officer Ann Christensson, Directorate for Cultural Heritage, District Office West, Bergen, Professor Else Mundal, Department of Scandinavian Literature and Languages, University of Bergen and Professor Ingvild Øye, Department of Archaeology, University of Bergen.

Bergen, December 2000

Ingvild Øye
Chief Editor

Liz le Bon

The Bryggen «Ship Stick»: a challenge in art and ship technology

Introduction

Among the wealth of material which was recovered in the course of the excavations at the Bryggen area of Bergen, Norway, was a large group of worked pieces of wood, bone, soapstone, and leather which were incised with runic inscriptions. About six hundred and sixty of these artefacts have been found within the medieval town. A small part of a stick or branch of juniper wood, approximately 25 cm long, is remarkable among these artefacts in bearing not only a runic inscription, but also a complex group of pictorial graffiti (*fig. 1*). The largest of these images is so striking in both its unusual view and clear depiction of Norse ships that it has been reproduced as a motif on a book cover (*The Bryggen Papers* 1985), and even in wrought iron on the outside wall of the Bryggen Museum.

A superficial response to the charm and vitality of the graffiti scratched on the Bryggen stick may overlook important questions concerning both the artistic conventions which have been used to create them, and information which they contain concerning Norse ships of the medieval period. The purpose of this paper is to identify and investigate these questions using artistic analysis of the images and technical evaluation of the ships which they represent. It is hoped that something of the graffiti's potential may be demonstrated as far exceeding their immediate appeal as attractive images.

Many of Bryggen's runic inscriptions are carved on rune sticks, narrow strips of wood prepared with flattened surfaces. A few, like the artefact discussed here, are on small pieces of branch, which have been worked without a great deal of preparation. The branch bearing the ship carvings was stripped of bark, split and carved on both the cut surface and the naturally curved face. Three faint parallel grooves are visible on the cut surface of the wood; these may have been caused by the splitting process. The carver has used one of the margins of the branch's split surface as a baseline for the fleet of ships, and placed the images on the branch's curved face on its convenient working surface, between knots and other natural features.

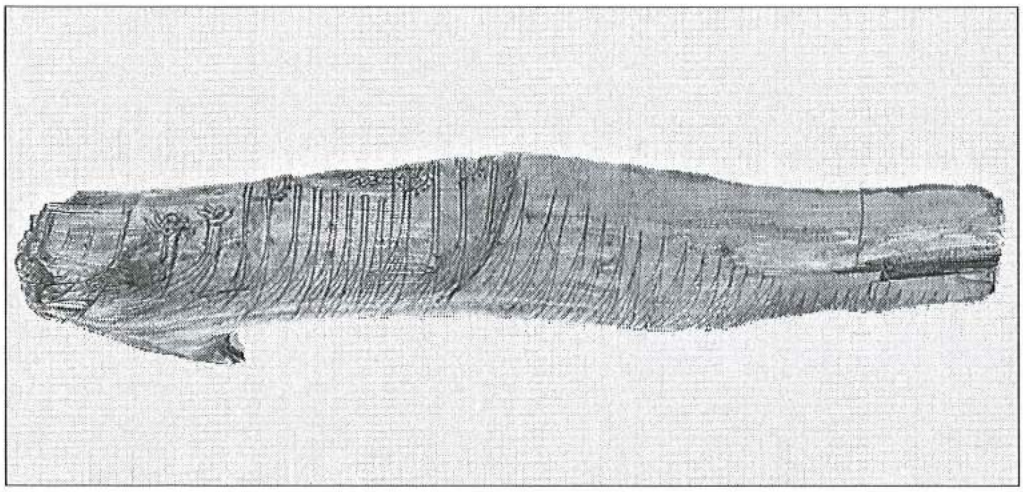

Fig. 1 The Artefact and its graffiti.

The well known group of images was carved across the wood's grain on the split surface, and extends along its full length. Using profile or frontal views of small sections of the ships' prows, forty-eight ships are included in a working space which measures only about 25 cm, in a composition which appears neither cluttered nor chaotic. High power magnification of the artefact shows interrupted traces of large ships on left of the stick, suggesting the possibility that this graffito had originally included more ships, and that the stick had been broken at some point in its history. On the reverse face of the branch, a single ship is carved in profile, near the centre of the working space. To the left of this ship, and some distance away, is a group of concentric lines which have been interpreted as manmade. To its right is another, small group of three ships which resembles the large group in that they are only partially represented, overlie one another to some degree, and show both the short pointed stems, and the elongated, rectangular stempost of the large ships in the main group (*cf. fig. 11*).

The runic inscription is carved beneath this small group of ships on a small area which had been smoothed or planed to receive them, lying just on the edge of the flattened end of the stick. The runes have been written using the later, twenty-eight character *futhark*, with the word dividers which are characteristic of the medieval period. As the artefact was found between the 1248 and 1332 AD fire layers (and somewhat nearer the 1332 layer), it seem reasonable to assign an early fourteenth century date to it. While the stick may have been a treasured possession whose carvings were gradually worked over a long period of time, their casual, energetic style suggests that the whole piece was created fairly quickly, such as in the hours between tides, after which it was discarded. It is likely that the carvings are all the work of one artist, but this question will be considered in more detail, as will the possibility that the stick was not carved in Bergen.

The close proximity between the inscription and the small group of ships indicates that the inscription, «Here sails the dauntless master of the waves», relates to this picture (cf. Spurkland, this volume). It must be noted, however, that it is impossible to be certain that the separate images and inscription on this face of the stick were intended to express a unified artistic statement. The exception to this, of course, is the group of three overlying ships, whose spatial relationships indicate the near certainty that they were carved together at the same time as a coherent image. The ships of the main group are also related to one another in both space and concept, (and both of these will be discussed in more detail below) which allow the same conclusion of contemporaneity to be drawn.

Given the likelihood that the largest graffito on the Bryggen stick was carved in a brief period of time as a boredom reducing activity, its artist has used a surprising degree of subtlety in arranging the forms in the image. From the centre of the group to the extreme right, the ships' prows are diminished proportionally in size, from occupying the whole of the working space to become tiny peaks at the branch's edge. Minute lines indicating strake runs are included to indicate that these, too, represent boats, and are evidence of the artist's close attention to detail throughout his composition. Similar lines appear in a more elaborated form in the carvings of the larger ships.

Part of the success of this graffito as a vivid and evocative image lies in its artist's choice of an unusual view to represent the ships. By limiting the representation of the small ships to what is virtually the minimum needed for their recognition as seacraft, two effects are achieved. First, many ships are shown within a small area, conveying an impression of a large fleet. Second, a frontal view of an object in art may give the viewer a sense that the object is approaching, thus drawing him into a more direct relationship with it and so achieving a visual effect with a heightened power.

To twentieth century eyes, this picture appears to be a sophisticated and successful exercise in the use of perspective to show a large, closely massed group of ships, which are nearer to the viewer on the left of the composition, and recede into the distance to its right. This effect is the result of modern viewers' reading the conventions of overlaid forms and their proportional diminishment as techniques for the representation of distance or depth within an image. We are well practised in interpreting these techniques and their effects in the art of our own time, and our experience of photography has greatly increased our sensitivity to them. While this heightened sensitivity is to our advantage in enabling us to interpret quickly and accurately the visual imagery of our own period, it may mislead us in reading ancient art which did not use spatial relationships in the same way.

Art, Psychology, and Visual Illusion

An intentional achievement of perspective in a work of this date would be astonishing. Pre-renaissance images are often found from many different cultures

Fig.2 The Bayeux Tapestry; the death of King Edward. Wilson edition, 1985.

which are composed with an overlay of forms to create an impression of multitude, such as the group of people shown mourning the death of King Edward in the Bayeux tapestry (*fig.2*). However, it has not been possible to find parallels for the artistic convention of proportional diminishment of forms in order to indicate perspective, either alone or in combination with overlay in northern European medieval art, which would provide an artistic context for the Bryggen image. Studies of the development of perspective in art (Bunim 1940; White 1967; Kemp 1990; *inter al.*) indicate that experiments in the representation of pictorial space led to its achievement by the Italian artist Brunelleschi around the year 1413, and its widespread use was established by about 1500 (Kemp *ibid,* 7-9). It would be wrong, however, to link the technique of the Bryggen image with the artistic experiments of the Italian renaissance, and either to make assumptions about the Bryggen artist's experiences, or to reject the carving as a forgery because its apparent achievement of perspective precedes Brunelleschi's work by approximately one hundred years. (It must be noted that some art historians have doubted the carving's authenticity, not through doubts about the artefact's archaeological context, but simply because of its apparently anachronistic achievement of perspective; Prof. Martin Kemp: pers.comm. 1993).

There are several ways of looking at this problem, in order to find an explanation for the image's extraordinary effect. The first is that the artist

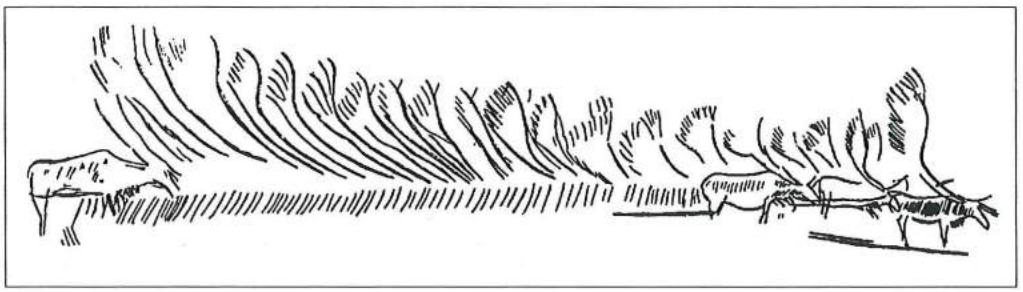

Fig.3 The Teyjat image. Deregowski 1984.

composed it with the intention of creating the impression of perspective which modern viewers perceive. In accepting this explanation, one would then have to account for the apparent absence of a Northern European artistic context in the early fourteenth century for the techniques which the artist has used. In theory, at least, this would not be an impossible exercise; occasionally, examples of art which have been created using highly evolved styles and techniques are found associated with cultures which are far removed from their place and time of origin. The Buddha figure, originating in northern India (illustrated by Roesdahl and Wilson 1992, 257), found in a sixth to seventh century context at Helgö, Sweden, provides and example of such a piece. The influence of such widely travelled pieces' subjects, styles and artistic conventions on the art of the cultures which they reached may only be surmised.

Works of art may also be found which achieve effects far different from those of the artistic context to which they appear to belong, and which, for political or cultural reasons, are unlikely to have been the result of long distance contact with artistically advanced cultures. An example of this may be seen in the Teyjat image (Deregowski 1984, fig 2.4 ; *inter al.*; illustrated *fig.3*), which is a prehistoric representation of a herd of reindeer whose artist also used the technique of proportional diminishment (almost unknown in prehistoric art) to create a powerful impression of a large number of animals . While it must be noted that the Teyjat picture is the product of a vastly different time, culture, and artistic canon from the Bryggen graffito, it serves as a reminder that images may be found in ancient art which are innovative or experimental.

As is suggested by the evidence of these innovative works, it would be wrong to assume that successful experiments in depiction were not being carried out long before the milestone achievements were made. Before leaving this discussion, the geographical location of Bergen on the west coast of Norway must be noted, in terms of the city's role as an international port in the medieval period, and therefore as an important point of contact between cultures. The possibilities that the carver of the Bryggen stick was not native to Bergen, and also that the artefact may have been carved elsewhere in Northern Europe before being lost or discarded in Bergen, must also be considered.

A concept which rather resembles the «innocent eye» theory, the subject of much discussion among nineteenth century artists and academics, has sometimes been suggested in informal discussions among nautical historians as the means by which the Bryggen artist achieved the effect he did. This concept conjectured that a gifted but untaught amateur might achieve remarkable effects of power and realism, simply by applying an unsophisticated directness to drawing exactly what he or she saw. The emphasis was then on the individual, and the validity and purity of the perceptions which he experienced, and which were unshaped by the teaching of artistic convention. Using this theory, the Bryggen graffito could be seen as the happy result of an attempt to illustrate what a competent but artistically naive artist actually perceived, such as a large fleet of ships drawn up on a beach.

Psychologists experimenting with perception and visual illusion have discovered that a person with no experience of art, nor specific teaching in reading artistic conventions, perceives depth within a picture constructed using the so-called corridor illusion (Newman 1969, 418-420). This illusion was designed in as part of an investigation of the perception of size as determined by distance, and used figures of the same size placed at intervals within a grid of converging lines which resembled a panelled corridor (*fig.4*). While the Bryggen ships are not the same size, the near convergence of their common baseline and the imaginary line of their prows creates a similar, though not identical, effect to that of the background grid of the corridor illusion, whose purpose was to establish the illusion of depth. Experimental findings concerning the effect of the illusion have a relevance to the interpretation of the art of the Bryggen graffito, in indicating that the form which the artist used triggered a basic human perceptual response which anyone with a normal neurological system would experience, be they medieval or modern. Registering the image is then a blend of basic innate perceptual mechanisms which function in response to triggers embedded within it, and of learned responses to the deliberate use of particular artistic conventions. The artist's use of conventions and the viewer's reactions to them are both culturally determined, and may not necessarily coincide.

This perceptual phenomenon may be said to be related to the concept of the naive artist which was described above, in explaining the positive response of the human brain to certain effects in visual imagery, in the absence of previous experience or teaching of the techniques. What must be emphasised, however, is that the perception of an illusion created in a work of art, rather than an experimental image, does not necessarily dominate the viewer's response to the image, in the sense of overriding his response to the use of other artistic conventions. Some effects within an image, then, are fortuitous, unintentional triggers of responses which are bound up with the perceptual system, but may be stronger or weaker according to other aspects of the composition. This variability allows the meaning of the deliberate effects, the conventions and techniques, to exert their influence on the viewer. This discussion does not solve the problem of what

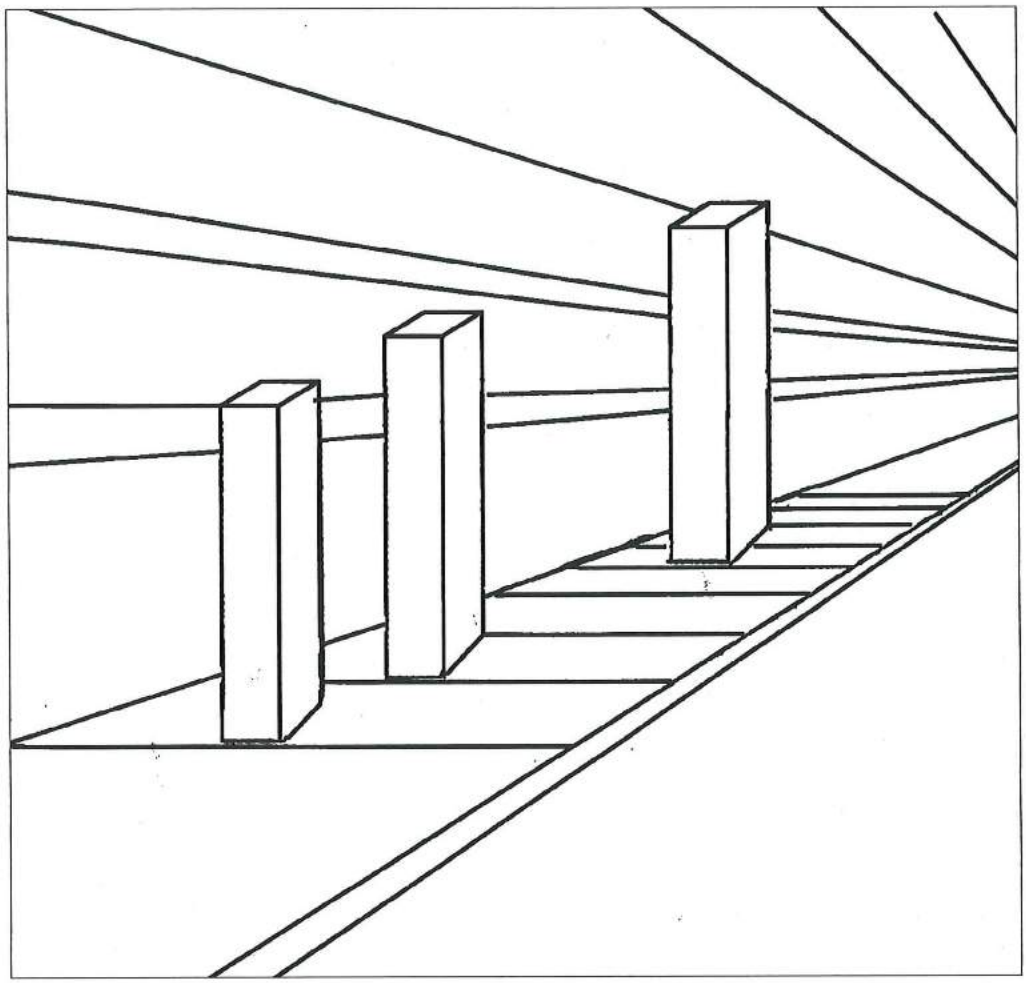

Fig.4 The «corridor» illusion. Luckiesh 1965.

response the creator of the Bryggen artefact intended to evoke in the viewers of his image. It does, however, allow the possibility that while the effect of perspective may not have been intentional in the Bryggen graffito, contemporary viewers would have perceived it through the action of their perceptual systems.

As was noted earlier in this discussion, some art historians have been sufficiently puzzled by the art of the carvings that they have doubted their authenticity, seeing them as the work of an artist who was familiar with the post-medieval techniques of achieving perspective, but who did not realise their anachronism relative to the style of carving he was attempting to imitate. However, the artefact has a secure archaeological context, and closely resembles many other undoubtedly genuine pieces found at Bryggen. Furthermore, the lines and detail of the ships depicted, and the nature of the runes, all fit comfortably with a fourteenth century date for it.

Another possibility is that we may not only misunderstand, but frankly overlook through unfamiliarity, the use of an ancient artistic convention in the Bryggen graffito, which is expressed in the technique of proportional diminishment. In this convention, the spatial relationship between forms is the means by which a conceptual relationship between the small ships to the right of the carving and the larger ones to the left might be represented. The art historian Miriam Bunim described this use of size differentiation between figures in a composition, to convey meaning about their relative importance, as «hierarchic scaling» (Bunim 1940, 8).

Hierarchic scaling is found in prehistoric, Egyptian, medieval, and children's art, and caused important mortal or supernatural figures to be represented as being larger than associated figures of lesser status. The information about the ranking of the subjects in an image which the contemporary viewer received from such a technique might be further supported by the dress or associated detail of the large figures. It is possible to interpret the differentiation of size in the Bryggen ships as resulting from this technique, conveying a message to the contemporary viewer who would have been familiar with it, not about the actual sizes of the ships, but about their relative importance.

The large ships to the left of the Bryggen carving carry figureheads, weathervanes, and a flag, while those to the right are unadorned. Early Scandinavian prestige ships in the archaeological record, such as the Oseberg ship, were richly ornamented with highly achieved works of art as part of their public display of status. The flag, which is clearly associated with one of the large ships near the centre of the Bryggen picture, may be linked with early medieval flags which were in use from the early twelfth century. Colin Campbell described these in a recent work (1989), and two of the types he discussed are very similar to the Bryggen flag in being rectangular, with three tails, and worked with detail in the flag's field, usually the owner's arms. Both of these flags, the *gonfanon* and the *sena cabdal* (*ibid,* 2), were appropriate to leaders or senior noblemen, or to institutions such as the orders of knighthood. Several very similar flags may be seen in the Bayeux tapestry, carried on the ends of lances by knights of the Norman army, and, notably, by the dukes of Normandy and Brittany. If the Bryggen flag may be linked with this type of chivalric flag, its use was likely to have been meant to denote the presence within the group of a person or institution of considerable stature. The weathervanes and figureheads on the ships which are close to the flag strengthen this message of imposing presence, and work with the conceptual relationship of relative size between the large and small ships by enhancing the difference between the two groups.

Bunim noted in the course of her discussion of hierarchic scaling that, «All the figures, though differing in size, may stand on the same line.» (*ibid.*). This observation may provide the key to solve the puzzle of the interpretation of the art of the Bryggen graffito. Rather than deliberately constructing an image which indicates depth, perhaps the artist used an extended form of hierarchic scaling, not

to indicate a few status relationships within a composition, but to show a complete fleet in order of importance, from the impressive and decorated ships of the commander and his nobles, to the smallest unornamented tenders. It is possible that interpreting the relative sizes of these ships as only a realistic representation of their true proportions is too simplistic to explain the image and its artist's intention. Our unfamiliarity with the use of hierarchic scaling to carry meaning within an image, and our considerable familiarity with overlay and proportional diminishment to indicate perspective, may lead us to misread the meaning of the spatial relationships between the figures in the Bryggen graffito.

Separating the possibilities in this discussion has the unfortunate effect of implying that one meaning rules out all others, and to view the image in this way as a «single concept statement» would be to underestimate the carver's achievement. It is likely that the form of the image is the product of a group of interrelated concepts, which were expressed using overlay of ships and proportional diminishment. The possibility that one of these concepts was the intentional representation of perspective, by the same technique which was used to indicate status relationships between the ships, cannot be completely ruled out, despite its apparent anachronism.

Whatever the true explanation of the apparent effect of perspective in the Bryggen carving may be, reading the image provides an example of the complex interplay between the artist's intention in making it, his handling of the material on which the image was carved, and the problems posed by the later viewer's response to the conventions used to create it. The modern viewer's recognition of the graffito's subjects includes a stereotype, derived from films and illustrations, of what a Norse ship looked like. We also register the effect of space in the picture through the workings of our perceptual system, in the same way that contemporary viewers did, but considerably heightened by our familiarity with pictures which use well developed conventions for the representation of perspective. It is at the more complex and culturally bound levels of the interpretation of artistic conventions, however, where the difficulties for later viewers occur. Lacking the insider knowledge of the contemporary viewer, and applying our own reading, we may miss levels of meaning which are present in the image, and, perhaps more seriously, be so confused by our inappropriate responses that we attempt to find explanations for both art and artefact which further mislead us.

Turning briefly to more practical issues concerning the carving of the stick, the main graffito was incised across the wood's grain using a very fine point, with a deftness and precision which allow the detail to be clear, even on a tiny scale such as in the fringes or telltales of the weathervanes, and the tails of the flag. These tails have been shown with a rippling curve, in order to suggest movement, a remarkable example of medium handling which is successful both artistically and technically. Tiny chips have been lost from the carving at some of the angles between lines of the graffito, such as at the corners of the stemposts' flat tops, but

the artist was sufficiently in control of the pressure he used in incising the image that this tendency to chipping did not become a serious problem. Several of the ships with long but undecorated stemposts have a diagonal, rather than a horizontal line indicating the stem top, perhaps as an adaptation of technique to avoid the loss of small chips. This observation highlights the importance of considering the practical factors which influenced the way in which details were realised, and opens the way to the question of the extrapolation of the actual appearance of historic ships from such images.

Ship Technology

The long sweeping stemposts, weathervanes and animal head ornaments of the large ships are characteristic of the Scandinavian shipbuilding tradition. The curving lines incised on the hull area seem to indicate clinker construction, although the joints between the planks in carvel building could also have been represented in this way. Closer examination, however, reveals some intriguing aspects of the ships' form which appears to suggest that they are nearer to the ships of the medieval period than to those of the Dark Age.

The artist has taken considerable care to indicate the hooding ends of the planks, their point of contact with the stempost, by incising a horizontal line between them and the ships' stems. Where an animal head ornament is included, a short section of stempost is indicated between the line marking the end of the strakes and the figurehead itself. Where the stem is sharply pointed, in the smaller ships to the right, the line forms the base of a triangle which is completed by the lines forming the stem. This detail gives the clear impression that the upper strakes rise together to end at a common point, a characteristic which is thought to have typified the hulk.

While actual examples of the hulk have not yet been found, or recognized, in the archaeological record, it is known from plastic, coin, and manuscript art of the medieval period, and documentary sources provide information about its distribution (Greenhill 1988, 62-7). A.E. Christensen, in the course of his discussion of the boat finds at Bryggen (1985, 217-9), summarised some theories about the use of ship types in Norway in the medieval period. He concluded that it was the cog, and ships built in the Scandinavian clinker tradition, which dominated medieval shipping in western Norway, until 1365 when royal permission was given for the new, smaller levy ship to be built.

The long stemposts which feature on the large ships in the Bryggen graffito cannot be safely linked with the hulk tradition. Greenhill, working from artistic and documentary sources (1988, 62-67), stated categorically that the hulk was always without a stem and stern post, a view which is supported by other authorities (*e.g.* Christensen 1985, 217-219). The ship carved on the twelfth century Winchester font, for example, which is generally accepted as a hulk (*fig.5*),

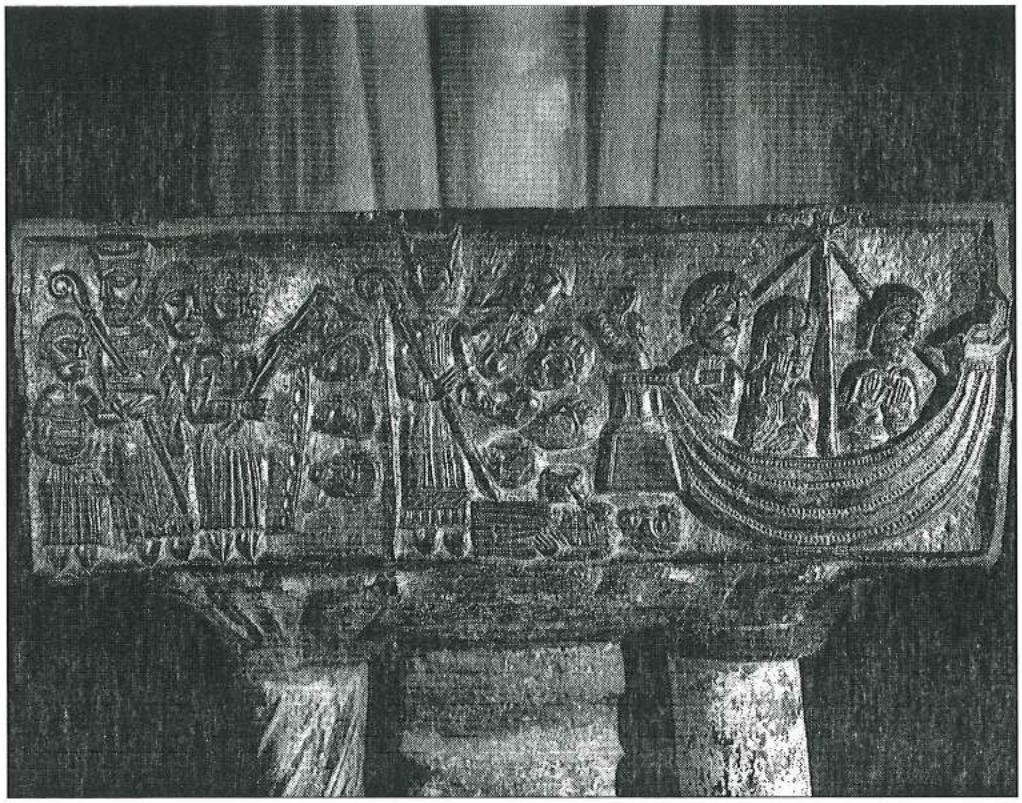

Fig.5 The Winchester font ship. Costa 1981

gives a clear indication of long strakes whose hooding ends meet beneath an animal figurehead, which is unsupported by a stempost. It would seem that there were hybrid forms, however, where the arrangement of strakes at the stem of the hulk was used in building the otherwise traditional Scandinavian hull, and these are referred to in the royal letter of 1365 (Christensen 1985, 217-219). It seems likely, however, that these hybrids were also built without stem and sternposts.

While the hulk was likely to have been known in Scandinavia in the first half of the thirteenth century, it is likely that it was much less common than the cog and the Nordic clinker built ship, until the second half of the fourteenth century. Christensen draws attention (1985, 219) to the wide range of forms which the traditional Scandinavian ship could take, noting the ships of the Skuldelev find as providing some examples. The Bryggen graffito ships' long stemposts are clearly characteristic of the Norse ship tradition, and despite the faint suggestion of hulk characteristics in the hooding ends of the strakes, it would not be safe to see the graffito ships as primarily related to the hulk. Some confirmation of the possibility that ships in the medieval Nordic tradition were built with their upper strake runs

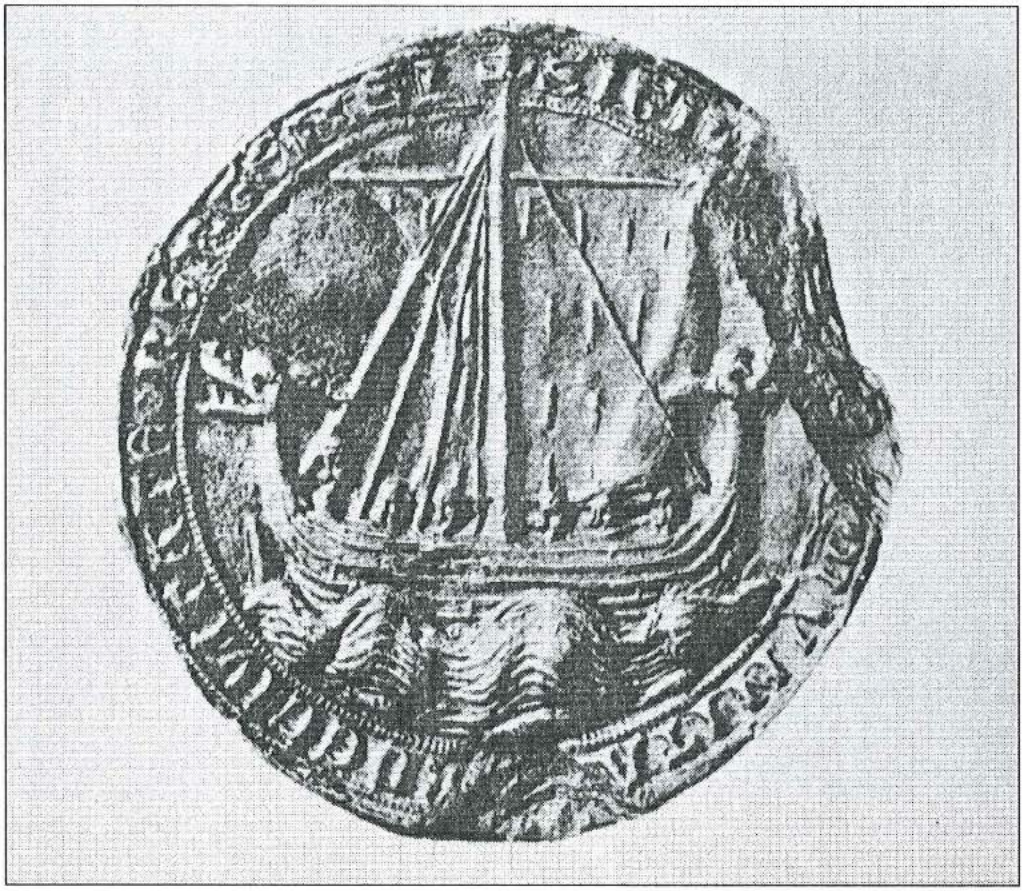

Fig.6 The town seal of Bergen. Unger 1991

curving up to meet at a common point may be seen in other pictures of this period, notably in the ship on the town seal of Bergen itself (*fig.6*).

There are many other representations of ships from the medieval period which display upswept strakes ending together, with a banding or simple line marking their joints with the stempost, just below the figurehead. On the Winchester font hulk's figurehead, as well as a number of the prestige ships in the Bayeux tapestry, a decorative collar is indicated just below the head itself, parallels which may provide an interpretation of the horizontal line beneath the Bryggen figureheads.

Martin Blindheim's survey of medieval graffiti from Norwegian stave churches identified a number of ships with these details (1985: plates XVII, 6: XXVII, 6; XXXVI, 4). They may also be seen in the illustration of Noah's ark, in the thirteenth century Huntingfield manuscript (*fig.7*), and in the ship's prow decorating a gaming piece (Christensen 1985: fig. 16-20; *fig. 8*). Christensen interprets the horizontal lines on the graffito ships as the joint which made the stem top

independent of the lower segment, and draws attention to the group of boat models found at Bryggen, whose stem tops were detachable from the hulls (*ibid,* 206). The difficulty with this interpretation, however, is the very scanty evidence for this feature in ships which have been found in the archaeological record, and Christensen remarks that this clearly indicates that the picture we have of medieval Scandinavian ships is far from complete.

It would seem that Christensen's interpretation works from the assumption that the the Bryggen graffiti are intended to represent realistically historic ships. Ample evidence exists to show that this assumption of realism in visual imagery is unsafe, particularly in the context of pre-renaissance art. Martin Carver's study of the depiction of artefacts in early medieval manuscripts (1986, 118-144), for example, considered the complex interplay of intention and tradition which determined the form an object took in the art of this period. While is it hard to dispute the evidence of the Bryggen ship models themselves, the detail seen in the graffiti and other illustrations cannot be automatically related to the models without some consideration of another possibility.

Rather than showing the point where a loose stem top detaches from the hull, perhaps the arrangement of strakes and horizontal lines is the result of an attempt to indicate, in an artistic shorthand, the important and complex group of joints between the strake ends and the stempost, without having to show it in all its detail. A *pars pro toto* form of representation in the case of the Bryggen graffito would save the artist an extremely lengthy and minutely detailed job, and also signal to the viewer that the joints had been included, and that he was looking at an informed and carefully executed image. Where this hypothesis differs in a point of interpretation from Christensen's, its real difference lies in terms of its application to the use of graffiti as a technical source. While Christensen interprets the horizontal lines on the graffito ships' prows in a way which is reasonable in terms of the evidence of the ship models, he attempts to extend this interpretation to elucidate attributes of some of the real ships of medieval Scandinavia, which are so far unrepresented in the archaeological record. Not only do other possibilities for the interpretation of the horizontal lines have to be considered, but it is dangerous to take the application of any interpretation of ancient graffito imagery too far, in the absence of firm and conclusive evidence from archaeological finds to support or refute it.

The Bryggen carver deliberately «thickened» the stemposts beneath the two animal figureheads by adding extra lines on either side of the posts themselves. In one case, this addition takes the form of a fin, which significantly adds to the zoomorphic quality of the figurehead itself. While the artist may have been dissatisfied with the slender appearance of these posts and felt they needed more substance, it is possible to see a rather similar addition to the stemposts of King Harold's ship in the Bayeux tapestry *(fig. 9)*. These details are curving, rather than straight vertical bands, and are worked in different colours from the posts

Fig.7 Noah's ark, depicted in the Huntingfield manuscript. Unger 1991

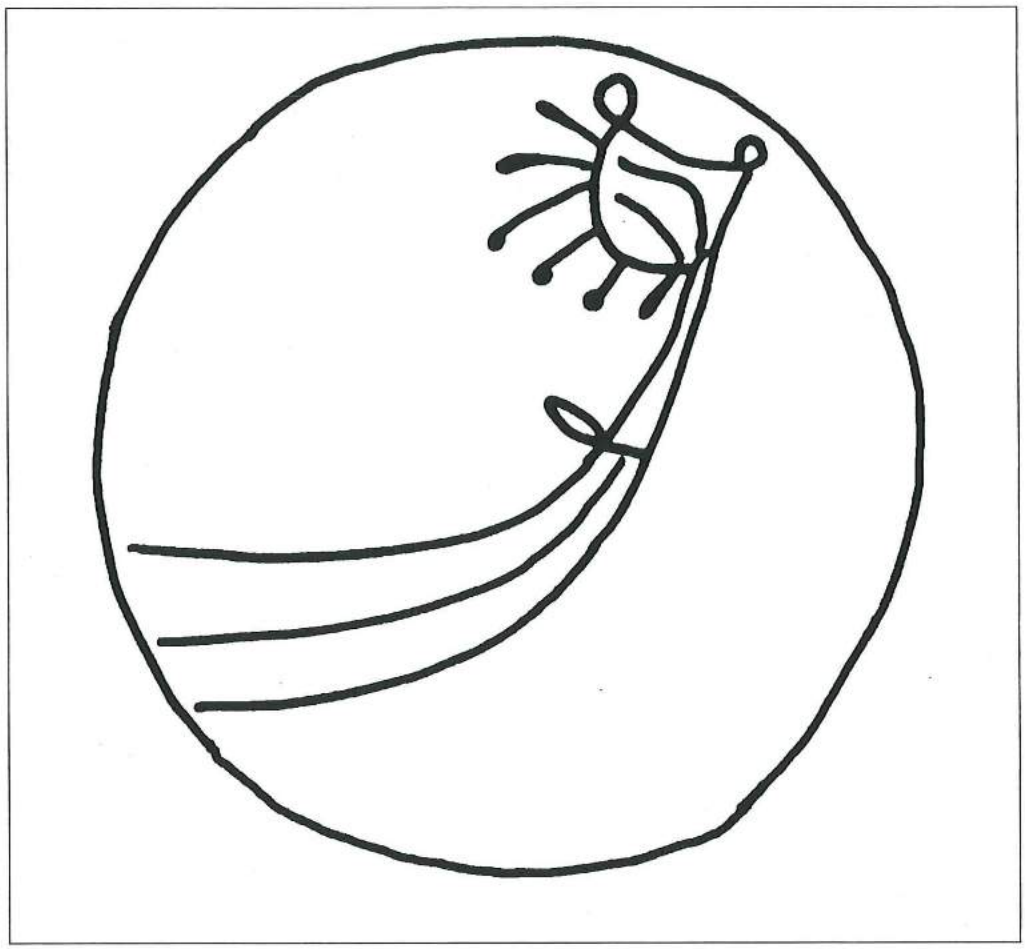

Fig.8 A ship's prow decorating a gaming piece. Christensen 1985

themselves, possibly in order to represent separate parts or decorative painting. It is also interesting to note that King Harold's ship also has an intermediate section between the tops of the strakes and the figurehead, a sort of spacer, a detail which is also seen in one of the two ornamented stemposts of the Bryggen ships.

It is rather easier to interpret the smaller ships illustrated in the Bryggen graffito, and to place them within a particular shipbuilding tradition, than it is the larger ships. Their distinctive characteristic, the relatively short, sharply pointed stem, gives these ships a strikingly different profile from those of the large ships in the graffito, through the absence of the high, roughly rectangular stempost. The profile of these small ships may also be seen in ships found in archaeological excavations. Their distinctive, sharply pointed stem may also be seen in a number of early medieval seacraft, such as the eleventh century Skuldelev ships (Olsen and

Fig.9 A ship from the Bayeux tapestry with a "fin" on its stempost. Wilson edition 1985

Crumlin-Pedersen 1976). These archaeological parallels are also of some use in supporting the hypothesis that the artist of the Bryggen carving was representing a complete fleet, from the largest and most prestigious, to the smallest.

Two apparent similarities between details of the Bryggen graffito ships and the ships illustrated in the Bayeux tapestry were considered briefly, above. Comparisons between these two very different works show a further resemblance. Both pictures represent similar types of ships: large, prestige craft with upswept strake runs ending together at a point below their stemposts, some with animal figureheads, and smaller ships with short, pointed stem profiles. In both works, the different ship types are closely juxtaposed with one another, their artists using economical management of compositional space to convey effectively the concept of fleets.

While these parallels show that the artist used a form which would have been readily recognisable to contemporary viewers, its use had an artistic function as well. As was described, above, the artist was able to increase greatly the number of ships in the image, without the viewer's ability to recognise them being disturbed by the technique of proportional diminishment's progressive reduction of their size. This was achieved by using a ship profile on a small scale, which lacked the more flamboyant characteristics of the large ships with their long stemposts. The image is then a careful blend of artistic and technical considerations.

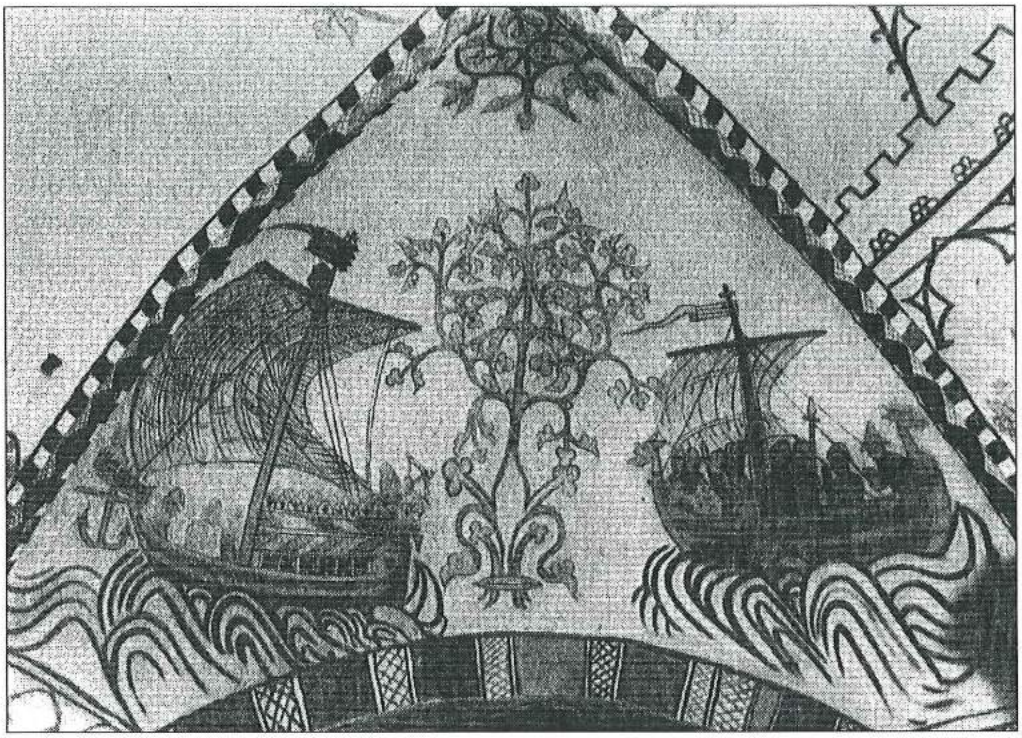

Fig.10 The "Merry Serpent ". Crumlin-Pedersen 1983

Figureheads and Weathervanes

The discussion of the possible use of hierarchic scaling in the Bryggen graffito included the observation that the two animal figureheads on the large ships may also have an artistic purpose in signalling the ships' importance relative to those on the right of the graffito. Furthermore, their presence in the image also functions as a trigger for the immediate recognition of the origins and type of ship being depicted; they make a substantial, even definitive contribution to what we consider to be the Norse characteristics of the image. While these figureheads do not closely resemble the sleek dragon head ornaments of the high Viking period, their bulky form and well marked ears are very like the medieval figureheads illustrated in other art of this period. The animal head on the ship carved on the twelfth century Winchester font (noted above), for example, and the figureheads of the «Merry Serpent» in a fourteenth century Danish mural (Crumlin-Pedersen 1983, 21; *fig.10*) are chunky, rather than serpentine shapes, with large ears which give their silhouettes a distinctive, almost giraffe-like appearance. It is also possible to see further examples of animal head ornaments with the same characteristics of the Bryggen examples in some of the ships of the Bayeux tapestry.

The weathervanes which are carved at the stem tops of two of the large ships provide valuable evidence for the use of these artefacts in ancient Scandinavian ships, and Martin Blindheim referred to the Bryggen graffito in his discussion of the manufacture and use of weathervanes (1982, 116-127). The four surviving weathervanes from church towers in Scandinavia have been dated stylistically to the eleventh and twelfth centuries (Blindheim *ibid.)*, making them relatively close in time to the Bryggen artefact. Using evidence from the sagas as well as the Bryggen and stave church graffiti, Blindheim notes that the use of weathervanes was a feature of prestige ships, and that they served both as status items and recognition devices, since their gilding would have made them visible at a considerable distance.

Comparisons between the evidence of the graffito images and the existing weathervanes has led Blindheim to assume that very faint marks at the forward edges of the Bryggen weathervanes are intended to represent the small three dimensional animals which are perched in the same position on the surviving weathervanes (*ibid,* 121). However, while it is clear from examination of the artefact that these marks are almost certainly intentional and part of the design of the weathervanes, they are so tiny that it is impossible to be certain what they are intended to be. The absence of this animal ornament of the weathervanes in the Norwegian stave church graffiti may indicate that it was not a universal addition to the Norse weathervane, and this point, coupled with the difficulty in reading the very small marks on the Bryggen image indicates the need for caution in interpreting them. Other use which Blindheim makes of the graffito as a technical source is less problematic, however, as he notes the mounting of the two weathervanes in the graffito to support the idea that the usual position of these items in the earlier medieval period was at the stem, not the masthead.

Three of the four surviving weathervanes have perforations along their curved edges, and Blindheim refers to the Bryggen graffito to interpret these as points where telltales were attached (*ibid.*: 122). The graffito shows these telltales clearly, as the artist has taken considerable care to show them almost as ball fringes. This evidence is further supported by two of the stave church graffiti, which also show telltales on the edges of stem mounted weathervanes.

Other Graffiti on the Stick

The pictures which have been carved on the reverse face of the branch were incised on the naturally curved and contoured surface, which was relatively unprepared except for the stripping of bark. Spaced among the natural features of the wood are images which appear to be compositionally independent of one another because of the distance between them. This surface is dominated by the picture of a single ship (*fig. 11*), sitting more or less centrally in the working space, which differs in view

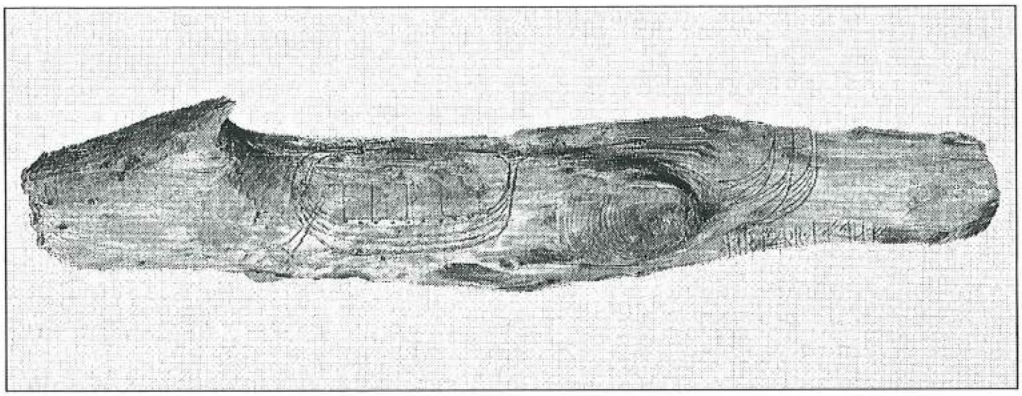

Fig. 11 The ship graffito on the reverse of the Bryggen stick.

from the ships of the main image in that it is shown from stem to stern in profile, with no part obscured by overlap.

Superficially, however, this ship appears to be of the same type as those in the large graffito. It is distinctively Norse in its lines, with the same arrangement of up curving strakes which end at an angled line at the base of a long, ornamented stempost. The ship differs in the addition of detail, some of which are associated with the profile view, in that it has a steeply incurved sternpost, single quarter rudder, oarports, and a horizontal line which extends from stem to stern above the gunwale. The area between this line and the gunwale has been decorated with five vertical lines, each with a triangle set near its upper end.

Interpreting this area poses some difficulty, at least in part because of the almost complete lack of parallels in medieval Scandinavian art for it. In discussing the interpretation of a ship graffito scratched on a small piece of slate found at Jarlshof, Shetland (*fig. 12*), A.O. Curle (1934-5, 310) suggested that the rather chaotic detail over its gunwale might be read as a *tjald*, a tent or awning, known from the sagas to have been used as temporary covers under some circumstances. Drawing too close a parallel between the Jarlshof and Bryggen images may be unsafe, however, because the style of the Jarlshof graffito is, to say the least, casual, and the interpretation of its detail is very uncertain. However, if the Bryggen ship's detail is read as a *tjald*, then the vertical lines and triangles might be seen as the woven decoration of the cloth used for the awning, and might have resembled the banding known to have been a feature of the sailcloth used by Norse ships. It is also possible that they represent another structure within the ship, such as a frame for the awning. These readings, of both the Jarlshof and Bryggen graffiti, are based on the assumption that the whole ship, including this feature, is shown using a profile view. While the uniform use of a single view within the outline of a subject is customary in post-medieval art, it is unsafe to generalise from this to ancient art. The use of « twisted perspective «, a convention well known in prehistoric, ancient,

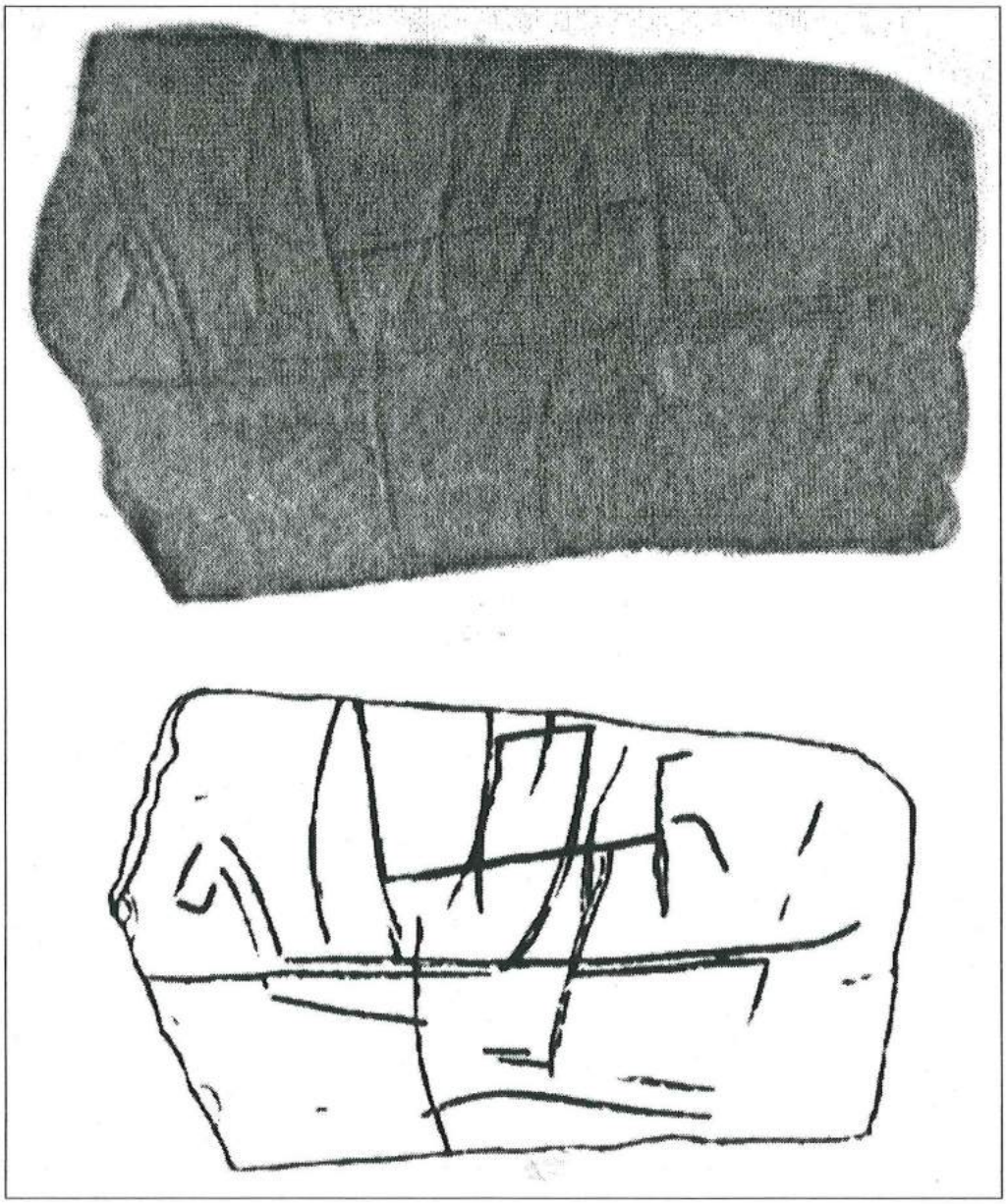

Fig. 12 Ship graffito from Jarlshof, Shetland, showing a possible tjald. Photograph and drawing Curle 1934-5.

and children's art allowed the artist to include preferential views of aspects of a subject which are contained within its outline.

If the artist of this picture used a twisted perspective to show a plan view of the inner hull area within its profile, then the horizontal line between the two end posts could be read as the gunwale, and the vertical lines below it, crossbeams, or

Fig.13 King Harold's ship, the Bayeux tapestry. Wilson edition 1985.

possibly seating arrangements for oarsmen such as thwarts. The triangles pose a problem to the already problematic reading of these features as thwarts, as does the placing of the oarports relative to the hypothesised thwarts. Ten oarports are shown, spaced along the washstrake with one roughly below each vertical line, and one in between.

However, too literal an interpretation of the image's detail may not be productive, particularly in view of the detail at the ship's stern. Its curious sternpost, with its fuzz of lines and enigmatic finial, appears at first glance to be a fantasy. Remarkably, it is possible to find a parallel for this feature among the ships of the Bayeux tapestry, in the endposts of the ship which King Harold is shown boarding for his return journey to England *(fig. 13)*. These curve back into the space in the inner part of the ship, albeit without the exaggerated curve and considerable length of the Bryggen ship's sternpost. It is difficult to know what to make of these sternposts.

Aspects of the Bayeux tapestry ships have been considered several times in the course of this discussion, and it is appropriate here to note the difficulty, not only in relating the detail which the tapestry ship representations show to historic ships, but in using this material comparatively to understand ship graffiti. The Bayeux tapestry belongs to a distinct and highly evolved art form which undoubtedly

served a decorative purpose, but also was an important way of transmitting complex information containing levels of allegorical meaning (identified and described, for example, by Bernstein 1987). The possibility that the Bayeux ships are formulaic representations, or contain details which are allegorical rather than realistic, cannot be overlooked in attempting to use them to interpret the detail of the Bryggen ship graffiti. All that may safely be said about the parallel between the sternposts of King Harold's ship and that of the Bryggen graffito is that a striking resemblance does exist; until archaeological evidence is found to elucidate what these representations appear to show, no conclusions about their reference to historic ships may be drawn.

Problems of Interpretation

The possibility was briefly considered, above, that the ship on the reverse face of the Bryggen artefact is, at least in part, a work of imagination. Artists of ancient pictorial graffiti were free to exploit the liberty which this form of art conferred on them, to create pictures which were works of whimsy or fantasy, rather than objects in the real world. Whatever the tiny lines at the top of the sternpost represent, they and the sternpost's length and deep curve are characteristics which would be impractical in a real ship, and might be seen to support the notion that the artist was playing with form. Studies in the technique of caricature have considered the accentuation of characteristic features (Gombrich 1991, 279-302), both to call attention to their use as recognition devices and to reduce the subject's high seriousness, and perhaps this is part of the concept underlying the ship graffito. Its odd features might then have also looked odd to contemporary viewers with experience of the ship type being lampooned. This likelihood, that the image has a humorous intent, has relevance to the possibility that the nearby runic inscription was ironic.

While this single ship on the naturally curved face of the stick does bear some superficial resemblance to the ships of the large graffito on its split surface, it must be noted that examination using powerful magnification showed that the lines forming it appear to have different characteristics to those of the other images on the stick. While these have been incised using a fine, sharp point which cut deeply into the surface of the wood, the single ship has been cut with a tool which left a slightly broader, shallower line. It must be noted that these are only subjective observations, and that further analytical work involving direct measurement might allow firm conclusions to be drawn. While the use of a different tool is in no way an indication that another artist made the graffito, (and it is doubtful that enough stylistic evidence exists among the pictures on the stick to support this) it might be seen to shed a little light on the time which was taken to carve the stick; that is, the use of two different tools suggests the possibility that an interval of time passed during the carving.

The group of three ships to the right of this ship more closely resemble the ships of the main graffito than it does, in their partial representation, the types of ship which are shown, and their overlaid grouping. It is tempting to conclude that the artist who carved these ships was also the creator of the large image on the other side of the artefact, and that it may have served as a sort of preliminary sketch for the more developed and extended piece. Another possibility, that this group of three ships' prows was ideogrammatic, has been considered elsewhere (le Bon 1995, 172-179).

The other image which appears on this face of the branch is a group of concentric lines at the extreme left side (*fig. 14*). It must be noted that there is some question about the origin of these lines, in view of the fact that, under magnification, they appear as undercut rather than linear incisions, and therefore have the appearance of being the edges of flakes of the wood's surface, rather than marks made by the point of a tool. As in the case of the «signatures» of the tools used to incise the ship graffiti, a more detailed analysis of the characteristics of these marks might reveal their true origin. If they were manmade, then it is difficult to imagine what they were intended to represent, and how, if at all, they relate to the other pictures on the stick. Mathilde Macagno, a hydrodynamicist who researches the depiction of water in art, has suggested that if these lines are manmade, they may possibly be interpreted as the small waves which form behind a slow moving object (personal communication: 1993). Her concern about this reading, however, relates to the orientation of these lines relative to the single ship to their right, in that they are shown in plan view, while the ship is in profile.

The decision to use a different view to illustrate a particular subject in a picture relates to the artist's intention to show its distinguishing characteristics clearly enough so that it might be easily recognized. To be effective, this requires that the viewer understands the artist's use of twisted perspective in the context of the whole composition, suspending his expectation that all the subjects should be shown using naturalistic spatial relations. The use of a plan view to show a particular form characteristic of water has a certain logic, since a profile view of small waves in a concentric formation would be relatively uninformative. Furthermore, an artist who did not use the concept of making his or her picture a «window into nature», where subjects are shown using a naturalistic interrelationship which determines view and proximity, might have opted for views of subjects which maximised the information which the viewer could extract from them. Practical reasons, such as the availability of a good working surface on the stick, might have determined the placing of the concentric lines at a greater distance from the ship than the realistic portrayal of a relationship between the two images would require. It was noted earlier in this paper that the stick appears to have been broken at the end bearing the concentric lines; with this in mind, it is not difficult to see that another image, of which the concentric lines were a part, could have been carved on this lost area. It must be emphasised that no firm conclusions about these lines may be drawn until a further analysis of them has been made.

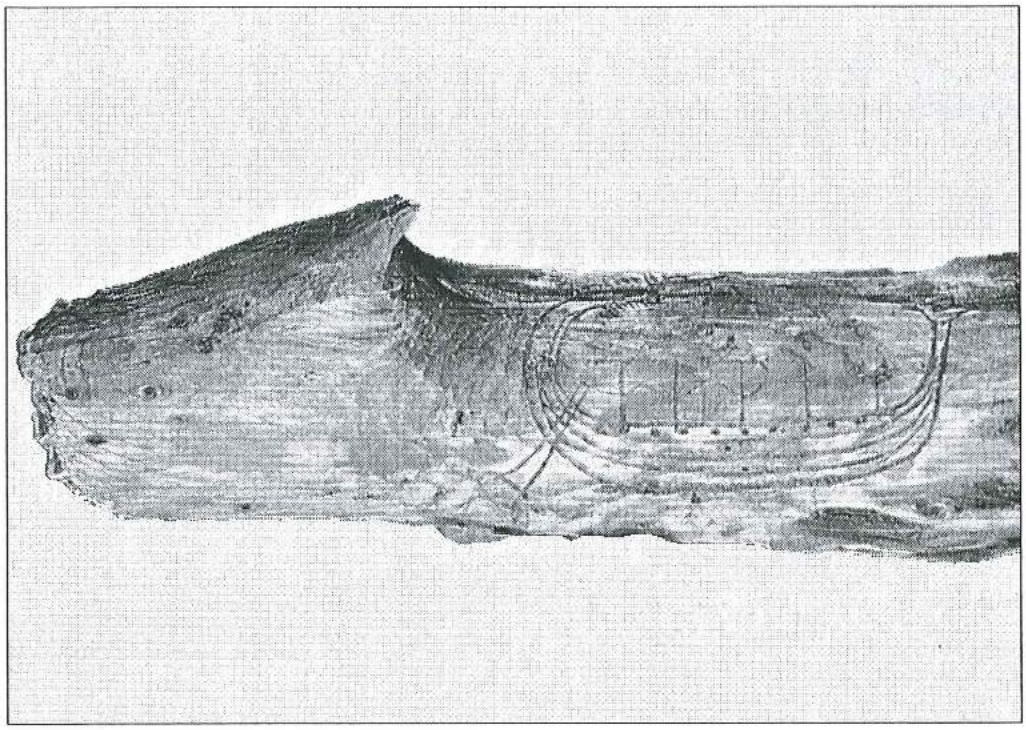

Fig. 14 Photograph of the concentric lines on the reverse face of the Bryggen stick.

It is very difficult to interpret the Bryggen stick and its graffiti in terms of deeper meanings, or even of a unifying theme underlying and conditioning all the pictures on the branch. The graffito style of the carvings, and the lowly nature of the artefact itself, seem to argue that the piece was produced as a boredom reducing activity, and that to look for heavily symbolic or transcendent meanings might be inappropriate. However, the importance of the ship as a symbol in medieval Scandinavian society cannot be overlooked, and the use of the partial representation of the ships' prows, in a manner which is seen in other Norse graffiti, strongly suggests that the artist was making use of a contemporary motif which had its own meanings, and which would have been readily recognized by viewers of his own period.

The difficulty of the interpretation of the whole artefact and its carvings, in terms of wider meanings and relationships between the images, is compounded by its uniqueness among the artefacts from the Bryggen excavations. As was noted at the beginning of this discussion, while a very large number of inscribed pieces have been recovered, no others are decorated in a way which is remotely comparable with this artefact. Attempts to find artistic parallels for it outside of Bryggen have either been unsuccessful, or have produced material such as prehistoric Teyjat image, the Bayeux tapestry, and the town seal of Bergen, which belong to distinct

and highly formalised art forms whose use as comparative examples carries numerous problems.

The intention of this paper has been to demonstrate that the Bryggen «ship stick» graffiti have been created using artistic conventions of considerable sophistication, the images carved with delicacy and expertise, and the subjects which are represented contain important information concerning a transitional period in the development of medieval Scandinavian ships. A superficial response to the carvings' charming and evocative portrayal of Norse ships, which is conditioned by their identity as graffiti rather than high art, may overlook their carver's achievement. As future archaeological finds cast further light on some of the problems concerning ships of the medieval period, the Bryggen graffiti may have an important role to play in the interpretation of this material and the better understanding of Norse nautical technology.

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* As the manuscript was submitted in 1998, more recent literature has not been considered.

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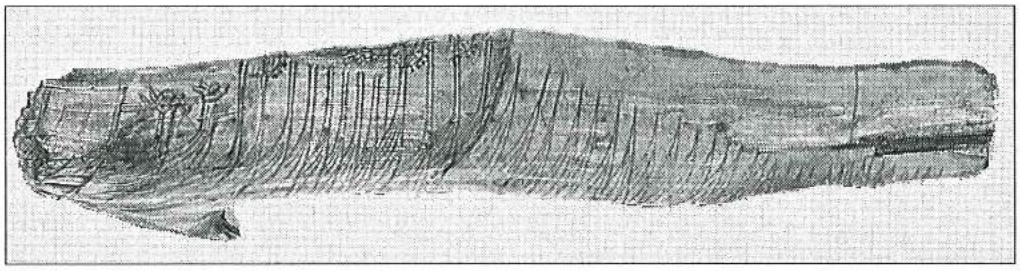
Terje Spurkland

Seafarers from Bryggen

The archaeological excavations at Bryggen in Bergen on the site of the fire of 1955 brought to light a rich collection of approximately 600 wooden sticks with runic inscriptions. The inscriptions range from religious and secular texts in Latin language to old Norse poetry and business correspondence; there are also everyday pieces of information, intimate confidences, pure obscenities and incomprehensible hocus-pocus.

Among the most remarkable runic items is a small knotty stick measuring 25 cm. The runic inscription in itself is not so noteworthy, but the context in which it appears makes it very special.



Along with the runic inscription the stick is furnished with pictorial carvings in the shape of figures of ships, most of them showing the stem with terminal and decorations. On one side of the stick there is a fleet of 48 ships, on the other side

there is a ship in full size with a dragon head both in stem and stern (cf. Le Bon, this volume, fig. 11). On the same side there are also the stems of three ships, and just below them the inscription:

ᚼᛂᚱ·ᚠᛆᚱᚱ·ᚼᛆᚠᛑᛁᛆᚠᚱ
her· færr ·hɑ͡fdiæfr

In normalized Old Norse the text would be *Hér ferr hafdjarfr*, "here sails the dauntless (valiant) master of the waves". The stick was found under the firelayer of 1332, that means that the carving was made some time around 1300.

There are reasons to believe that the drawings and the inscription are connected in a way. The adverbial phrase "here" refers to the ships, particularly the three ships situated just above the inscription. I do not think, however, that the carver had any specific purpose with his carvings beyond just killing some idle time. He was, however, very dexterous with the knife.

The depicted ships have all the attribute of war ships, this is no commercial fleet, it is the naval fleet of the *leiðangr*, the king's military organisation. It is also most probable that the mentioning of *hafdjarfr*, " the dauntless" or "valiant master of the waves", refers to the more adventurous activities at sea.

Who was this valiant master of the waves? It could be one of the ships or it could be the carver. If it is the carver, the question is whether *hafdjarfr* is a proper name, or a common name – here used as a by-name to designate the carver's abilities as a seafarer.

It is difficult to see how this appellation should refer to one of the three ships in the drawing, none of them is thrown into relief at the cost of the others. It is impossible to say which of the three should be "the valiant master of the waves".

Ship name?

Certain definite principles seem to have governed the name-giving of ships. The main reason for naming a ship is that it has to be identified as a particular boat, a certain type or as belonging to a specific person or institution. One could therefore characterise a ship by giving it a bird's or animal's name. The most famous example is Olav Tryggvason's *Ormr inn langi* and *Traninn*, "The Crane". Other names of the same category are *Drekinn*, "The Dragon" – everyday name of a warship; *Elftrin*, "The Swan"; *Falkinn*, "The Falcon"; *Uxinn*, "The Ox".

Most frequently, however, the ship names were compounds, the last part of which was a noun referring to a boat type and the first part designating ownership or appurtenance to someone. As the last component in this kind of name we find *búza* (also *bussa*) f, *súð* f, *brandr* m, *bátr* m, *kolla* f. These are nouns denominating "boat" of different shapes. According to Hjalmar Falk *búza* was a large merchant ship, in the oldest times it could also be a warship.[1] *Súð*, *brandr* and *kolla* refer to parts of the ship's construction; the meaning "boat", must therefore be a denomination "pars pro toto".[2] *Bátr* simply means boat.

The first component in these names may refer to the builder or owner of the ship like *Benediktsbátrinn, Alfsbúzan, Einridasúðin.* Also women's names could be assigned to a ship name. Both Sturlungasaga and The Icelandic Annals mention a *Gróbúzan* that was wrecked in 1248, the annals also mention a *Gyðusúðin* arriving at Iceland in 1352.[3] These names could be taken as evidence for ownership by women. Another possibility is of course that a ship-owner named his ship after the object of the choice of his heart.

Ship names could also refer to the home port of the ship: *Rygjabrandrinn, Strindkollan, Ôgvaldsnessbúzan.* According to the Flatøy annals a ship named *Gullskórðing* arrived at Dýrafjôrðr in Iceland in 1300.[4] In the custom accounts from the city of Lynn in England it is noted that a ship named *Goldscobusce* arrived in November 1305 with salt and textiles.[5] This could be the same ship that five years earlier sailed on Iceland. It was named after one of the properties at Bryggen that was destroyed in the fire of 1955, *Gullskoen,* Old Norse *Gullskórin* , mentioned for the first time in a charter from 15 March 1308.[6] Ships could also be ascribed to saints, apostles and the Virgin Mary, we have *Lafranzbúzan, Maríubúzan, Margrétarsúðin, Sunnifusúðin.* King Sverre had a ship built that was much bigger than any other ship in the country and he called it *Maríusúðin.*

Other names could refer to the ship's appearance or its capacities at sea; we have *Gullbringan,* "the golden chest"; *Jarnbardinn,* "the iron prow", *Stígandi,* "going high up in the wind". Some ship names are abstracts: *Hjôlpin,* "the help/salvation", *Viðsjáin,* "caution". The Icelandic Annals report a wreck in 1347 of a ship named *Gésin;* Magnus Olsen reads it as *Gemsin; gems* n should mean "gibe", "scoff" or even "wantonness", referring to how the ship behaved at sea.[7] In the saga of King Sverre is mentioned a ship *Hugró* and *Húgróin*[8]. The name has been interpreted as "equanimity".[9] It has also been connected with the homonym *hugrhó* f., meaning "the clinch on a sword's hilt". The name should be a parallel to other ship names like *Hiolltin,* "the boss or knob of the sword's hilt" and *Skjǫldr,* "shield".[10]

A supposed ship name *Hafdjarfr* does not accord with any of the above categories. According to Ivar Modéer *brandr* is typical for warships and accordingly also for ships belonging to the leidang.[11] *Hafdjarfr* comes closest to the abstracts characterising the appearances or the capacities of the ship. The nearest parallel could be *Gemsin.* It is not, however, near enough. The majority of all names are nouns, in the definite form. And if we are dealing with a nominalised adjective, it would also be in the definite form, like *Stígandi.* One could perhaps expect *Hafdjarfi* as the name of one of the ships. The problem is still that there are three of them.

Proper name?

We should therefore look for our dauntless master of the waves among the ships' company, most probably the pilot of a ship or the leader of the whole fleet, the chieftain of the leidang.

From the cadastre of Bishop Eysteinn we know a place name from 1391, *Hafdjarfsvik,* from Tanum in Bohuslän, which is in Sweden today, but at that time belonged to Norway.[12] It is most probable that this toponym derives from a person's name or by-name.

We know *Haf-* n, "sea", "ocean", as an integral part of several proper names; Haf-*bersi, -grímr, -li, -liði, -ljótr, -steinn, - þóra - , -þórir - n, þórr* .[13] The most comprehensive of all the runic inscriptions from Bryggen, consisting of 299 characters, is a business letter where one of the interested parties is named *Hafgrímr* (N648). "Tore Fager is sending Hafgrim, his partner, God's and his greetings, true fellowship and friendship" the texts sets out. Tore Fager is reporting bad tidings, however. "There is a shortage of everything, there is no beer and no fish. Ask the master to come south to see how we are suffering. Send me a pair of gloves. If Sigrid needs anything, supply her. Don't beat me for my helplessness!" This inscription is from the same time as the leidang stick; Hafgrímr and Hafdiarfr could therefore be contemporaries. That does not necessary imply, however, that they moved in the same social circles.

Proper names on *–djarfr*, "bold", "brave", "courageous", are not very common in medieval Scandinavia. We find some in Sweden, there are some occurences of *Ví(g)djarfr* in Jämtland. The first component *Ví(g)-* may be *víg* n "battle", "fight", "struggle"; *Vígdjarfr* should then denote "courageous in battle". It has also been suggested that the first component could be Old Swedish *ví* corresponding to Old Norse *vé* n. "holy place", "sacrificial site". As the first component in names, the alleged meaning is adjectival, "holy". Most common are names like *Vébjǫrn, Vémundr, Vésteinn.* If *Ví(g)-* should correspond to *vé,* I do not quite understand what should be the meaning of *Védjarfr.*[14]

Assar Janzén maintains that both *Hafdjarfr* and *Ví(g)djarfr* should be regarded as an outpost in the Swedish name material. He also suggests that compound proper names with adjectival last component originated as by-names. That is, however, difficult to verify in each individual case.[15]

I would therefore assume that *Hafdjarfr* is a man presenting himself as the steersman of one of the ships he had drafted or as the leader of the whole leidang. Whether he is using his proper name or an alleged by-name, is impossible to say. The appellation indicates, however, that he must be either from the eastern part of Norway, or even a Swede.

Other seafarers from Bryggen

There are not many runic inscriptions referring to naval activities. There is one other runestick from Bryggen that might have a maritime background. The stick was found under the fire layer of 1198, it has inscription on three sides (N616)

a) **þo͡rgisl:utl͡øa͡ubr:ma͡nus:sihurþr:ha͡ro͡ld͡r**
b) **a͡rnnuþr:sihurþr:iøn:sihurþr:klumr**
c) **batær:nøstær**

What we have is a string of men's names ending in "Pater Noster". In normalised Old Norse the text is:

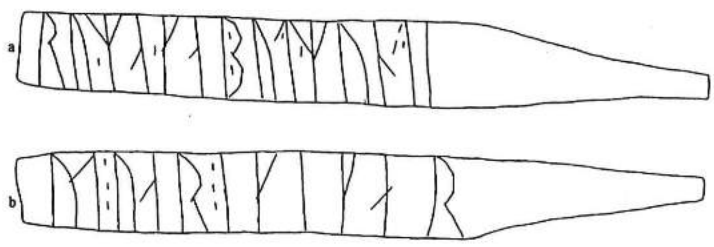
a) *Þorgísl úthlaupr, Magnús, Sigurðr, Haraldr*
b) *Arnviðr, Sigurðr, Jón, Sigurðr, Glúmr*
c) *Pater Noster*

The first person mentioned, Þorgísl, has a rather peculiar by-name. Aslak Liestøl suggests very reasonably that it is a derivative of the verb *hlaupa* "run", "leap" and a particle *út*, "out". In the literary sources *hlaupa út* is used in the meaning of raiding and plundering.[16] Þorgísl might have been famous for not having the best of reputations since he was nicknamed "raider". Two of the names mentioned are more common in Eastern Scandinavia than in Norway, *Haraldr* is in origin a Danish name, from the earliest Middle Ages used in the Norwegian royal families, *Arnviðr* is a Swedish name introduced in Norway in the 14th century. This troop of men might therefore be of mixed Scandinavian descent.

Along the edge of the stick there are thirty-three marks or notches. Aslak Liestøl draws the conclusion that the stick functioned as a tally stick. Such sticks were used for checking or counting different items, for instance a cargo during loading and unloading. The person counting the goods would have a stick on which he cut a notch for each item he was counting or otherwise checking. The reason behind this list of names could be that it represented a ship's crew which for some reason had to be recorded. The notches were parts of some calculation, profits which were to be shared or some other payment.

There is another runestick from Bryggen that perhaps reports overseas activities, it was found in deposits predating the fire of 1198 (N607). The text is on both broad sides, one part in Latin the other in Old Norse:

a) ru*ma*kapud*mundi b) ut:uar:ekikær



Roma, caput mundi. Út var ek i gær. "Rome, the capital of the world. I was out yesterday." The adverb *út* is often used for journeys. According to Fritzner's dictionary *fara út* could either mean to leave (the inner of) the country in the direction of the sea, to go westwards from Norway, or south to the end of the world in the direction which takes you across the Mediterranean: *suðr til Danmerkr ok ... út til Roms*, "[he goes] south to Denmark and out to Rome". If the two lines are connected and the text as a whole is referring to a trip to Rome, then the expression "yesterday" is rather strange. That could either mean that the traveller arrived home from his journey yesterday, or that he had a dream or a vision of going to Rome on a pilgrimage.

The Latin text and the Old Norse text may relate to each other in the same way as the drawings and the text on the leidang stick. The stating of Rome as the capital of the world and the claim that I was out (there) yesterday are in two different idioms, just as the leidang fleet and the "here I come" share different manifestations.

Caput Maritimum

The above reported runic inscriptions substantiate Bergen as the Norwegian medieval capital by the sea. The inscriptions promulgate different kinds of shipping trade such as marine store dealing and naval warfare. We do not know whether Hafdjarfr actually belonged to a crew of the leidang or whether he just dreamed or fantasised about it. The inscription testifies, however, that the idea of the leidang was existent among common people at Bryggen.

We know from the literary texts that Bergen was a shipping centre where merchant ships came and left continuously, like the *Gullskóbusse*. The runic texts individualise these activities, like the inscription that reveals the names of the crew of such a ship and, maybe, how wages were settled.

The residents at Bryggen did not only go out at sea, they also wanted to go as far as a pilgrimage to Rome. And when aspirations like these manifested themselves in a runic inscription, they were expressed both in Latin and Old Norse. This is another manifestation of how Bryggen was a melting pot of foreign and domestic cultural impulses, mediated by the sea.

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NOTES:

1 *Altnordisches Seewesen*:110
2 *brandr* m: the raised prow and poop, the ship's beak; *kolla* f: one of the cleats in a ship? Cleasby, Vigfusson. See also Falk:24,44. *Súð*: "the seam betwixt the planks of a ship or boat", Falk:49.
3 *Sturlunga Saga* (I):522-23. *Islandske Annaler*:192, 355.
4 *Islandske Annaler*:387
5 DN XIX :510
6 DN I nr.117
7 *Islandske Annaler*:223; Magnus Olsen: *Gammelnorske skibsnavn.* Maal og Minne 1931:42-43.
8 *Sverris Saga*:167,168
9 Magnus Olsen 1931:43
10 Ivar Modéer: *Nordiska båtnamn.*Nysvenska Studier 15, 1935:130
11 *Skeppsnamn och leding. Ett bidrag till fornnorsk namnhistoria.*1950:13-18.
12 *Biskop Eysteins Jordebok*:385
13 E.H.Lind: *Norsk-Isländska Dopnamn*:437-445
14 Assar Janzén: *Personnamn.* Nordisk Kultur VII, 1948: passim.
15 op cit:119
16 *NiyR VI*:29

Anton Englert

The Dating and Origin of the "Big Ship" from Bergen

The ship timbers of extraordinary size, which were found during the excavation of the Bryggen site (*The German Wharf)* in Bergen, have given important archaeological evidence to the historical discussion about the initial reasons for the late medieval economical dominance of North European trade by the Hanseatic League (Christensen 1985). One possible explanation was sought in the introduction of the sea-going cog as a cargo carrier superior to contemporary cargo vessels of Nordic construction. The interpretation of written sources led Paul Heinsius to the assumption that Nordic construction techniques did not allow cargo capacities of more than 12 lasts or ca. 24 tons (Heinsius 1956, 98-100). The large ship timbers, which had been reused in foundations on the Wharf in Bergen, proved that there had been ships built in the Nordic tradition of at least 60 lasts or ca. 120 tons (Christensen 1985, 208). Arne Emil Christensen could therefore conclude that the increasing use of continental shipbuilding techniques for large cargo vessels was not a question of size and technical capability: "It is now time to abandon shipbuilding technology as an explanation of Hanseatic supremacy, and look for the explanation elsewhere."(Christensen 1989, 20).

The first archaeological dating of the so called "Big Ship" was based on traces of burning on ship timbers found in unburnt building foundations, indicating a severe damage of the original ship in the same fire of 1248, which gave cause to lay the wooden building foundations. Together with the fact that the ship timbers showed little sign of wear, the building of the ship was dated to "shortly before 1248."(Christensen 1985, 178).

In 1998, Arne Emil Christensen pointed out to me the need for a dendrochronological dating of the "Big Ship". Since this ship find is of importance as a reference to my current studies of large clinker-built cargo vessels in medieval Danish waters (Englert 2000; Englert in prep.), a dendrochronological dating could be arranged by the Centre for Maritime Archaeology in Roskilde and the Danish National Museum's unit for Environmental Archaeology and Archaeometry, with the kind permission of the Department of Archaeology, University of Bergen.[1] The dendrochronological sampling and dating was undertaken by Thomas Seip

Bartholin from the Danish National Museum. Gitte Hansen from the Archaeological Institute of the University of Bergen, volunteered to work out the stratigraphical context and correlation of the reused ship timbers which had been distinguished by Christensen as the "Big Ship" and a possible "Second Big Ship". An important aim of Gitte Hansen's analysis was to date the reuse of the ship timbers, as this gives an indication of how long the original vessel(s) might have been in service.

In January 1999, samples were taken from 18 timbers of a total of 49 preserved timbers from the "Big Ship". In order to establish the dating and origin of the second complex of large ship timbers, which for stratigraphical reasons had been described separately by Christensen (1985, 67, 182) additional samples were taken from 8 out of 12 preserved timbers. In fact, all straight grown timbers with a sufficient number of year-rings were sampled, amongst them all preserved planks which could be found. There were 5 planks of the "Big Ship" and 4 planks from the "Second Big Ship". Two further planks (91360A & 9161A) were also sampled, but did not apparently belong to either of the two find complexes.

The dendrochronological analysis by Thomas Bartholin (cf. Bartholin, this volume) reveals that all sampled timbers had been felled in Western Norway in the vicinity of Bergen. The ship timbers "are taken from the area which normally supplied timber to the town". It is therefore very likely that the shipbuilding took place in Bergen. Both find complexes appear to have been felled in the winter of 1187/88. There is no dendrochronological reason why they should not come from the same original context, i.e., from one and the same "Big Ship".

Gitte Hansen verifies in her present report that the find complexes of the "Big Ship" and the possible "Second Big Ship" come from the same stratigraphical unit and the same row of buildings on a plot. She dates the laying of these timber foundations to shortly after Fire V in 1248 (cf. Hansen this volume). The instance that both timber complexes were felled in the same area and year for the use of shipbuilding and were finally deposited in foundations for the same row of buildings makes it highly unlikely that the reused timbers in question were taken from more than one vessel. Therefore, Arne Emil Christensen's original assumption could be confirmed that both find complexes originate from one "Big Ship" (Christensen 1985, 67). The "Second Big Ship" had been a necessary hypothesis – but had never sailed the sea. Unfortunately, the now united find complex does not necessarily increase the possibility of reconstructing the "Big Ship's" original hull, because there are only about 10 plank fragments left and only a few internal timbers in relation to their original number (Christensen 1985, 181-182). It can be concluded that a large cargo vessel of at least 60 lasts or 120 tons had been built of pine in the vicinity of, or in, Bergen. As the timbers felled in the winter of 1187/88 were shaped with axes, fresh wood would have been preferred, so the ship was probably completed in 1188. The building was done in Nordic fashion, with a clinker-built shell and a traditionally derived system of internal frames and decora-

tive mouldings on the visible surfaces of the planks and internal timbers. Several large beams penetrated the sides above the waterline in order to hold the ship's sides together. A huge windlass limited the number of seamen necessary to hoist the sail and weigh the anchor. The ship was probably capable of sailing long voyages in the North Atlantic and all adjoining waters.

Shortly after the fire of 1248 (Fire V) and ca. 60 years after its construction, about 80 parts of this sea-going ship were chosen for incorporation in the foundations of a new row of buildings at the quayside of Bergen. Can the big ship have been in service for 60 years despite the little signs of wear on the timbers? The ship might have lain as a hulk in the harbour for a while, but it must at least have been looked after to stay afloat before being taken out of the water for the last time. Otherwise, one could never have recovered the keelson which was held firmly in place by the lower beams (*bite*). This ship was skilfully and, probably, totally dismantled.

An alternative explanation for the long time between the original building and the reuse in house foundations without the usual traces of wear on the timbers could be that the ship had been taken apart at an earlier date and that some parts were still available for the harbour rebuilding after the fire of 1248, possibly even in a case of tertiary usage. It should also be kept in mind that a Scandinavian ship of this size may have been partly or even fully owned by the king (Crumlin-Pedersen 1997, 196-197), who could afford to store such a vessel or its parts for future purposes.

Finally, the theoretical possibility remains, that Fire layer V, on top of which the ship timbers were found, does, despite the present dating, not relate to the historic fire from 1248, but to an earlier one, e.g. the one recorded for 1198 which presently is connected to Fire IV (Hansen 1998). In the latter case, the ship would not have been much longer in use than one decade or two and the lack of wear on the moulded timbers would be easier to explain

How does the "Big Ship" from Bergen relate to contemporary dendro-dated finds of cargo vessels in Scandinavia? The square-shanked rivets and broad rectangular mouldings are common high medieval features in southern Scandinavian shipbuilding. In fact, the broad rectangular mouldings of the "Big Ship" give the oldest dendro-dated example for this type of decoration, the next one being the Korsholm 3 ship-find which is dated to ca. 1201-1207 (Bill 1997, 143-144; Bonde & Daly 1998, 297-298). The protruding beam-heads are very early examples of a constructional solution which was used for clinker-built ships as well as for cogs in the 13th and 14th century (Bill 1997, 135; Reinders 1985, 21-22, 31). The Kolding cog with its recently established treering-dating of 1188 or shortly after shows also signs of protruding beam-heads (Hansen 1944; Crumlin-Pedersen 1979; Hylleberg Eriksen 2000; Hocker & Dokkedal 2001). Since the upper sides of the oldest excavated cog-like vessel, the Kollerup cog (built ca. 1150) (Crumlin-Pedersen 1979, 30; Crumlin-Pedersen 1981, 47-49; Kohrtz Andersen 1983; Daly 2000) are not preserved, it cannot at present be said whether protruding beams were first present in cogs or in clinker-built ships.

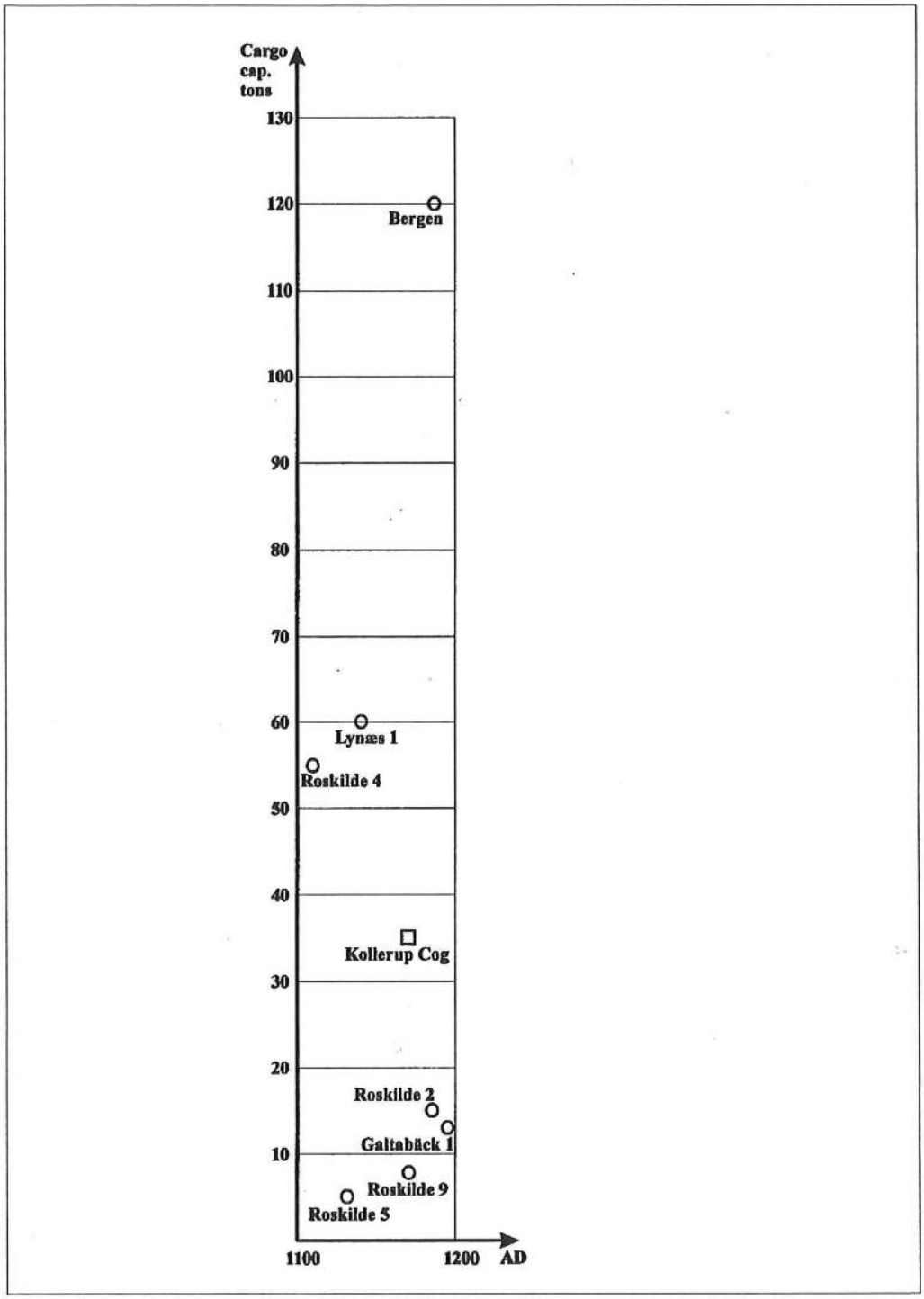

Fig. 1. Cargo capacities of dendro-dated Scandinavian ship-finds from the 12th century, based on Crumlin-Pedersen 1999.

The new dating of the "Big Ship" shows that Nordic cargo vessels of very different cargo capacities (dead-weight) co-existed in the 12th century (Fig. 1). At least three groups can be distinguished archaeologically for 12th century Scandinavia:

(1) Very large sea-going cargo ships like the "Big Ship" from Bergen (built 1188 in Western Norway) of ca. 120 tons dead-weight.

(2) Large sea-going cargo ships of 50-60 tons dead-weight like Lynæs 1 (built ca. 1140 in Southwestern Sweden), Roskilde 4 (built ca. 1108-1113) and Karschan (built after 1130).[2]

(3) Coastal cargo ships of 4-15 tons dead-weight like Roskilde 5 (built ca. 1130-1135), Roskilde 9 (built ca. 1171), Galtabäck 1 (built ca. 1195 in Southwestern Sweden) and Roskilde 2 (ca. 1185 in Southwestern Sweden).[3]

For the second half of the 12th century, three sea-going ships of different construction are known from Denmark, the Kollerup cog of at least 35 tons dead-weight, the Kolding cog and the Skagen cog (built ca. 1193, dead-weight not calculated) (Crumlin-Pedersen 1981, 47-49; Kohrtz Andersen 1983, Bonde 1995: 302; Lønstrup & Nielsen 1997). These ships were comparably flat-bottomed with a number of carvel strakes next to the plank-shaped keel, had fairly straight stems and stern posts set angular against a plank keel. They had been built with massive, scarved frames without lower beams (*bitis*). Their strakes and timbers were not decorated with mouldings. These and other new features came to replace some elements of traditional Nordic design in the construction of cargo vessels in Southern Scandinavia in the early 13th century (Bill 1997, 144; Crumlin-Pedersen 2000).

Future research along the coasts of Norway will bring to light, whether large cargo vessels continued to be built in traditional Nordic design throughout the 13th century, or whether Norwegian large scale shipbuilding introduced cog-like features contemporary with Southern Scandinavia.

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NOTES

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2 Crumlin-Pedersen 1981, 52; Bill et al. 1998; Bill et al. 2000; Bonde & Daly 1998, 298-299; Bonde & Daly 2000; Englert et al. 2001.

3 Bill et al. 1998; Bill et al. 2000; Bonde & Daly 1998, 298-299; Crumlin-Pedersen 1981, 60-61; Daly 1998.

Thomas Seip Bartholin

Dendrochronological Dating of medieval Norwegian Ships from Bergen

A dendrochronological analysis of a shipwreck normally requires extensive experience in the dendrochronological method and a wide network of international cooperation. Ships are made for journeying and thus visit areas which have quite different growing conditions for trees than there is in the areas where the ship timbers were originally felled. If a ship sinks in these far away regions, it cannot later be dated using the dendrochronological master chronologies from the region. It can only be dated using master chronologies from its region of origin, wherever that might be. This region is not obvious from the wreck itself.The dendrochronologist must therefore have access to a database with a network of dendrochronological reference chronologies that are as refined as possible and covering as wide an area as possible, to have a chance of matching the shipwreck's dendrochronological characteristics. In this way not only is a dating achieved, but also information on where the ship was built and also perhaps, repaired.

A classic example of the dendrochronological method being used in this way is the analyses of the five Viking ships from Skuldelev, now in the Viking Ship Hall in Roskilde, Denmark. Three of the Skuldelev ships are of oak. Two of these are native – coming from the Danish area, and the third is Irish, or comes at least from the region around the Irish Sea. The two pine ships are Norwegian. They were built in Western Norway, perhaps in Sognefjorden, because they display great similarity with the dendrochronological curves which have emerged from the analysis of the Urnes and Kaupanger stave churches. One of these ships, Skuldelev 1 is furthermore repaired twice but with oak from two different localities: one on the southwestern Swedish coast and one presumably in the Oslofjord region. These results are achieved when analysing the tree-ring curves which are derived from measuring the planks from the two separate repairs. For one repair oak has been used, which has grown in the same way as that which we normally find in southwestern Sweden. For the other, a very old oak has been used, which contains the same growth characteristics as oak found in the Norwegian Viking ships from the Oslofjord area.

Dating medieval ships, specifically the possible two «Big Ships» found during the archaeological excavations of «Tyskebryggen» in Bergen, is immediately easier than dating Viking ships, because here, we are in a period where the dendrochronological network of master chronologies is far better developed than for the period one or two hundred years earlier.

Based on 18 samples from timber in «The Big Ship» and on 8 samples from timber in "The Second Big Ship" it was possible to date the timber's felling date, to the winter of AD 1187-88, from which can be deduced that the ships were built during AD 1188. The dating is this precise because it was possible to find bark edge on two samples from «The Big Ship" in the natural hollows under knots on the otherwise finely hewn mast partners. Two samples from "The Second Big Ship" with possible bark edge, also gave a date in that year, winter AD 1187-88. In total 13 samples have been dated.

The timber from the two ships are not just felled at the same time, but could also have grown in the same forest, as the trees have grown in the same way. This is apparent in the tree-ring variation. The dated samples can therefore be averaged to form a common mean curve, NOMK 1102, which is used to identify where the trees might have grown. This is done by comparison with the available network of dendrochronological master chronologies for *Pinus sp.*, Scots pine, which is the tree species in question.

The Norwegian master chronologies for pine, which have been utilised for the dating of the ships and for identifying the timber's origin, and which has been given to us by Terje Thun, University of Trondheim, are the following:

- Sør-Trøndelag (The Trondheim area) NOMK 1403,
- Vestlandet (The Southwestern coast) NOMK 1203,
- Bryggen (The archaeological material from Bergen) NOMK 1101, and
- Oslo (The archaeological material from Oslo) NOMK 0201.

The more similarity there is between an existing master chronology and a mean curve from an object (in this case the ships) the higher the probability that the trees have grown in the area which that master chronology represents. The similarity can be expressed in figures using so called 't-values', a measure of correlation between two curves in a given position. The higher the 't-value', the greater the similarity.

t-values	The Big Ships NOMK 1102
Bryggen. NOMK 1101	10,23
Vestlandet, NOMK 1203	6,79
Sør-Trøndelag, NOMK 1403	4,01
Oslo, NOMK 0201	4,68

In the table it can be seen that the highest 't-value' is achieved against the master chronology which is built using archaeological material from Bergen. The similarity is as great as that which in the dendrochronologist's experience is achieved between curves derived from samples which come from the same area.

Thus, the analysis shows that the ships were built at the same time, in AD 1188 and at the same place, probably in Bergen. It cannot be proven that we really are talking about two separate ships. The analysis indicates that this is in fact not the case.

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Gitte Hansen

The "Big Ship" and the "Second Big Ship", Stratigraphical and Chronological Aspects

Background

Ship elements from the excavations at Bryggen (1955-1979) were published in 1985 by Arne Emil Christensen. Two finds complexes were then presented as the "Big Ship" and the "Second Big Ship".[1] These finds complexes consisted of ship elements, that ended their days as timber in foundations for buildings and quay structures at Bryggen. Technical details of these ship parts made Christensen suggest that the two find complexes could derive from the same ship. At that time, in 1985, however, the two find complexes had been dated differently and were localised at different find spots according to information supplied by the excavations leader Asbjørn E. Herteig (Christensen 1985, 67, 82). Christensen, therefore, interpreted the fragments as elements of two different ships (Christensen 1985, 182). In 1990 and 1991 Herteig published his final stratigraphical and chronological analysis of the buildings at the Bryggen site (Herteig 1990;1991). A thorough archaeological dating of the Bryggen material has also been carried out through ceramic material and dendrochronology (Lüdtke 1989, Hansen 1998). Furthermore, the dating by dendrochronological samples from the context of the find complexes has been achieved (Hansen and Reimers *in prep*). On this new basis it is now possible to present a new evaluation of the dating and localisation of the find complexes. It is also possible to get a more precise dating of the time when the "Big Ship" and the "Second Big Ship" ended as foundations. This will give an indication of how long the original ship(s) may have been sailing.

Stratigraphical-chronological circumstances

In 1981 Herteig interpreted the "Big Ship" and the "Second Big Ship" of different age.[2] When comparing the original documentation of the ship parts with the drawings in his later publication of the buildings and the stratigraphical development at the Bryggen site (Herteig 1991, 50-51, 60-62), we notice that he

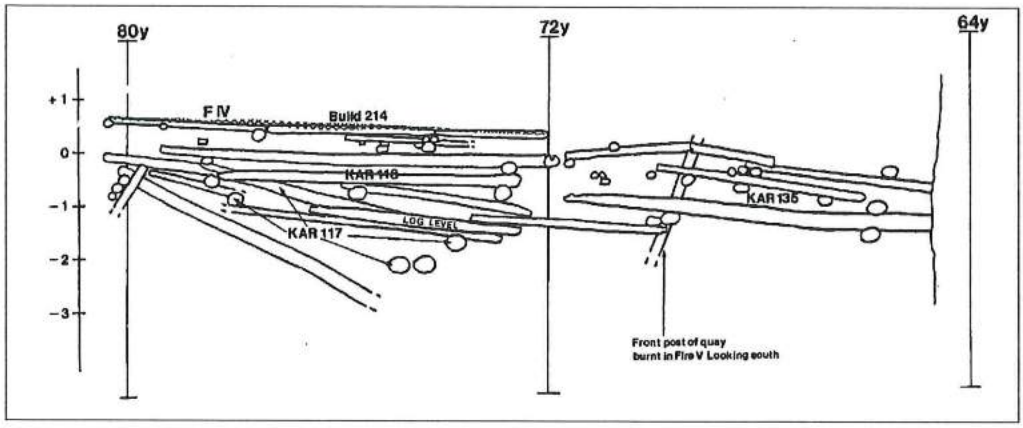

Fig. 1 Substructures (Kar) 118 and 135 below Building 214. (After Herteig 1991 fig 31).

has changed his interpretation in this respect. In the 1991-publication the situation concerning the two finds complexes are interpreted as follows: a fire (Fire V) ravaged the town of Bergen, destroying the buildings at Bryggen. The fire brought Period 4 to an end. When the area was built up again in the following Period 5, the "Big Ship complex" was used as timber in foundations, in substructures *Kar* 118 and *Kar* 135. These substructures were used as a foundation for Building 214. This building was the first and only building to be built here in Period 5 (*fig. 1*) (Herteig 1991, 60-62). The "Second Big Ship complex" was used as foundation for Building 17, belonging to Building phase 5.1. Herteig does not mention the "Second Big Ship" in his 1991-publication. When comparing the original documentation of the ship parts with the published drawing of Building 17, all the parts of the "Second Big Ship" can be recognised as foundations of the building (*fig. 2*).[3] On this basis, we may conclude that both find complexes were interpreted as foundations for the first constructions built on the site after Fire V. As such, the two complexes derive from the same stratigraphical unit, most likely deposited at about the same time.

Localisation of the find complexes on the site

In 1981/85 Herteig argued that the two find complexes were found in two different areas of the site. However, if we take a closer look at the find spots (*fig. 3*), we notice that Building 17 and Building 214 (under which we find *Kar* 118 and 138) are part of the *same row of buildings.* The constructions are located in the opposite ends of Row 4 in the tenement *Gullskogården,* and belong to the same tenement.

Consequently, the contextual circumstances that Arne Emil Christensen had to consider in 1985 in his evaluation of the "Big Ship" and the "Second Big Ship", are no longer valid. The ship elements belong to the same stratigraphical unit and stem

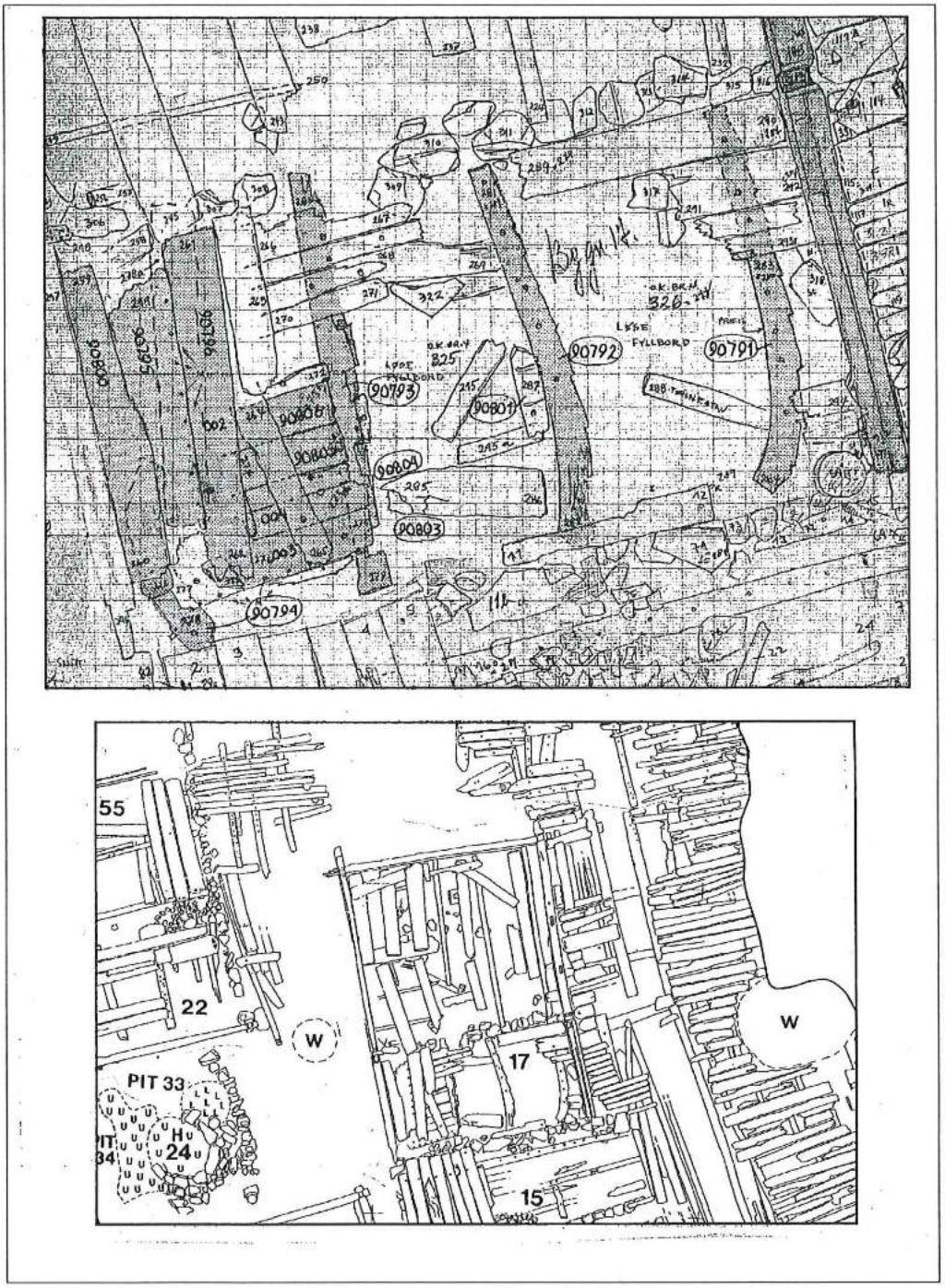

Fig. 2 Detail from the original documentation of the Second Big Ship (Plan P03/V) and from the published drawing of Building 17 in Building phase 5.1 (Herteig 1991, Plate 8).

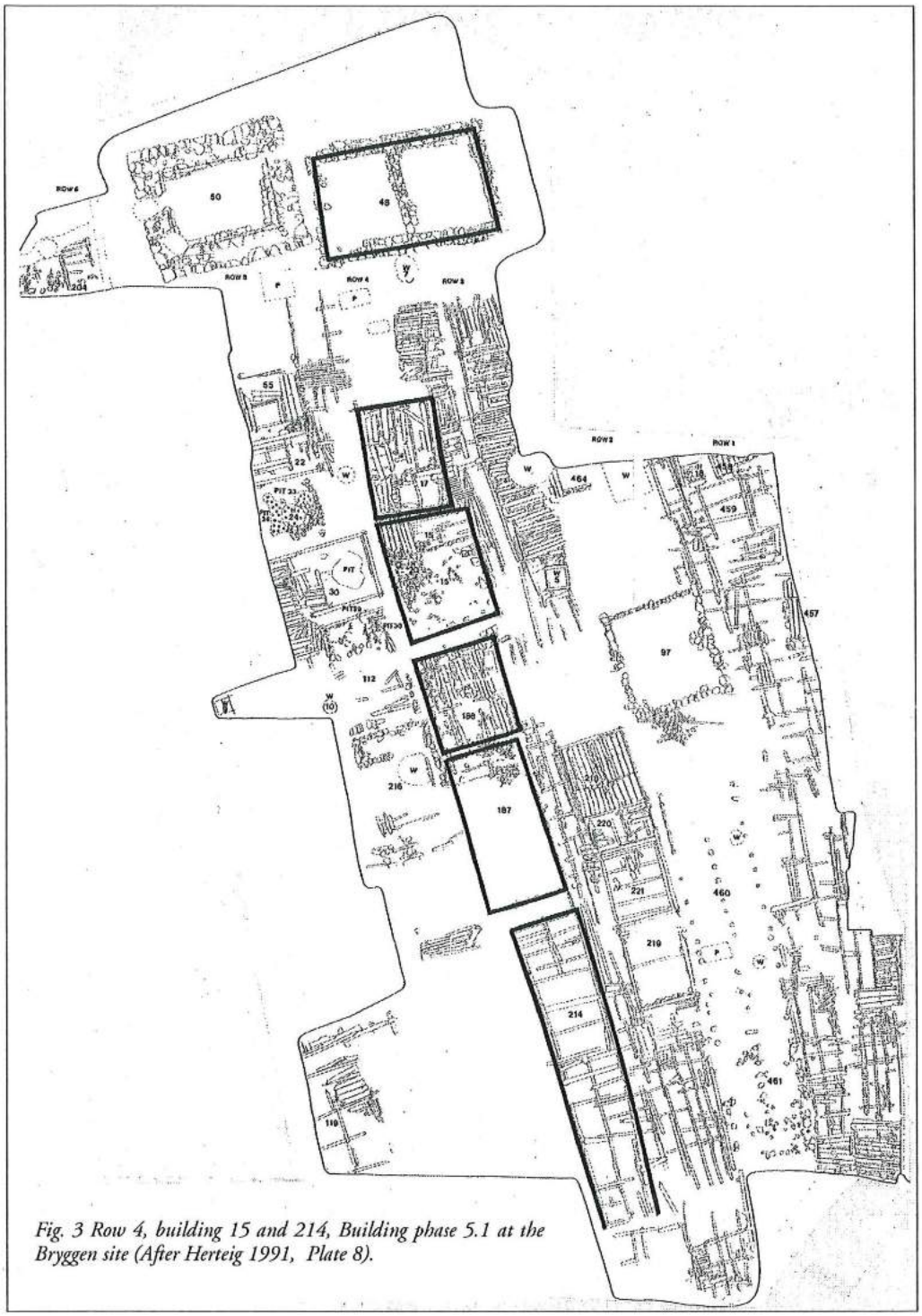

Fig. 3 Row 4, building 15 and 214, Building phase 5.1 at the Bryggen site (After Herteig 1991, Plate 8).

from the same row of buildings. From a stratigraphical-chronological point of view, therefore, there are no objections against the assumption that the two finds complexes derive from one and the same ship.

When were the "Big Ship" and the "Second Big Ship" embedded in the foundations? It is interesting to establish a close date for when the "Big Ship" and the "Second Big Ship" were demolished and used as foundations. This kind of information may give an indication of how long the ship was in use. Two questions are relevant for the discussion of when the ship segments were placed in the foundations: The first is the general question of the date of Fire V/the beginning of Period 5 and Fire IV/the end of Period 5. Secondly, how soon after Fire V were the ship parts deposited, and when were Building 17 and Building 214 (*Kar* 118 and 135) constructed?

There has been some discussion concerning the absolute chronology of the Bryggen site, but the discussion mostly concerns the periods prior to Fire V. In other words, Fire V may be dated to 1248, and Period 5 begins after this fire (Lüdtke 1989, Herteig 1991, Hansen 1998). Fire IV, which terminated Period 5, is dated to c 1300 (Lüdtke 1989, 28) or more precisely1332 (Herteig 1990).

But when were the ship elements used in the foundations for Buildings 17 and 214? Christensen points that some of the "Big Ship"-parts were scorched by fire *before* they ended up in the foundations, and he suggests that the ship burnt in the 1248 fire and was afterwards used in the foundations. If this is the case, it indicates when the ship went out of use. We may also evaluate the find context of the ship parts in order to establish when the foundations were constructed. It is tempting to assume that the structures in Building phase 5.1 were constructed more or less simultaneously and immediately after the fire in 1248. However, it may not have been quite so straightforward. The material from the Period 2 at the Bryggen site, where we have dates for the single buildings, shows that construction work was carried out over several decades (Hansen 1998). In theory, many years may therefore have passed before reconstruction of the built up area began and 'our' structures were built. The upper time limit for Period 5 is 'about 1300' or 1332. A detailed chronology has not been established for the single buildings or the building phases in Period 5. However, two dendrochronological samples from building phase 5.1 may be of some help in establishing a more detailed chronology for the context of the find complexes.

We have two dendrochronological dates from Building phase 5.1. The first[4] is dated to 1267 (Hansen and Reimers *in prep*); it stems from a foundation substructure without a number in Building row 3 in the tenement *Gullskogården.* The substructure is situated parallel to building 214. The sample is taken from timber that has been reused. Therefore, at least 20-30 years may be added to the date of 1267, which is the felling year of the tree. This gives an estimated deposition time of c 1290-1300 for the timber. If this sample is to be trusted, two alternative interpretations are possible: either Building phase 5.1 was still under construction in the late 13th century or the sample stems from repair of the

foundation substructure. Assuming the latter, the sample will be of no use, since it does not date when the construction itself was built. If we consider the first alternative, it is hardly realistic that the foundation, which the sample was taken from, was not built until the end of the 12th century, since the foundation substructure is part of the built up area closest to the waterfront. One would assume that the waterfront was one of the areas that would be built up again soon after a fire, considering the importance of a harbour and access to the sea in a town like Bergen. On this background the young date for the dendro sample is problematic. The sample is, unfortunately, not of the best quality. According to Terje Thun, the Norwegian University of Science and Technology (NTNU), the sample only contained 55 tree rings, and no more samples were dated from this construction. Therefore, the sample cannot be used as a concluding argument in a discussion (*pers com* Terje Thun 18.1.1999).

The second dendro sample from Building phase 5.1 stems from Building 214 which had *Kar* 118 and *Kar* 135 ("the Big Ship complex") as its foundation. Building 214 was the only building here in Period 5 and it may, as pointed out above, have been built any time between 1248 and c 1300/1332. Herteig, however, concludes that Building 214 was erected shortly after 1248 (Herteig 1991, 45, 51). The dendro sample[5] is dated to 1247 (Hansen and Reimers *in prep*). If this sample stems from a piece of timber which was not reused, it dates the construction of the building to shortly after 1247 (1248). This is in accordance with Herteig's evaluation of the stratigraphical situation. It also indicates that Building phase 5.1 was initiated 'shortly' after the 1248 fire. Unfortunately, it is not possible to ascertain whether the sample was taken from reused wood by help of the available documentation material. Generally, there has been a wide reuse of wood at the Bryggen site (cf Hansen 1998), so one should be cautious when using a single sample as a definite argument. On the other hand, this particular sample was taken from the building itself, not from the foundations of the building. This circumstance strengthens the chances of the sample not being from reused timber (cf. Hansen 1998) and it strengthens the date of Building 214 to 'shortly' after 1248. This in turn dates the time of deposition of the "Big Ship" and the "Second Big Ship" – which we now consider as one ship – to 'shortly' after 1248.

To conclude then, from what we now know the "Big Ship" and the "Second Big Ship" find complexes were found in the same stratigraphical context and in the same row of buildings at the Bryggen site. It is therefore likely, with reference to Arne Emil Christensen's evaluation of the finds, that the two complexes stem from the same ship. The constructions which the ship timber became part of were most likely built 'shortly' after 1248.

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NOTES

1 Some of these ship parts are spoken of as «det store Brygge skipet» in Herteig 1969.
2 At the Bryggen site the material is divided into periods, which is the time span between two major fires. A period is sub divided into building phases, Period 5, for instance, is divided into Building phases 5.1 and 5.2 where 5.1 is the first unburned 'generation' of structures after Fire V, which put an end to Period 4.
3 Except 90797 and 90794 which on the original drawings are found immediately under the level pictured in the publication and which must also be interpreted as foundations for 5.1.
4 Sample no 690 (Thun's catras no 628/Bergen).
5 Sample no 474 (Thun's catras no 423/Bergen).

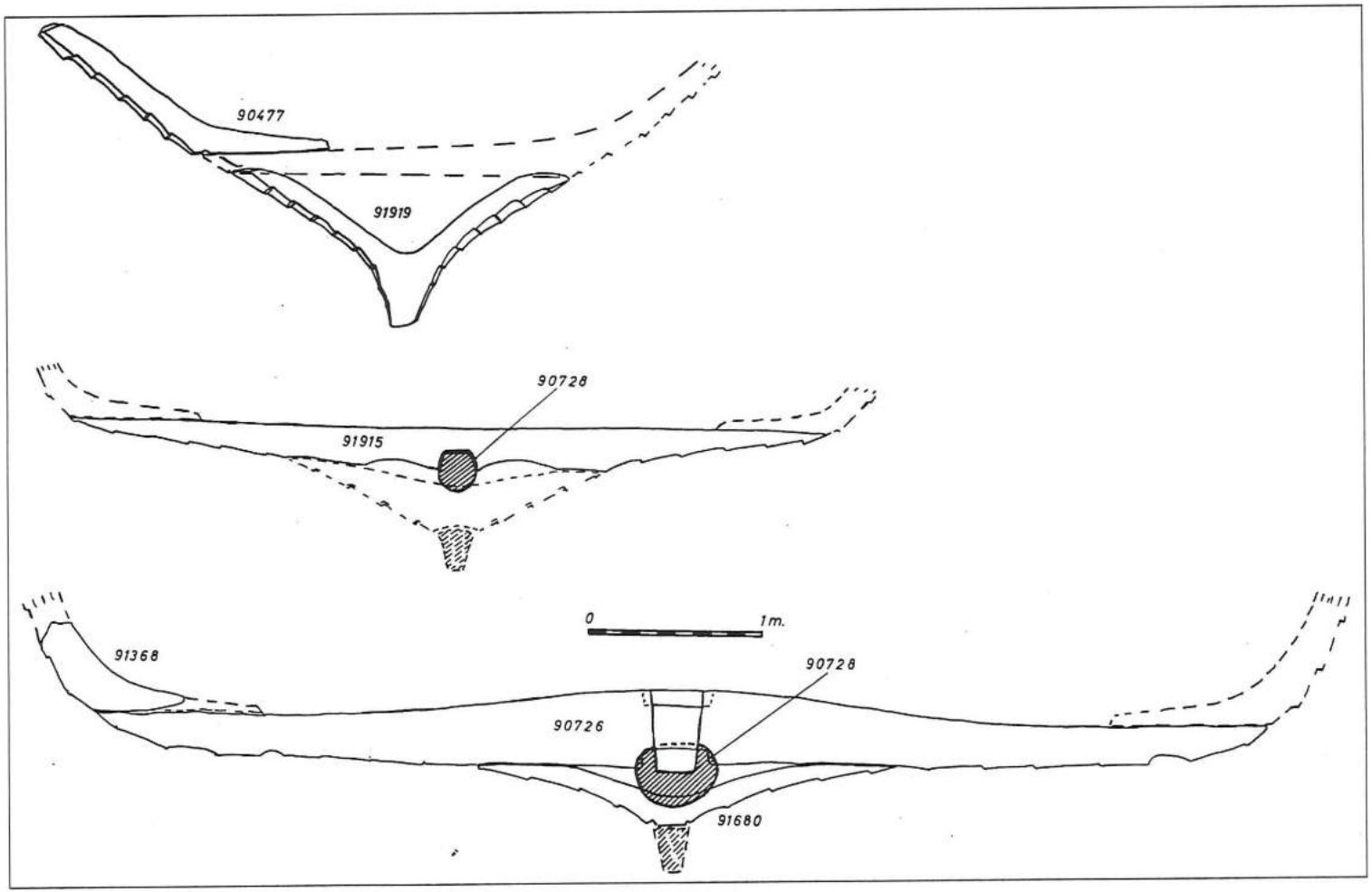
Arne Emil Christensen

Comments on the new Dendrochronological Dates

The new dendrochronological dates for the group of ship's timbers previously labelled The «Big Ship» and "Second Big Ship" are important for several reasons. The new dates support the reinterpretation of the building stratigraphy, and add somewhat to the material for the reconstruction of what can now definitely be taken to be the remains of one vessel. The early date is also of value for the study of Norwegian medieval trade and economy.

As Gitte Hansen has demonstrated (this volume), the reinterpretation of building activities after fire V shows that the two groups of ship's timbers were used in foundations that are from the same stratigraphic situation, and in all probability they were deposited at the same time or nearly so. In combination with the new dates for the ship fragments themselves, we can agree with Anton Englert's statement that "The second Big Ship never sailed the sea" or rather amend it somewhat; the group of timbers did sail, but as part of The «Big Ship». I must also agree with Englert that the assembled fragments are not enough to get much further towards a reconstruction than the sketch I submitted in 1985 (Christensen 1985) and the longitudinal section illustrated in Crumlin-Pedersen 1991. However, I feel that the importance of the find makes it necessary to take a second look at the available data, both the original documentation, the still intact fragments and comparative material published after 1985. It has been outside the scope of this paper to attempt a new reconstruction.

The dating of the headbeams, nos. 90773 and 90789, found with the "Second Big Ship" complex is important. The beams lack the mouldings, which have been used to identify other parts of the ship, but the results of the dendrochronology strongly indicate that the beams come from The «Big Ship». The beams are difficult to place accurately in a reconstruction. The angle of the strake notches show considerable vertical flare combined with a horizontal angle pointing towards stem or stern. The length of the beams and the angles speak against the two beams being placed vertically above one another. The lengths and angles are not identical,



Fragmens of the "Big ship":
90477: knee, 91919: sharp floortimber; 91915: crossbeam, 90728: part of keelson; 90726: forward mast crossbeam, 91680: rib fragment, 91368 knee.

but close. They are best interpreted as a pair of beams placed at the same level fore and aft in a ship where both ends were roughly similar. Both beams have mortises on the underside for the top of ribs, which must have been of a type similar to 90791/90792 (Christensen 1985, fig. 4–24, p. 77). The vertical treenail holes near the ends would be for fastening a knee reaching further up the ships' side. The flare seen in the strake notches on the sides indicate that the beams were set fairly low in the ship, so we can suppose that there was one or two beams placed further up in the hull, above this one, as seen on Kalmar wreck 1 (Åkerlund 1951 pl. 8). In addition to the strake notches and rib mortises, both beams have other notches and mortises. Apart from the centrally placed notch on the underside of 90773, they lack the symmetry usually found in connection with ships' timbers. It is difficult to find a function for a shallow notch on the underside of a crossbeam, so it is most probable that this is also a secondary cut, made when adapting the beams for use as foundation timbers. The size of the beams strengthens the impression of the very large size of the vessel.

The original theory, that The «Big Ship» was built shortly before1248, damaged in the fire that year and broken up for secondary use shortly after the fire, has to be abandoned. That theory would have placed the building of the ship in the reign of king Håkon Håkonsson, a period of relative peace and prosperity for Norway, and a time when the written sources indicate that other very large ships were built. A ship built for the King in Bohuslän in East Norway in 1252 is described as «one of the largest ships ever built in Norway». The sheerstrake was 9 ells above the waterline.

A ship of such monumental size must have been ordered by an owner or owners able to command great resources. The felling of a large number of selected trees and building such a large vessel must have been an expensive undertaking. Timber and iron had to be purchased, and the shipbuilders paid. Moreover, few people needed so much cargo space for their wares. We know from the laws that merchant voyages were generally joint ventures, and the "King's Mirror" makes it clear that owning shares in ships was a natural part of the business of men from the upper levels of society when they were active as merchants. We can postulate two possibilities: (1) a group of rich landowners, with surplus goods for sale, had the ship built on a shareholder basis, for their own use, with additional smaller merchant hiring eventual extra freight space. (2) One owner, with very large amounts of marketable goods, had the ship built for his own use. Taking the size of the vessel into consideration, a single owner would have to be the King, the Archbishop, the bishop of a rich bishopric, or one of the large and rich monasteries like Lyse or Halsnøy.

In the winter of 1187/88, the dendro-date for the felling of the timber, King Sverre was busy putting down the "Kuvlung" uprising. One would suppose that this would not be the time for building merchant ships, but a building site in Western Norway away from the military activities centering on Bergen might not

have been affected by the hostilities, and the King would need all available income to finance the military operations. Taxes would for a large part be agricultural products, and probably dried cod. Much of this would be consumed by the king's followers; the rest would be sold. Large ships would be needed to carry the king's wares, and it cannot be excluded that the ship was built for King Sverre. The civil wars of the 12th century was not a total disaster for peaceful activities, life went on and trade was pursued. The great cod fisheries of Northern Norway were well established, and the export was from Bergen. A group of Danish noblemen on their way to the Holy Land visited Bergen in 1191. Their description of the city shows us an active trading town well stocked with all sorts of merchandise, where merchants came from many countries. The visitors point out the enormous amount of dried cod found in the city.

At this date, the German merchants were beginning to get a grip on the trade from Bergen, as we hear in one of King Sverre's speeches. The «Big Ship» is built in the Norse tradition, and its size shows that large amounts of cargo was still exported on Norwegian keels. We have little knowledge of the working life of large medieval vessels, but the 60 years from 1188 to 1248 seem long, especially as the fragments found show little wear. As stated in my original publications of the fragments (Christensen 1985 pp.178) some of them show fire damage. The beam with deckboard rabbets, no. 93199, shows fire marks indicating that it was burnt by a shower of sparks. In its secondary use, deep down in foundations, such damage is very unlikely. If the ship was in harbour during a fire, sparks from a burning house may well have caused such damage. The possible fires are 1198 and 1248. One possibility is that the nearly new ship was damaged beyond repair in the 1198 fire, and dismantled for reuse. The timbers were not used in the rebuilding after the fire, but were stored, and were available for secondary use after the 1248 fire. In that case, they must have been stored in a place that was not affected by the 1248 fire. Another possibility is that the ship was in use up to the 1248 fire, damaged and reused. Both possibilities pose some problems. The timbers show little wear, remarkably little if we suppose that the ship had a working life of 60 years. On the other hand, timbers stored for 50 years in expectancy of future reuse seems somewhat unlikely. The demand for firewood in Bergen must have been great, and it is unlikely that a large stack of good wood would be left for so long a time. A third possibility is that the fire damage has no connection to the two large recorded fires of 1198 and 1248, but was caused by a fire on board the ship, or a small unrecorded fire shortly before 1248. We will then be confronted by the same problem as in the second suggested situation.

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Volker Demuth

Weser and Werra Wares in Bergen: An Archaeological Perspective on Aspects of Daily Life in the Town's Early Modern Period

1. Introduction, Aims and Methods

Pottery is by far the commonest material found on archaeological excavations in the city of Bergen. Thus studying the ceramics is of great importance to historical archaeology. Recent studies of some medieval wares from the major excavations carried out on Bryggen (the former Hanse *Kontor* in Bergen) in the 1950s and 1960s marked the beginning of the more systematic study of this aspect of material culture in Bergen (Lüdtke 1989; Blackmore & Vince 1994; Deroeux, Dufournier & Herteig 1994).

Regrettably, early modern ceramics have often been ignored by archaeologists, despite the presence of a vast amount of finds from this period. It therefore seems to be high time to pay attention to this material. Working on the Weser and Werra Wares has been a reasonable choice, as they belong to the most characteristic types of ceramics in the decades around the year 1600. These highly decorated slipware bowls and plates are to be found in many places all around the North Sea, forming a significant expression of the time's material culture. These wares have been comparatively well researched in the production areas and in some of the main export regions. Hence the situation in Bergen can be compared to results from other places. In addition it is possible to distinguish Weser and Werra Wares from similar wares of other provenance with a great degree of certainty. Thus, the prerequisites for the present paper were good *(fig. 1)*.

As an introduction and framework for the present study I will give a brief outline of the history of Bergen from its founding in the 11th century until the 17th century. By the 13th century it had become the most important town in Norway. Its position was consolidated even further during the High and Late Middle Ages and the Early Modern Age, mainly as a result of its function as a major international trading centre. Because of its special economic position, the

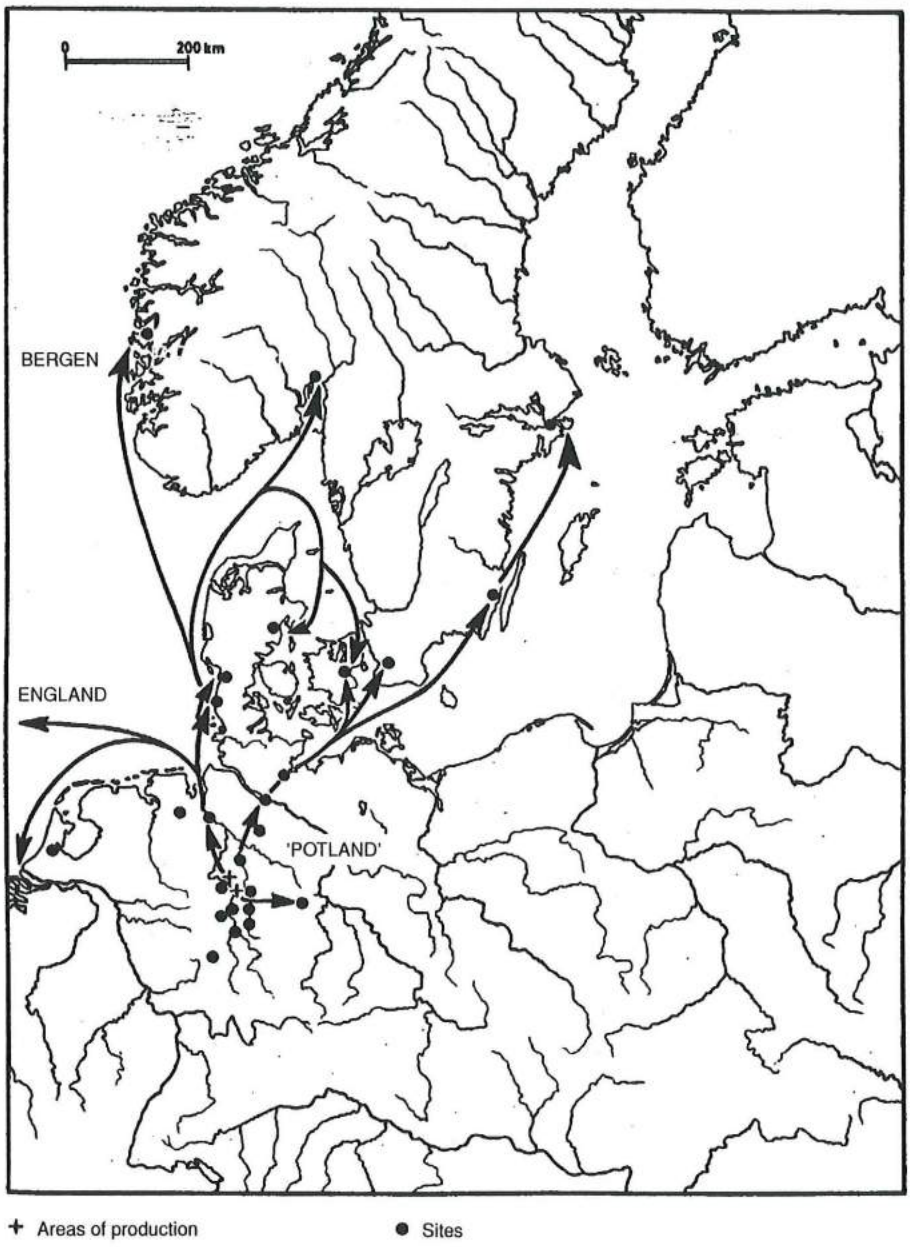


Fig. 1: Map over North Sea area showing the area of production of Weser Ware and the major consumer markets of this pottery.

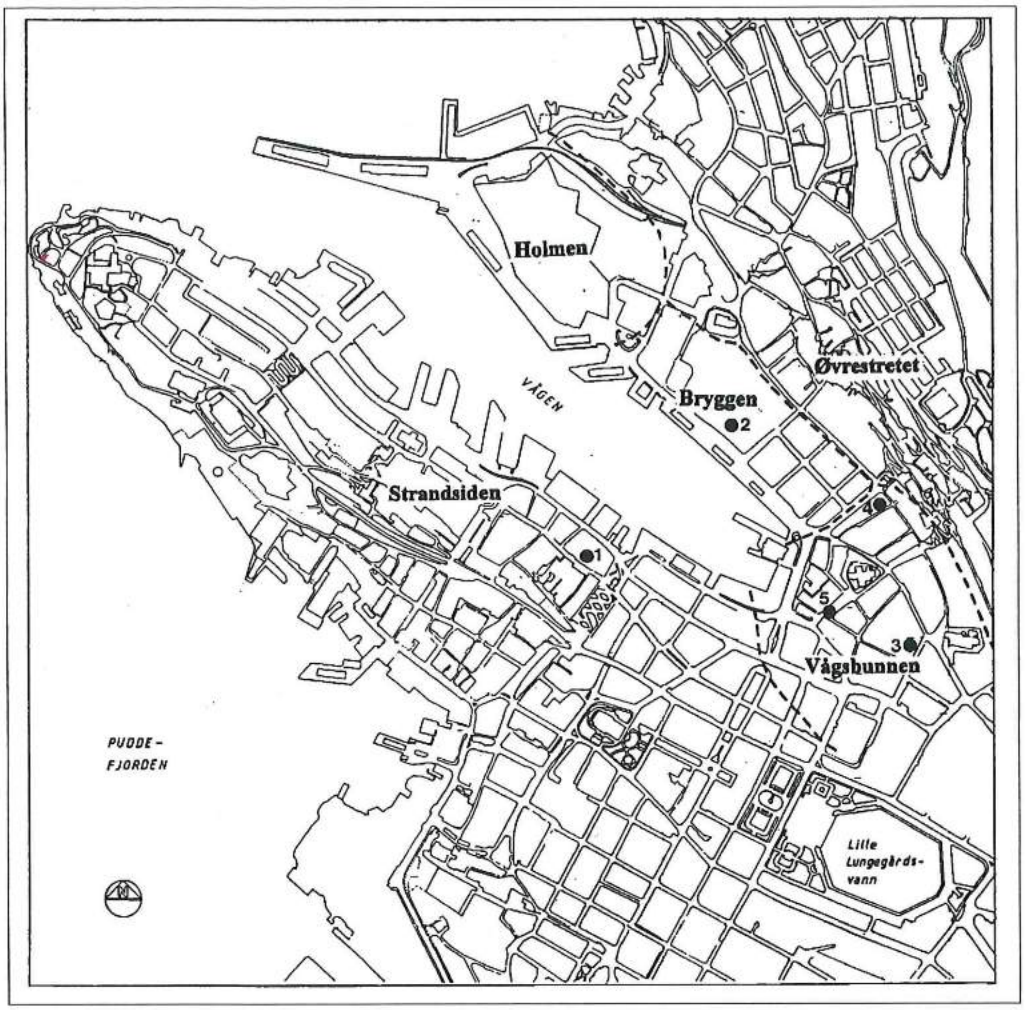


Fig. 2: Map over Bergen showing the different socio-cultural zones and the sites mentioned in the article.

Hanseatic League began to take great interest in Bergen in the 14th century, leading to the establishment of the Hanse *Kontor* at Bryggen around 1360.

As a result of changing political and economical conditions in the 16th century, Bergen's situation changed. To this point the medieval trading system of the Hanse had predominated. The increasing free-trade of several cities, the formation of an independent merchant class, and the local authorities' attempts to gain greater control of the economy were, however, factors that contributed to the steady erosion of the *Kontor's* position. The autonomy and privileged status of the Hanseatic League and the German craftsmen in Bergen were gradually reduced, and finally removed.

Within the city different socio-economic areas can be recognised; of these, the areas called *Bryggen, Strandsiden* and *Vågsbunnen* have provided finds that are dealt

with in this paper. The harbour's eastern side, *Bryggen,* was the main international trading centre and dominated by the Germans. The major residential area of the native merchants of Bergen was located on the opposite side of the harbour, *Strandsiden.* As late as in the first half of the 17th century parts of this area were still not built up and numerous warehouses dominated the settlement along the waterfront. They were traditionally used by the retail traders as storage and sales places *(fig. 2).*

Traditionally, the quarters of the craftsmen, many of them of German origin, were situated in the area called *Vågsbunnen,* situated south of the head of the harbour. Street and tenement names such as *Hollendergaten* and *Hollenderboden* indicate that people from other North-west European regions also lived in this district. The fact that the new town hall built in the 1550s was erected in *Vågsbunnen* may indicate that the new, international middle-class burghers resided in the area. Besides workshops of the craftsmen, who occasionally also engaged in the selling of various goods, the town's market-place was established in this area in the 16th century.

The total number of Bergen's inhabitants in the Early Modern Age can only be estimated. By using poll-tax registers and militia rolls from 1645, a figure of 8,500 inhabitants has been estimated (Fossen 1979, pp 291). This number represents a considerable increase within a period of nearly 100 years, as the population in 1560 has been estimated at 6-7,000 people. Most likely this significant population increase took place at the end of the 16th century. This increase was probably mainly the result of immigration, since devastating epidemics ravaged the town between 1600 and 1639. Based on lists of newly registered citizens, the origins of the upper and middle-class immigrants can be ascertained (Nicolaysen 1878). Almost a quarter of all new citizens was Germans, with a considerable fraction of the immigrants coming from the Weser region.

Aims

My objective is to draw attention to one of the source groups that can illuminate the relation between the Weser region and Bergen in the early modern period: the Weser and Werra Wares. Until recently only a few detailed works on early modern ceramics from excavations have been available. The Bergen material gives, however, a good opportunity to add important information on this finds group. Any archaeological research needs a solid empirical base, and pottery, due to its quantity and its chronological and functional aspects, supplies such a base.

Apart from presenting the Bergen material, there are several questions that an analysis of Weser and Werra Wares may illuminate. A general aspect in this paper will be to compare different cultural phenomena in Bergen and Northern Germany, against the background of the archaeological evidence concerning Weser and Werra Wares.

A crucial question to address is how the two regions were connected when trade

is concerned. Every aspect of trade in the Early Modern Age has by no means been fully described in the written sources. This applies especially to non-bulk trade, which dealt with minor goods, such as ceramics. The archaeological evidence can here provide information not to be found in the written sources, and thereby supplement the present picture of late 16th and early 17th century trading networks. Taking the multiethnic background of the town's population and the different investigated areas' contemporary functions into consideration, it may perhaps be possible to connect finds to ethnic groups or special activities in the city. The fact that some of the finds may have been personal belongings of immigrants, rather than traded goods, will also be taken into consideration.

Highly decorated earthenware, such as Weser and Werra Wares, should also be seen as a cultural phenomenon that reflects specific table habits and aesthetic preferences of ordinary people. It provides information about important aspects of daily life, which in turn can lead to an evaluation of social habits.

Finally, the decorative motifs on the pottery will be examined. It can be assumed that the figurative and abstract designs contain symbolic meanings. In a period with widespread illiteracy, pictures and symbols must have played an important role in public communication. An iconographic analysis of the wares' decorative elements may thus provide hints about ideas and world conceptions held by both producers and consumers.

Methodology

To illuminate these questions the analysis could not be restricted to material evidence alone. Supplementary non-archaeological sources, mainly historical, art-historical and ethnographical, have also been taken into consideration. An interdisciplinary analysis seems a fruitful way of connecting results of archaeological analyses with other historical disciplines in order to obtain a more comprehensive picture of the past.

An important element in a ceramic analysis concerns technological and typological characteristics. They strongly affect the functional aspects, which again are crucial for the interpretation. Combined with other sources, these functional and typological aspects can throw light on activities and characteristics of the user.

Another important aspect of the analysis concerns information about and examination of the stratigraphical situation at the sites. It has been of special importance to ascertain whether the finds were found in primary or secondary contexts, as this will strongly affect the interpretation. It also had to be considered whether the material was found in a layer that was deposited within a restricted interval of time, or whether the layer was likely to contain material that was redeposited once or several times.

A characteristic primary context in Bergen is the fire-layer, along with other types of destruction layers. Such layers often contain objects belonging to the

destroyed building. Even layers that derive from deposits accumulated during the period of occupation of a site can be expected to contain contemporary objects. Secondary contexts, such as levelling layers, are very common in Bergen. Such layers often contain mixed material, originating from rubbish heaps, earthworks, destructed buildings etc. Since the layers have obviously been redeposited, the archaeological finds may derive from different periods. This means that the objects originally may have been used at different places. The spatial distribution of Weser and Werra Wares found at different sites in Bergen has therefore been examined thoroughly.

The chronological distribution of the material found in Bergen has been determined too. As the rough chronological framework for the Weser and Werra Wares has already been established – the wares were produced between c.1570 and 1630 – only more specific and absolute datings were interesting. The dates slip-trailed on some of the Werra Ware vessels was one method. Another fruitful dating method has been provided by the fire-layers, i.e. layers consisting of charcoal and other burnt material, the result of major town fires. These fires can often be correlated with a high degree of certainty to fires documented in the written sources.

2. Weser and Werra Wares: A Brief Introduction

The wares discussed in this paper are earthenware, i.e. ceramics with a more or less porous fabric. They were made relatively impermeable by application of lead glaze, and the resulting shiny surface was of considerable aesthetic value. Through the transparent glaze the decoration came clear. It was painted in different colours, made of a clay slip, occasionally mixed with minerals, that after firing became shiny and colourful. In the 16th and 17th centuries slip-trailed decoration was most commonly applied by means of a horn. Originally made from the horns of cattle, they were later also made of clay. A skilled potter could use them to create regular, though rather rough, lines and dots. Another important technique was the 'Sgraffito' technique, a type of incised decoration where the patterns were outlined in the slip so that the underlying, differently coloured fabric showed through. Both techniques were used in many different pottery centres all over Europe. The actual origin and development of the technology, however, still remains unclear.

Although these types of ceramics are commonly found on archaeological sites with preserved early modern layers, there have been until recently only a few detailed studies on such material, especially in Scandinavia. The Weser and Werra Wares are comparatively well researched, due to the studies of scholars in the production and some consumption areas, and because of the special importance of these wares. They belong to the earliest and most wide-spread types of highly decorated slipware.

Fig. 3: Weser Ware bowl with typical decoration, found 1986 during an excavation in Strandgaten 55-57 (BRM 236/13321).

Weser Ware

Weser Ware was firstly recognised and described in 1940 by Grohne, who studied finds from Bremen. Even though his chronological and typological classification is rather vague, he suggests quite rightly that the pottery was produced in "the area between Holzminden and Ahlfeld".

The term 'Weser Ware' was first coined by Hurst in 1968. He assumed that the River Weser had been the way of transportation to Bremen (Hurst 1986, 251). He drew his conclusions from imported wares found in Britain, and from the work of Grohne. Stephan later verified these assumptions about the origin of the ware with the presentation of wasters and results from potteries in *Coppengrave* (Stephan 1981a). Weser Ware potteries had access to high-quality clay deposits, supplying them with very fine tertiary clays (Stephan 1992, 50). The wares were fired under oxidising conditions to a very hard fabric; their colours range from reddish beige to pale white. Hardly any tempering material is visible. The vessels are often thinly made and have been very skilfully crafted. The completed products were cut off the stationary wheel with cheese-wire, as is shown by marks on the vessels' flat bases. Many vessels were coated with a white slip to give a light undercoat.

Sometimes, however, the fabric itself was used as undercoat. Thus vessels of a light fabric gave a light undercoat and those with a reddish-brown fabric a dark

one. The colours used for painting generally ranged from yellow and green to reddish and dark brown. Usually two colours were used alternately, a dark undercoat mainly being decorated with green and yellow, a light undercoat with green and a red-brown colour. Sometimes different shades of brown were used (e.g. orange-brown/dark brown), or the pattern was done with only one colour. Furthermore, Weser Ware potteries also produced vessels with heavily applied geometric slip-trailed patterns of light colours on a reddish brown undercoat (Stephan 1981a, 65).

The shapes of Weser Ware vary considerably. Even though hollow and flat forms seem to have been produced in fairly equal amounts, plates and shallow bowls predominate in the export regions (Stephan 1987a, 106). Plates, bowls and dishes all had flat bases. The ornamentation of Weser Ware is mainly geometric or floral in nature; most of the time simple geometric patterns were combined. Pictures of animals occurred occasionally, human depictions were very rare. Zigzag lines were the most frequent decorative elements, particularly in the intermediate zone (that part of the vessel lying between the central disk and the rim) *(fig. 3)*.

The oldest finds classified as at least preliminary or early forms of Weser Ware were excavated from a garbage pit in the town centre of *Höxter*, together with other finds from the early Renaissance period (Stephan 1972, 154). This shows clearly that this particular type of ware was being used from the mid-16th century onwards. However, workshop sherds dating back to this time have not been found as yet.

Exported wares mostly date from the period between 1580 and 1620/30. After this the quantity of finds decreases greatly, which can be explained with some certainty by the adverse effects of the Thirty Years' War on trading along the R. Weser (Rothe & Rüthing 1989, 54).

Weser Ware potteries have so far been identified in *Coppengrave, Völksen, Bad Münder, Altenhagen, Brüninghausen* and *Dörpe,* but it is likely that other towns of the region between the Upper Weser and the R. Leine also produced this particular type of ware.

Estimates suggest 70-90 potteries producing Weser Ware (Stephan 1981, 56). Furthermore, potteries in *Fredelsloh* in *Solling* produced a ware very similar to Weser Ware, and it is likely that other workshops in Southern Lower Saxony/Northern Hessen manufactured similar wares as well.

Despite the great volume of production there have only been sparse finds from actual potteries. Weser Ware has been found to a much greater extent in the export regions. It is regularly found throughout the entire North-western German Plain and those areas that were easily accessible via the R. Weser. Extensive finds of Weser Ware are known from Lübeck, but these have until now just been examined superficially (e.g. Brabandt *et al.* 1993, pp. 263). Along the Baltic coast, Weser Ware falls off dramatically; nevertheless it can be found as far as Wismar (Gralow & Hoppe 1989, 28) and even the Baltic States (Stephan 1992, 54). There have been

numerous finds in the Netherlands, mainly in larger towns. Judging from finds in Amsterdam, Weser Ware appeared on the Dutch market sometime before 1580 and remained there until the first third of the 17th century; again, it is completely absent after 1630 (Baart 1981, 139). Various finds have also been reported from Great Britain, namely from the eastern and southern coastal areas (Hurst 1981, pp. 142). In Denmark, finds of Weser Ware are known for example from *Ribe* (Madsen & Schiörring 1981) and the fishing village of *Sandhagen* on *Langeland* Island (Berg *et al.* 1981). In Scandinavia such finds are generally restricted to coastal areas. In the Swedish heartland, Weser Ware is known from *Halmstad, Kalmar* and *Stockholm* (Augustson 1985, pp. 91, 351).

Werra Ware

The term Werra Ware describes a particular type of decorated earthenware. It plays a specific role in the material culture of the Early Modern Age, due to its high quality, technically sophisticated and uniquely diverse decoration. Its distinctive characteristics make it easy to identify. As Werra Ware had a wide distribution, it gives a better understanding of export routes and cultural connections. Its detailed and carefully done designs have great value as sources of mentality, and sometimes it also gives insight into special phenomena that are otherwise rarely documented.

Sherds from potteries were discovered in *Wanfried an der Werra* as early as 1903. Werra Ware was therefore called Wanfried Ware for quite some time. A modern scientific approach to the find category was, however, not assessed until 1974 (Naumann 1974). After the discovery and excavation of other potteries in *Witzenhausen* (1978) and *Hannoversch Münden* (1979), directed by Stephan, it came clear that Werra Ware had been produced in considerable amounts in several towns in the Werra region (Stephan 1979, 1983). Excavations in the Netherlands also made its international distribution and importance evident (Baart 1977).

An excavation in *Enkhuizen* in the Netherlands attracted great attention in 1979 when a pottery producing Werra Ware was brought to light (Bruijn 1992). Most of the vessels were made from an iron-rich clay giving a red fabric. Deviation from this characteristic brick-red colour is only known from *Großalmerode.* Here the ware shows an intrinsically light fabric, due to its special quality (Stephan 1986, 83).

Werra Ware occurs mainly in planar shapes such as plates, bowls and dishes. About two-thirds of the vessels have the year of manufacture inscribed on them. The central pictures are mostly figurative and only seldom abstract or geometric. Their extraordinary vividness comes from a very fine sgrafitto technique. There is a wide range of motifs, all very individually crafted.

A chronological classification of Werra Ware is usually easy to establish, due to the dates written on the vessels. This holds particularly true for sherds found in workshops. With regard to vessels found in the export regions, varying lifespans of

the vessels have to be considered. An exact year of deposition is therefore difficult to estimate.

The oldest find of Werra Ware so far dates back to 1568 (Stephan 1987a, 93). The number of vessels from the years 1568 - 1590 is rather meagre, but after that an increase in their numbers can be observed (Stephan 1992, 42). Werra Ware reached a peak in the first two decades of the 17th century. This is demonstrated by exported finds, for example in Bremen, where all the finds belong to the period between 1591 and 1624 (Grohne 1940, 58). After 1622 export of Werra Ware down the R. Werra seems to have decreased, which, as for Weser Ware, can be explained by the war. Exports soon ceased completely. A bowl dated 1642 found in Amsterdam appears as an exception.

In its production areas and along the R. Werra and (Upper) Weser, Werra Ware was common. Few finds appear, however, in towns in the area further away from these rivers. Difference in sales mechanisms between Weser Ware and Werra Ware can count as an explanation. Written evidence documents that Werra Ware was traded directly from the potteries by Dutch merchants (Stephan 1990, 595). A large quantity of Werra Ware has been found in Bremen, where in accordance with the *Stapelrecht*, i.e. the town's trading privileges, all goods had to be offered for sale at the market.

Werra Ware was mainly sold to the Netherlands according to the finds, especially the northern part of the country. It was also exported to Flanders, but to a lesser extent. In the British Isles, it has been mostly found in association with Weser Ware. In Norwich remains of at least 70 vessels dating from (15)88 to 1625 have been found (Jennings 1981, 78). In Denmark, Werra Ware is relatively rare, but occasional fragments occur among assemblages containing greater amounts of decorated earthenware, for example, in the town of *Ribe*, and at *Sandhagen* on *Langeland* Island (Berg *et al.* 1981, Madsen & Schiörring 1981). Finds of Werra Ware in North America are probably connected with English or Dutch emigrants.

3. Archaeological Finds of Weser and Werra Wares in Bergen, Norway

Altogether there are about 2300 fragments of Weser and about 160 fragments of Werra Ware in the storerooms of the Bryggens Museum in Bergen, not including finds from archaeological investigations after 1995.

Beside finds from recent archaeological excavations, some older finds are also presented. These finds stem from the first decades of the 20th century, found during excavation work in the city and handed over to the museum. Though the exact circumstances of these finds are uncertain, at least the various sites are documented. Among these finds considerable amounts of material from the Early Modern Age can be distinguished.

After the Bryggen excavation terminated in 1979, urban archaeology in Bergen gained a more permanent status in 1980, when *Riksantikvarens Utgravningskontor for Bergen* was established, as a semi-independent excavition unit of the Directorate

for Cultural Heritage, and responsible for urban archaeology in Bergen. Because of the protected status of the medieval city centre, a number of investigations of varying size have been carried out in the recent years.

Methods of analysis

The ceramic assemblages from Bergen have primarily been sorted visually by type and origin. For Bryggen, most of the sorting was done by I. Reed and R. Dunlop, for the other excavations by Dunlop. Their sorting largely agrees with the results of this study, as became evident during the inspection and cataloguing of the material. However, many finds from Bryggen classified as 'Krefeld' have now been identified as belonging to Weser Ware.

Classification was based mainly on those characteristics of the fabric that can be distinguished macroscopically, as well as on the decorative designs. A minor amount of the finds of highly fragmented vessels complicated the classification, particularly when these small pieces only had little or monochrome decoration. In such cases the fabric was the main criterion of classification. Besides the easily distinguishable 'classic' Weser Ware with its polychrome decoration, there were also sherds with monochrome decor, showing an identical fabric. After thorough consideration, sherds resembling monochrome-decorated earthenware from the Southern Lower Saxon '*Pottland*', or from nearby production centres were also included in this study. Since export via the R. Weser is crucial for the definition of the term 'Weser Ware', it seemed sensible to include these fragments, as they were subject to the same production and distribution mechanisms.

The research material has been excavated under varying circumstances in different parts of the town. The sites are presented topographically according to the main socio-economic zones in the town. I will only introduce the sites briefly, referring the total amount of finds as well as the find contexts and possible accumulations of other ceramic finds.

Werra Ware and particularly Weser Ware are frequently found at excavations of Early Modern Age deposits. Many finds derive, however, from secondary deposits. Written sources indicate that specific 'rubbish boxes' was placed throughout the city, though the inhabitants seem to have preferred to throw their waste into the harbour, which was dredged regularly (Fossen 1979, 79). These deposits were probably regularly used to level building places or fill up wooden constructions at the waterfront. Empty places in the city could also have been used as dumps for garbage.

The quantitative analysis of the material is based on the sorted material and on my own identification. In what follows, one object corresponds to one fragment, without regard to size. Since some of the Bryggen finds have identical accession numbers, all of the material in consideration has been counted. The sherds of Weser and Werra Wares found during the excavations at *Strandgaten 55-57,*

Domkirkegaten 6 and *Lille Øvre*gate have been selected and recorded by me personally. It is mainly the findings from the latter investigations that have been evaluated in this paper, since the excavation reports were accessible. Finds from other sites were examined only superficially and referred to if they are the best representatives of special forms or decorations in Bergen.

Because of the large amount of highly fragmented material, it has been virtually impossible to estimate the original number of vessels. Therefore, quantities always refer to numbers of sherds. This means that a tiny fragment counts for the same as a better-preserved part of a vessel. This method causes problems when it comes to statistics and questions of representativity. However, there seemed to be no other way to solve the problem and process the material within a reasonable time. Because of the great number of finds, it can also be expected that the statistical uncertainties generally can be adjusted.

A question of special interest to pottery trade concerns the proportion of different ceramic wares. Since there was no pottery production in Norway from the Viking period until the last part of the 17th century, every piece of ceramic in Bergen must have been imported.

When it comes to finds from *Strandgaten 55-57, Domkirkegaten 6* and *Lille Øvregate*, where find circumstances are well documented, numbers of sherds found together in reasonable contexts have been classified according to type, and are counted and displayed graphically. As for the excavation *Strandgaten 55-57* with its enormous amount of pottery, only the different types of highly decorated earthenware (which include faience/majolica) have been taken into consideration. The proportion of Weser Ware in this clearly defined technological group of ceramics can therefore be estimated. Concerning the excavations *Domkirkegaten 6* and *Lille Øvregate,* the amounts of all early modern ceramics have been presented in diagrams, also including miscellaneous redware and stoneware.

The chronology of the Weser and Werra Wares in Bergen will be discussed in more detail in chapter 4. The dates given in the following description of the excavations *Strandgaten 55-57, Domkirkegaten 6* and *Lille Øvregate* are based on the excavation reports. The dating of the layers is mainly based on the presence of typical types of pottery, with known start of production. If relative and absolute frameworks for the dating have been established, they have been correlated with the excavated fire-layers and subsequently with fires known from written sources. In this way it has been possible to pinpoint the year of a fire-layer and establish a *terminus ante quem* dating for all layers recorded under that fire-layer. The dating methods used by the Bergen excavation office are described in more detail by Dunlop (1998, pp.130).

Fig. 4: Weser Ware pot with typical rouletting and painted decoration, found during excavations at Bryggen.

The excavations on Bryggen, the area of the former Hanse Kontor

A turning point for urban archaeology in Norway was marked after the devastating fire in 1955 on the northern part of Bryggen, the former Hanse *Kontor* and one of the oldest districts of the city. As a result of this the first modern, scientifically based excavation of a larger Middle Age site in Norway was initiated. It covered an area of ca. 5,700 square metres and lasted from 1955 to 1979 (Herteig 1985). The medieval deposits were mainly excavated stratigraphically, but unfortunately the younger layers were removed by machine on most parts of the site. Only in some squares were Early Modern Age fragments also recorded.

None of the finds of Weser and Werra Wares can be assigned to specific layers. For no more than 1/9 of all sherds are there records of their location in relation to a construction, and for the rest merely the co-ordinates of the excavation square, measuring 8x8 m, are known.

The settlement structure at Bryggen is characterised by long tenements lined up parallel to one another. The main unit consists of two rows of houses, the space

between being used either as eavesdrop or passageway. As there is a high incidence of finds in these eavesdrops, it can be assumed that they were also used for waste disposal.

Altogether 899 sherds of Weser Ware have been recorded from the Bryggen excavation. In addition, 70 fragments previously classified as 'Krefeld' also can be identified as Weser Ware: i.e., the total amount comes to 969. Of these, 94 sherds derive from hollow vessels, giving a ratio of hollow to shallow vessels of about 1:9 *(cf. fig. 4)*.

There are 57 sherds of Werra Ware, of which 14 are very small fragments. Since the fabric of Werra Ware is not very characteristic, there is some uncertainty connected with the identification of the latter sherds as Werra Ware. Hollow vessels of Werra Ware are completely lacking.

It is striking that amongst the finds from the Early Modern Age there is only a small amount of other decorated earthenware. In addition to the 70 sherds of decorated earthenware classified as Krefeld, there also appear some odd sherds with no particular decoration.

Finds from Vågsbunnen – the central part of the town in the 16th and 17th centuries

Tangegarden/Kong Oscars gate

During an 'excavation' in 1915 on the grounds of a former NCO-training college, a number of finds were discovered and brought to the museum (Shetelig 1916). They include a nearly complete plate and a Weser Ware tripod pipkin with a red-brown undercoat *(figs. 5 and 6)*. Additionally, there were 25 sherds of Weser Ware (mainly rims) with a light slip. Seven sherds of Werra Ware can be identified, all from shallow vessels. These sherds are also parts of rims, except two sherds – one from the base of a plate and the other from a bowl with steep sides. Apart from Weser and Werra Wares, several other sherds of decorated earthenware can be noted. Among these, faience with blue-painted decorations, earthenware with a white slip, and earthenware with a red fabric and thickly applied slips coloured yellow and, occasionally, green. The base of a bowl with a light, hard-fired, fine-tempered fabric is particularly remarkable as it has a foot-like, edged base. The inside and outside are covered in white slip, with three fishes painted in dark-blue colours in the centre. From the fabric, the white slip and the way the sides connect to the base, it can be assumed that this vessel was produced either in *Oberode* or in *Großalmerode* in Northern Hessen. A plate found in Bremen was decorated with a similar depiction of fishes, and has been classified by Grohne as coming from *Großalmerode*. This type of pottery was produced in the Werra region in the second half of the 17th century *(fig. 7)*.

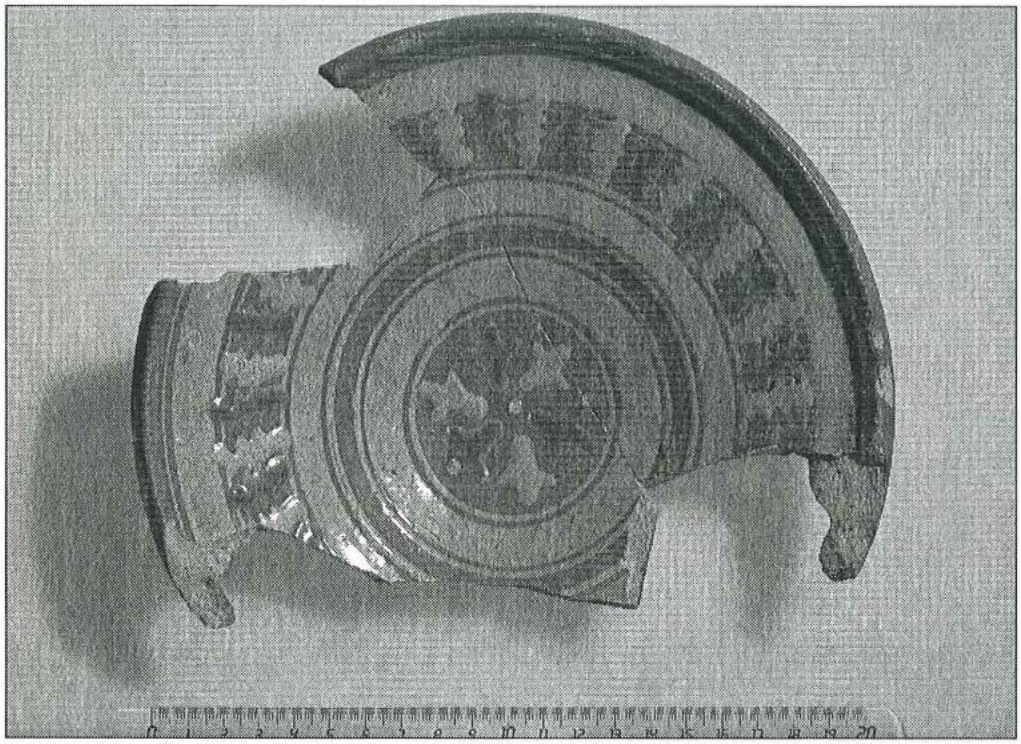


Fig. 5: Weser Ware dish with typical decoration found in 1915 during earthworks in the area of Vågsbunnen (B 6792).

Fig. 6: Weser Ware tripod pipkin with typical painted decoration, found in 1915 during earthworks in the area of Vågsbunnen (B 6792).

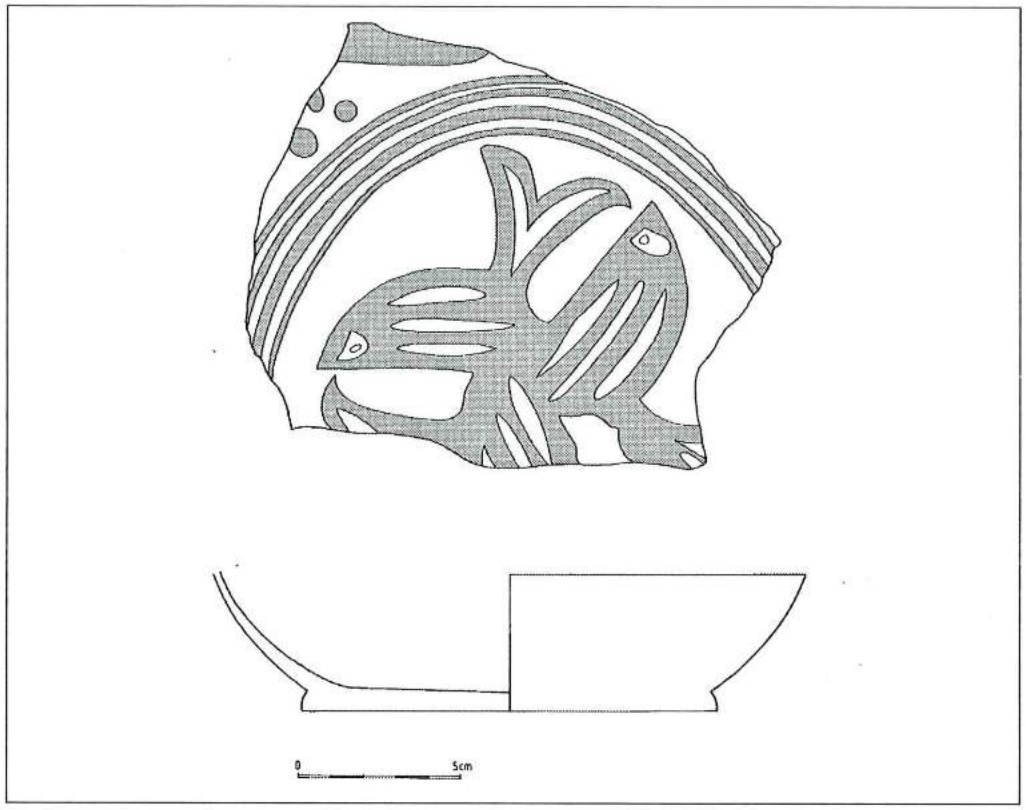
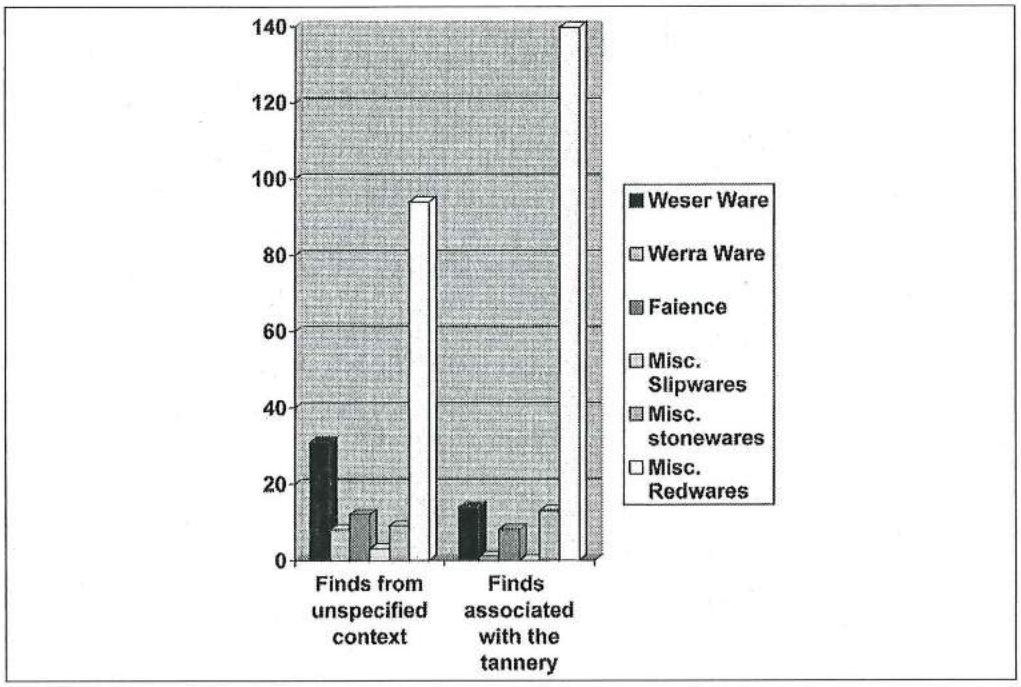


Fig. 7: Base fragment of bowl with fish-trefoil. Produced in the Werra region (propably Großalmerode) during the second half of 17th century (BRM 236/20).

Nedre Korskirkeallmenningen

Here, too, the finds were excavated during excavation work in 1915 and afterwards brought to the museum (Shetelig 1916). The high proportion of large sherds leads to the conclusion that not all sherds were collected and kept. Finds showing secondary burning and additional partially sintered wares lead to the assumption that some of the layers must have been fire-layers. One of the finds consists of several adhering sherds of Werra Ware: possibly it was a stack of plates sintered together by great heat *(fig. 8)*. All in all 230 sherds of Weser Ware stem from this site, 10% deriving from hollow vessels. Light sherds with a white undercoat are clearly dominating. Werra Ware is represented by about 20 sherds. Furthermore, there is a small proportion of earthenware with a red-brown fabric and (mostly) thick yellow decoration, as well as faience, stoneware from the R. Rhine region, including pieces with cobalt-blue glazing (*Westerwald* or *Frechen*), and a bulbous encrusted vessel with a green glaze.

Fig. 8 Werra Ware fragments sintered together by heath (B 6489), found in 1915 during earthworks in the area of Vågsbunnen.



Early modern ceramics from Domkirkegaten 6.

Tanks skole

Though there is no report documenting the circumstances of the finds, it can be assumed that these objects were also excavated during excavation work and then delivered to the museum (Fett 1936). There are 27 sherds of Weser Ware, all from shallow vessels. Furthermore, there are another six sherds of decorated earthenware, some faience and some Chinese porcelain.

Domkirkegaten 6

In 1987 an area of some 285 square metres in what was originally the innermost part of Bergen's harbour area was excavated following the demolition of a building from the second quarter of the 18th century (Komber *et al.* 1994). Towards the end of the 16th century, probably around 1570, an extensive tannery was built on the property. After its original function had ceased it was used for waste disposal until it was covered up. In the filling, 12 fragments of Weser Ware were found associated with 2 pieces of faience and 27 pieces of miscellaneous redwares. This seems to be one of the few cases where early modern waste deposits were found in an undisturbed context. The tannery was destroyed by fire, probably in 1623.

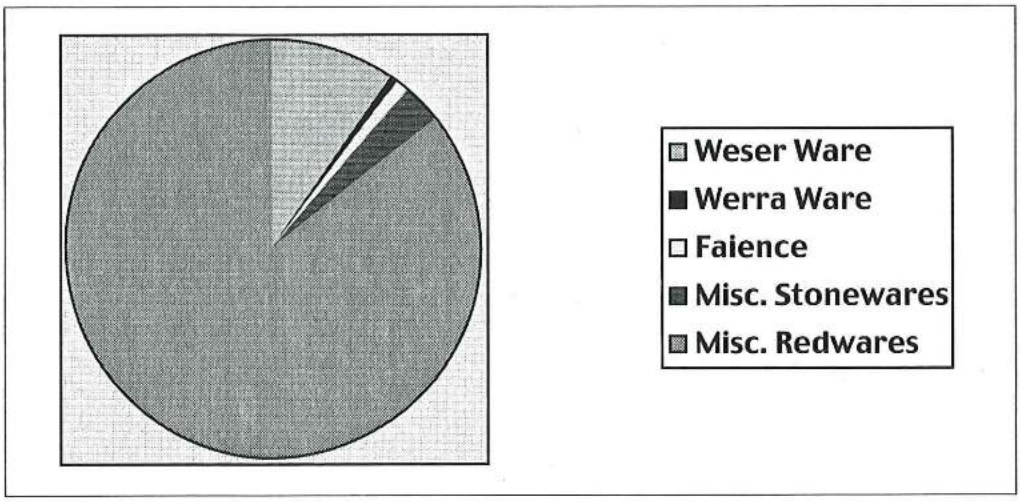
Lille Øvregate

A minor excavation was carried out in 1994 at the north-western end of the street called Lille Øvregate, on a property that had been vacant since the end of the 19th century (Hansen 1995). On the excavated area, measuring 33 m2, various wooden buildings from the Middle Ages were detected. A stone building was built at the beginning of the 14th century. After its destruction by fire around 1400, stones and parts of the foundation were re-used around 1600 for a building measuring 8 by 6 m with a stone foundation and a wooden floor. The sloping area to the southwest of the building was probably used as a garden. This building burnt down, possibly in 1623 – or perhaps even as early as 1582. The house built on the old foundations was similarly destroyed by fire.

The house was rebuilt on a smaller scale in the middle of the 17th century or thereabouts. Even though there is no indication of a 'destruction layer', this house must have been deserted quite soon as an extensive levelling can be noted. It is possible that the property was used as a dump, but it seems more likely that material was brought onto the site intentionally to level the grounds. Following this, another building with a wooden floor was put onto the foundations on the site. It was destroyed in a fire, possibly the recorded one in 1702. The cycle of reconstruction and destruction was repeated two more times, after which the property remained vacant (Hansen 1995, 34).

As this brief outline indicates the stratigraphy of the Early Modern Age is characterised by interchanging layers of construction and destruction, whereas

layers clearly deposited during the actual use of the property can be identified only with great difficulty. To compound matters further, the thorough examination of deposits of the Middle Ages took priority over the younger deposits. Due to shortage of time and staff, not all of the deposits could be given equal attention. The classification of the various layers is difficult. It has to be assumed that the majority are 'levelling layers', and this means that it is hard to determine whether the recovered (waste-)material derived from slow accumulation in situ or was brought there intentionally from elsewhere. The recovered Early Modern Age ceramics were distributed as follows:



Early modern ceramics from Lille Øvregate

Finds from an excavation at Strandsiden - Strandgaten 55-57

This property was investigated archeologically in 1986 after a department store built around the turn of the previous century was torn down (Dunlop 1993). It was the first proper excavation in this area, which was one of Bergen's centres of mercantile activity in the Early Modern Age. All in all 320 m^2 were excavated during a three-month period. There are no indications of occupation dating from the Middle Ages.

The first clear signs of settlement activities are the deposition of layers of up to 60-cms thickness in conjunction with simple wooden foundation structures. It is to be assumed that the majority of these layers were deposited to stabilise the constructions, and possibly to raise the ground surface. Finds of pottery sherds showing clear signs of having been in water for some time show that these layers consist at least to some extent of material that was transported to this area from elsewhere. Perhaps some of it was material dredged up from the harbour: this could also explain the presence of a large amount of rounded stones – ranging in size

from a fist to a football, of unknown, yet not residual, origin – which could be interpreted as having been used as ships' ballast (Dunlop 1993, 23).

The first detectable building development consisted of two parallel rows of buildings running in a north-east–south-westerly direction right up to the waterfront (or even beyond it) and with staggered ends, typical of warehouses in this part of Bergen for a long time. Thus these buildings can best be classified as '*sjöboder*', i.e., warehouses and trading houses built at the waterfront. Between the two rows there was an eavesdrop of about 1 metre's width. The north-western row measured about 16 by 8 m, whereas the southeastern row seems to have been much larger, about 30 by 7.5 m. It is not likely that these buildings had a residential function. This oldest phase – phase 5 – was destroyed by fire (Dunlop 1993, 25).

According to the finds, phase 5 has to be dated to the second half of the 16th century. Since fragments of clay pipes are completely lacking, it can be suggested that the fire that ended this phase occurred before 1600, and it can therefore be correlated with a great degree of certainty to the historical fire in 1589 (Dunlop 1993, 29).

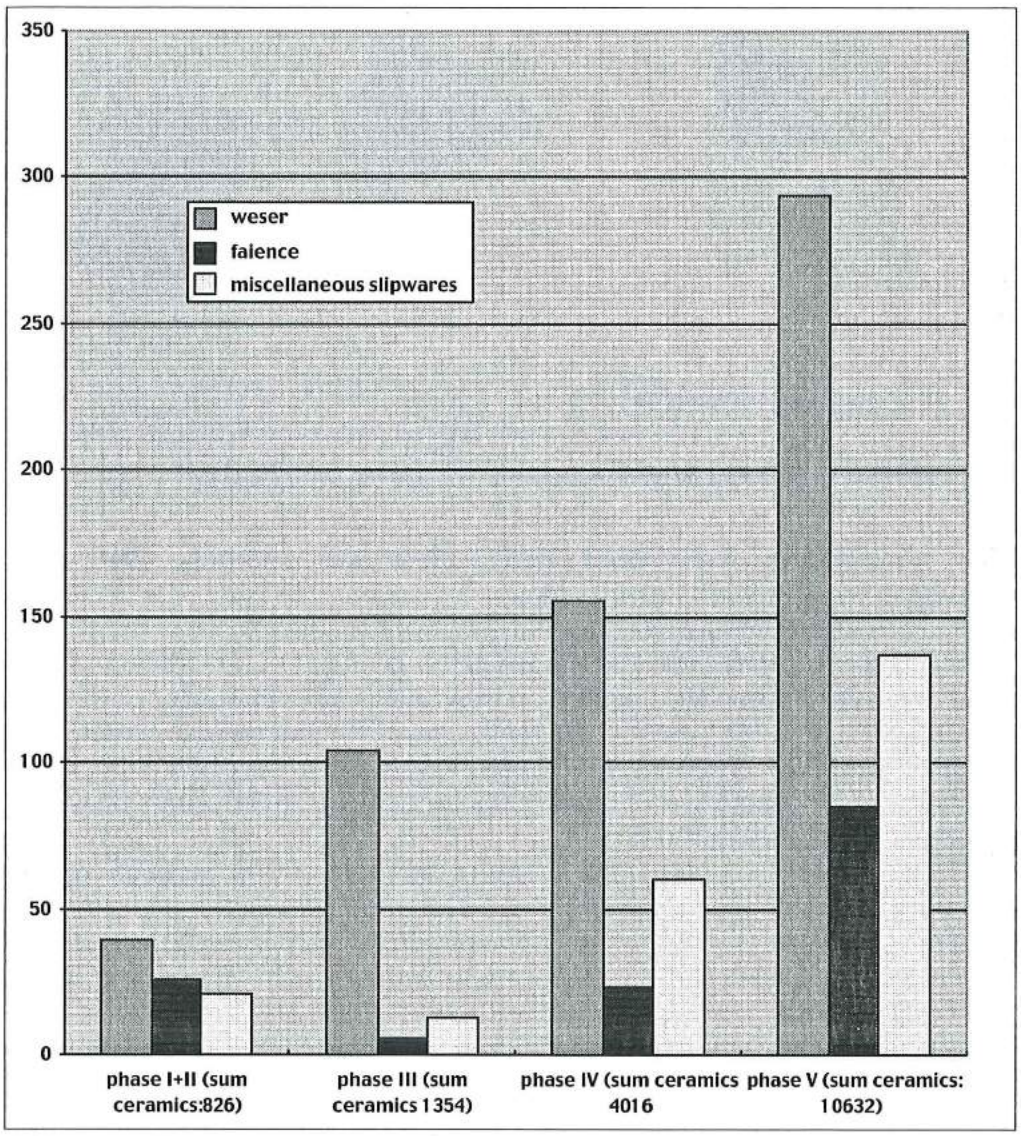
In the following phase 4 the building structures largely remained identical to those in phase 5. Again, two parallel rows of houses with an eavesdrop between them can be distinguished. However, the excavated structures may indicate that there were larger gaps between the buildings in each row. The buildings of phase 4 were also destroyed by fire. According to the finds this phase can be dated to the first quarter of the 17th century, and thus the relevant fire-layer has been correlated to the historical fire in 1623 (Dunlop 1993, 29).

The following phase 3 showed the same building pattern as the previous phases. This time, though, most of the buildings seem to have been concentrated in the seaward part of the property, whereas the area lying further inland remained vacant. The end of phase 3 is marked by a distinct fire-layer, which is to be associated with the fire in 1660.

After this destruction, a noticeable change in building structure is to be observed. The alignment of the houses remained unchanged, suggesting plots with stable boundaries, but instead of wooden houses, two solid, stone and mortar foundations were constructed. Most probably they belonged to a type of building that became exceedingly frequent in Bergen from the middle of the 17th century onwards. They were '*steinkjellere*', i.e., houses with several storeys whose ground floors were made of stone and were used for storage, while the upper storeys were residential and probably still built of wood. According to the results of the excavation, these *steinkjellere* had relatively prestigious facades facing the street, i.e., they were mainly built landwards. A fire-layer – most likely representing the historical fire in 1686 – concluded phase 2's stratigraphic sequence. A contemporary map shows the state of the immediate area after the fire. The stone foundations of the buildings described are clearly recognisable. Wooden structures built in the back row (seawards) are also shown, but were not detected archaeologically (Dunlop 1993, 14).

The foundations were re-used after the fire and the houses were rebuilt. Due to modern disruptions of the younger layers, conditions for observation became rather poor, so that not much can be said about further developments. The end of this phase – at least as far as parts of the area were concerned – came about through fire, possibly that in 1702. There is no archaeological evidence about the property's more recent history (Dunlop 1993, 40).

The results of the Strandgaten 55-57 excavation can be summarised as follows. In the second half of the 16th century, two rather large warehouse complexes were



Different types of highly-decorated earthenwares from Strandgaten 55–57.

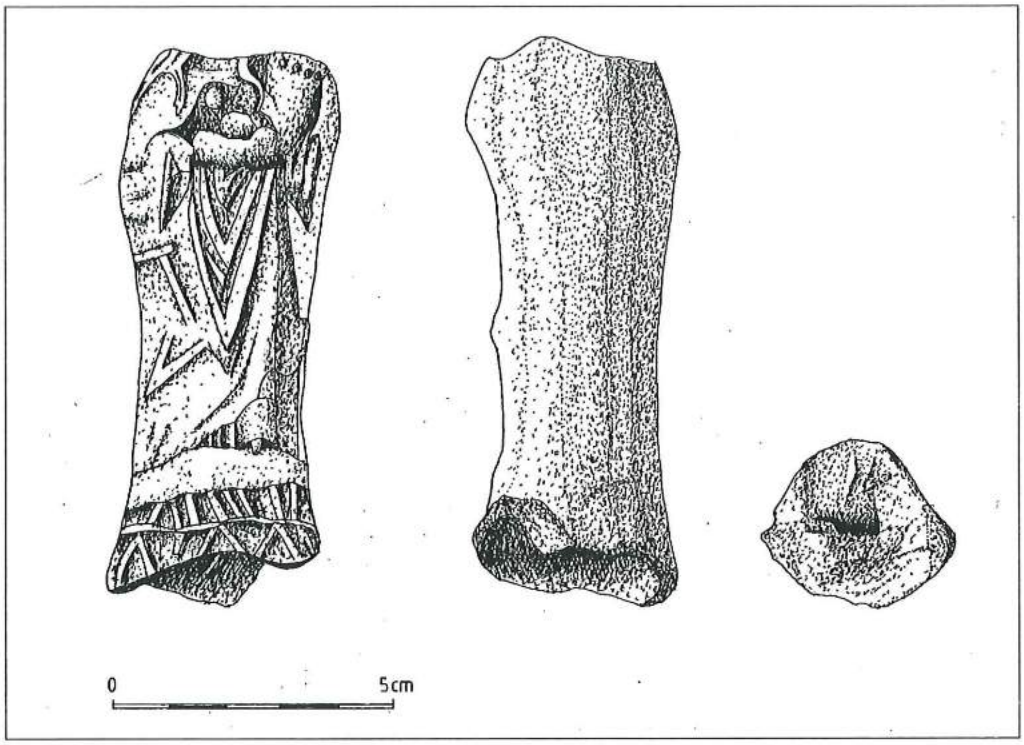


Fig. 9: Statue of Mary, found 1986 during an excavation in Strandgaten 55-57 (BRM 236/20).

built on previously undeveloped ground along the waterfront. After their destruction by fire in 1589, the buildings were rebuilt, probably on a somewhat smaller scale. After another destruction by fire in 1623, the rebuilt structures were noticeably smaller. After these were destroyed by fire in 1660, a partially stone-built house replaced the wooden buildings; it was rebuilt after destruction by fire in 1686. In contrast to the period before 1660, when the buildings were entirely used as warehouses, the *steinkjellere* were also used for residential purposes.

The numeric breakdown of pottery finds, based on sherd count, draws the following picture for phases 1-5:

'Other highly decorated earthenwares' referred to in the diagram mainly comprises sherds from the Northern Netherlands, Northern Germany and Southern Scandinavia. The high proportion of stoneware can partially be explained by the high fragmentation of this ceramic type. Two sherds of Werra Ware were also found in the layers of phase 5. Although only of small size, one of them is of particular importance as it bears a date. The year is likely to be (15)86, which in the first place supports the excavator's dating of the phase (ended by fire in 1589) and secondly represents a relatively early piece of evidence for the export of Werra Ware.

A small statuette made of fine white pipe-clay, most likely made in the Rhineland, should be noted as a special find. It shows Mary with the infant Jesus in her arms *(fig. 9)*. If it were not a case of secondary deposition, such an object of veneration – and thus unquestionably a religious artefact of Catholic origin – would be remarkable in a Protestant setting. The fact that such figurines mainly date from the 15th century speaks for secondary deposition. However, individual examples were produced right up to the 17th century (Neu-Kock 1988, 180). It is possible, therefore, that this piece derives from primary deposition, at least since the find context lay directly below the fire-layer marking the end of phase 5.

It can be noted that, generally speaking, the finds tended to concentrate in fire-layers and deposits interpreted as 'occupation layers'. This leads to the conclusion that most of the finds actually are in primary context and thus originally have been used or stored at the site. This makes the excavation *Strandgaten 55-57* rather exceptional, as in Bergen most early modern finds otherwise derive from redeposited layers. With the changes in building structure in phases 2 and 1, the frequency of finds drops drastically.

In summary, the analysis of the finds from *Strandgaten 55-57* comes up with the following picture: the greatest numbers of sherds found during the excavation are associated with the oldest 'occupation' layers. Their numbers are high also in comparison to other areas in Bergen. It is unlikely that the greater amount of sherds in the older layers compared to the younger ones is to be explained by fewer disturbances of the former. On the contrary, it can be assumed that, due to shortage of time, the older layers were not examined as thoroughly as the younger strata. Thus the higher amount of finds may well reflect greater intensity of occupation in the older phases.

The finds from this excavation, approximately 99% of which were ceramics, are extraordinarily diverse, particularly in the older phases. The majority of finds are cooking vessels, mainly lead-glazed tripod pipkins, largely produced in the Netherlands. Besides these tripod pipkins there were also frying pans, three-legged pans and large, rectangular pots used for roasting or baking. Remarkably, there are no signs of use – such as sooting – on the vessels' exteriors.

Besides the household wares there were also roof-tiles and other tiles in considerable numbers. A small crucible stands out by itself. Plates and bowls made of lead-glazed earthenware are present in large numbers, green-glazed plates with brown rims were probably imported from the Netherlands, green-glazed bowls with engraved decoration of wavy lines under the glaze probably came from the area around Cologne or Frechen. In addition to the previously mentioned statuette of Mary, another fragmented figurine made of polychrome-painted earthenware in a light fabric was recovered.

In general, pottery from many important production centres seems to be present amongst the finds from *Strandgaten 55-57*, particularly highly decorated wares. Along with products from the Upper Weser area, products from other places

in Northern Germany, the Netherlands and Southern Scandinavia were also found. Furthermore, Mediterranean and French wares show the far-reaching import trade of pottery. In these latter cases, however, the products may have come from the Netherlands, where such wares were rather common. Regarding stoneware, all the important production centres around the R. Rhine seem to be represented. Jugs, mugs, *Schnellen* and bottles were all found, and plain vessels appear just as well as the more elaborate relief-decorated pieces.

In the younger phases 4 and 3, a decrease in the diversity of wares can be noted, perhaps connected with a general decrease in the total number of finds. It is mainly the tin-glazed earthenware and stoneware that show the largest decrease. Furthermore, there was a rise in the incidence of stoneware from the production centre of *Raeren,* and products from *Duingen* and the *Westerwald* were occasionally to be found, too.

The proportion of Weser Ware increased notably in relation to both other decorated earthenware and the entire amount of pottery. All the same, the majority of finds still consisted of cooking pots with red fabric, and tiles. Stove-tiles also occurred, but were of lesser importance numerically. The decreasing amount of finds corresponds to a decrease in the intensity of occupation.

At any rate, it is important to keep in mind that the property's topographical situation and the nature of the excavated structures strongly indicate the existence of warehouses at this site. As ceramics make up the overwhelming bulk of the finds, it is thus highly probable that the finds of the first three phases at *Strandgaten 55-57* represent the stock of a pottery-trading house in the decades on either side of 1600.

Along with the change in building structure, a further decrease in finds' frequency was to be noted after the fire of 1660. There is no clear evidence of the primary deposition of highly decorated earthenware. The occurrence of plenty of most likely redeposited finds raises great doubts about the meaningfulness of analysing this material in detail. On the other hand, this change in the pattern of deposition in itself suggests a change in the use of the property, and the raised social standing of the inhabitants could be indicated by, for example, a tea cup made of Chinese porcelain that was found in association with the *steinkjeller* building.

4. Chronology and Typology of Weser and Werra Wares in Bergen

Information about chronology was mainly produced by the *Strandgaten* excavation, where good absolute dating was made possible by the correlation of the fire-layers in the well-documented stratigraphic sequence with the numerous historically recorded fires. The appearance of Weser and Werra Wares in reliably dated contexts will therefore be presented, to provide more detailed dates for the material than just the known time of production from 1570-1630. Regarding Werra Ware, all the painted dates on the vessels will be discussed.

Shapes and decorative techniques are described in detail in order to bring out the most important typological features explicitly. The description of the decoration of each of the different zones of the vessel should make it easier to compare the Bergen material to other finds. As already mentioned, we still lack detailed presentations of this kind of pottery. Therefore, it is useful to make new reference material available. Wherever possible, finds from Bergen are compared with other known finds. In general, it would have been desirable to include a mineralogical examination of the material to try to pinpoint the place of production more precisely. Unfortunately, this has not been financially possible.

Weser and Werra Wares in Bergen: Dating

When it comes to chronology, there are some questions of major interest regarding Weser and Werra Wares in Bergen.

- When do Weser and Werra Wares appear in Bergen for the first time?
- What are the earliest painted dates on Werra Ware?
- How does the proportion of Weser Ware compared to other contemporary pottery types change in time?
- How long do Weser and Werra Wares appear in Bergen?

As I have mentioned, Weser and Werra Wares were produced from c.1570 to c.1630. For Werra Ware the dates that are occasionally painted on the vessels provide excellent dating possibilities, whereas the situation regarding Weser Ware is more complicated. The rough chronological framework, however, is quite clear, though one should keep in mind that production of Weser Ware continued at a very reduced scale after the Thirty Years' War during the second half of the 17th century. This younger version of Weser Ware is characterised by a somewhat more loosely structured and less carefully painted decoration (cf. Stephan 1981, 64). But due to the state of research in the production area, it is still difficult to point out this younger version of Weser Ware precisely by help of typological characteristics. However, one can assume that all the classical decorated vessels were produced in the late 16th or early 17th centuries. For those vessels with a less precise decoration, reliably dated stratigraphically contexts would have been desirable in order to point out eventual finds of younger Weser Ware.

The methods by which the fire-layers and thus also the preceding phases from stratigraphically sequences in Bergen, are dated have been summarised in chapter 3. But like Weser and Werra Wares, many of those types of pottery, that are used for dating actual layers were produced for quite a long time, like a half century. Thus it is necessary to be aware of the combination of datable pottery that is found together. In this way, it is possible to determine the deposition time for the actual find context more precisely. Regarding Weser Ware in Bergen, the finds from the excavation *Strandgaten 55-57* are of special importance, not only because of the

great amount of Weser Ware, but also because the stratigraphical sequence provides fire-layers that can be correlated with historically documented fires in 1589, 1623 and 1660. Thus, one gets insight into the occurrence of Weser Ware in different parts of the main production period.

The most numerous assemblages of Weser Ware at *Strandgaten* were found in the oldest phase, phase 5, which was ended by the fire dated to 1589. This identification is supported by the fact that the Weser Ware pieces were found together with 'Double-Sgraffito' ware from Beauvais, which, according to Hurst (1986), was no longer usual by the 17th century. A fragment of Werra Ware (inv. No. BRM 236/16920) displaying the date (15)86 was found in one of the occupation layers associated with the property, thus providing evidence of activity just a few years prior to the fire. The evidence that Werra Ware was exported to Bergen as early as the 1580s is of some significance. Furthermore, this small dated sherd is one of the earliest known examples of exported Werra Ware. As for the Weser Ware, a lot of the fragments, which due to the fabric clearly must have been produced in the potteries of the Weser region, bear just a monochrome decoration. That means that before c.1590 less advanced decorated pottery, alongside the well-known multicoloured, was also exported from the '*Pottland*' along the R.Weser. In this phase, Weser Ware represented up to 3% of the entire ceramic assemblage.

The following phase 4 of the excavation is dated to 1589-1623, which is just the time period when the greatest activity in the export of Weser and Werra Wares is thought to have taken place. Weser Ware comprises up to 4% of all finds in this phase and the majority of the Weser Ware fragments now show the characteristic polychrome painting.

Weser Ware still appears to some extent in phase 3, starting in 1623. It should be considered, though, that finds in primary contexts can only definitely be associated with layers marking the beginning of this phase, i.e., at around the mid-1620s. An almost complete, though broken, bowl shows that there was still a certain export of Weser Ware after 1623, though the Thirty Years' War must already have affected travelling and trading conditions in the production areas. In phase 3, Weser Ware comprises up to 7.7% of all ceramics found, but a certain amount of redeposited material can be assumed. The fire-layer at the end of phase 3, most likely deriving from the fire of 1660, produced hardly any Weser Ware, and what little there was can, due to its bad state of preservation, be seen as having been redeposited.

Dates slip-trailed onto Werra Ware are relatively rare in Bergen. The above-mentioned sherd dated (15)86 found at *Strandgaten* is the oldest one hitherto known in Bergen. A bowl from the *Kong Oscars gate* site displays the year 1597 *(cf. fig. 21)*. A sherd belonging to the bottom of a plate excavated at *Halfdan Kjerulfs gate* carries either the year 1591 or 1595. Excavations at *Dreggsallmenningen* and *Domkirkegaten* each yielded a single sherd showing the fragmentary date 16... . A basal sherd from Bryggen shows a number that can be read as either 16 or 96. A

plate found in the harbour of Bergen is dated 1621, and this represents the youngest clearly dated piece in Bergen (Ellmers 1981).

As there were no accessible reports about findings dealing with larger complexes of finds from the second half of the 17th century from reliably stratified contexts, the appearance of younger variations of Weser Ware cannot be determined precisely. Particularly the previously described sites *Tangegården/Kong Oscars gate, Nedre Korskirkeallmenningen* and *Tanks skole* provided some fragments of typical Weser fabric with a more loosely structured and less carefully painted decoration, unusual enough to be worth mentioning. These pieces could be dated to the second half of the 17th century, resembling the younger version of Weser Ware as described by Stephan (1981, 64). Among them is a rim-sherd of a plate made in a light fabric, with a white slip and slip-trailed decoration in green and orange-brown, which is typical of the more elaborately decorated earthenware of the Weser region in the late 17thcentury. Also the plate with fish decoration as described in chapter 3 should be taken into consideration here, as it clearly shows that pottery produced in the Upper Weser Hills was exported to Bergen in the second half of the 17th century as well.

The excavations on Bryggen, too, have yielded sherds that possibly belong to the younger type of Weser Ware: for example, a rim-sherd with dotted decoration. However, on Bryggen and other sites these examples are only a small minority, and most of the Weser Ware sherds certainly belong to the older variations.

Summing up the chronological evidence, one can outline the situation as follows:

- Weser Ware appears in layers from 1589 and some years before in considerable amounts.
- The earliest painted dates on Werra Ware are from 1586 and the 1590s.
- The latest dated piece of Werra Ware in Bergen is from 1621. Finds from the *Strandgaten* excavation indicate that Weser Ware was still common in 1623 and some years on. There is also a minor amount of Weser Ware that, due to its stylistic characteristics, most likely dates from the second half of the 17th century.
- There seem to be indications that the percentage of Weser Ware in the total amount of the pottery used in Bergen rises continuously until the late 1620s. Especially its marked share compared to other highly decorated earthenware increases. At about 1630 Weser Ware decreases rapidly, most likely due to a halt in production caused by the Thirty Years' War.

Weser and Werra Wares in Bergen: Shapes

A precise description of the original shapes of the vessels is exceedingly difficult, if not impossible, due to the high fragmentation of the material. Simple

Fig. 10: Weser Ware base fragments of drinking vessels from excavations in Strandgaten 55-57 and Lille Øvregate (BRM 236/8362).

differentiation between shallow and hollow vessels can be established with some certainty, even for very small fragments. Complete profiles of the vessels can only be given in very rare cases. Details about rim or base diameters should be understood as approximate values, because in many cases only small fractions of the rims or bases were available for measurement.

In Bergen, Werra Ware is present as shallow vessels only, with plates dominating. Only two examples have sides steep enough to be classified as bowls. All pieces fall within the typical design of Werra Ware, with only little variation in shape. The rims are weakly defined hammer-headed rims; the bases were flat, and any marks of removal with wire had been erased. Half of the base diameters were somewhere between 60 and 90 mm. Rim diameters varied as follows: 40% were about 180 to 240 mm wide; 40% were 240 to 300 mm wide; and 20% were in excess of 300 mm.

Amongst Weser Ware, shallow shapes dominate but hollow vessels such as tripod pipkins do occur in varying proportions. Finds from Bryggen and *Nedre Korskirkeallmenningen* produced about 10% hollow vessels (out of all the classifiable sherds), mainly tripod pipkins and pots.

In the material of the *Strandgaten, Domkirkegaten* and *Lille Øvregate* excavations, fragments of hollow vessels do occur, but are extremely rare. From

Strandgaten not more than 12 sherds of hollow vessels are known, mainly from tripod pipkins. A straight piece of a rim probably belonged to a jug with a cylindrical neck; in addition, there are two basal fragments from small jugs with sharply cut, conical feet *(fig. 10)*. The only sherd of a hollow vessel found at *Lille Øvregate* is likely to have been part of a jug, too. The only such fragment at *Domkirkegaten* came rather from a tripod pipkin or a pot. Tripod pipkins most often have a beaded rim with rim diameters between 80 and 120 mm.

It seems that about two-thirds of the fragments from shallow vessels belong to dishes or plates with a more or less profiled shape. The rest belong to bowls, most with a carinated shape with a ridge at about half height. *(cf. fig. 11)*. Depending on the degree of fragmentation, it is often quite difficult to identify the different types exactly. The bowls have an overhanging rim, whereas the dishes have hammer-headed rims in slightly different versions. In two cases there are hammer-headed rims with an applied piecrust thumbed strip. Similar rims are to be seen on some finds from Höxter. Further, there are two bowls with inturned mouths and inverted rims. According to parallels from the Netherlands and the Weser region, they can be reconstructed with footed bases and single horizontal strap-handles. These have probably been used as drinking bowls. Their exterior decoration clearly sets them apart from the other bowls *(cf. fig. 12)*.

Handles appear in Bergen almost exclusively on bowls. There are horizontal loop-handles as well as vertical strap-handles. The handles are always affixed directly to the overhanging rim. A small rim-fragment from Bryggen has two closely set suspension holes that were clearly made before firing and glazing, as there were traces of glaze inside the holes. They were probably used to fix string by which the vessel could be hung from a peg.

The size of the vessels differs greatly. Rim diameters from about 190-260 mm are commonest, making up about two-thirds of all vessels. Smaller vessels with rim diameters of 180-150 mm make up about 14% of all vessels. Within this group of small-sized vessels, bowls are commonest, comprising up to two-thirds of the category. About 20% of all vessels show rim diameters larger than 240 mm, with only a single piece having a rim diameter in excess of 300 mm. All these larger vessels are dishes.

Weser and Werra Wares: Secondary treatment of the vessels

In some cases can be observed mechanical treatment of the vessels that was definitely done after firing, i.e., possibly carried out by the user. On several occasions holes in the walls close to the rim were found, where parts of the glaze had come off. One explanation for this could be that a broken vessel was repaired with wire or string. It is also possible that these holes were made to enable suspension.

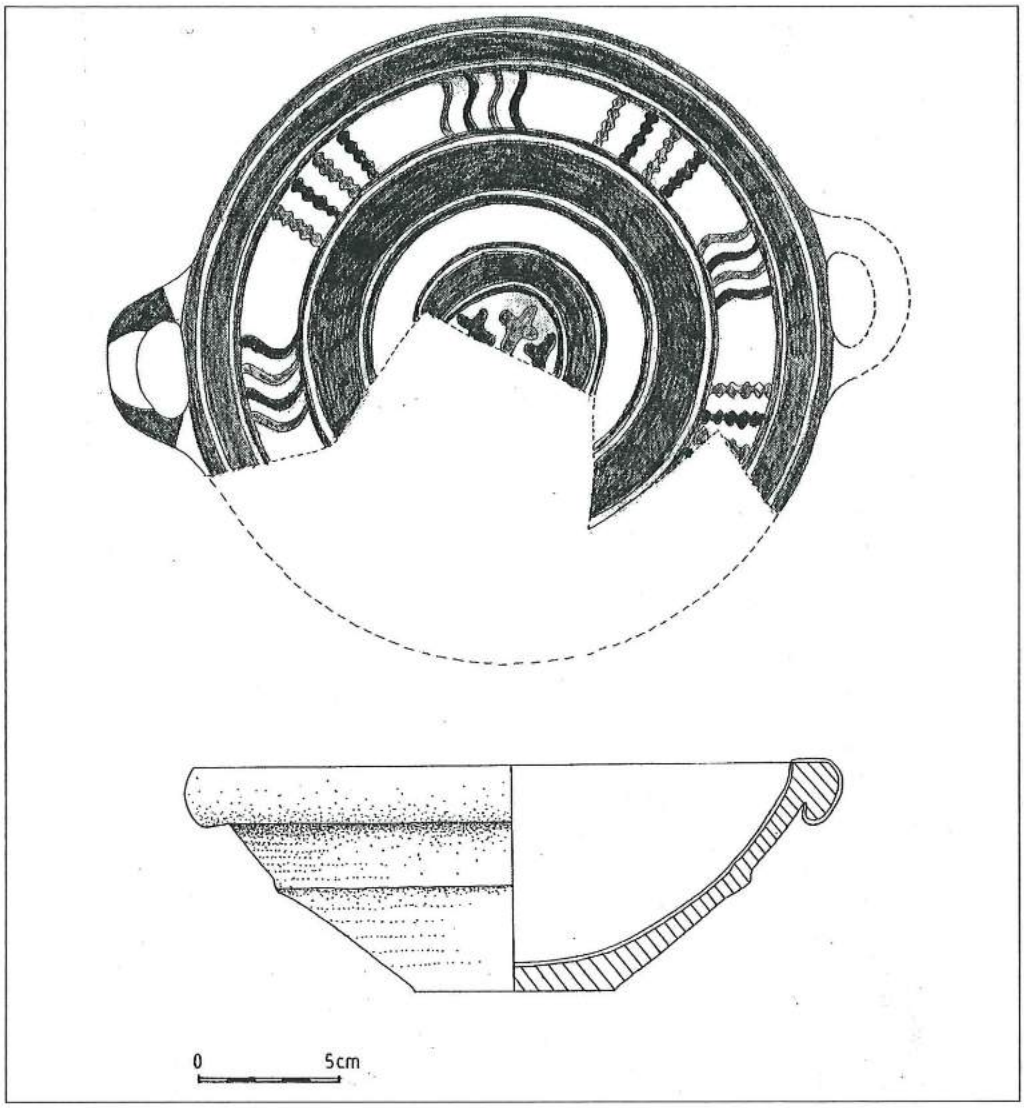


Fig. 11: Profile of Weser Ware bowl, found 1986 during an excavation in Strandgaten 55-57 (BRM 236/13326)

A unique discovery, as far as Bergen is concerned, is the engraving of a property- or *Stuben*-mark on the underside of a plate of Weser Ware found on Bryggen. Such marks are otherwise only to be found on wooden water containers or weights belonging to certain *Stuben* on Bryggen (Koren-Wiberg 1935, p. 18). Due to the fragmented state of the plate, the precise shape of the mark is no longer discernible.

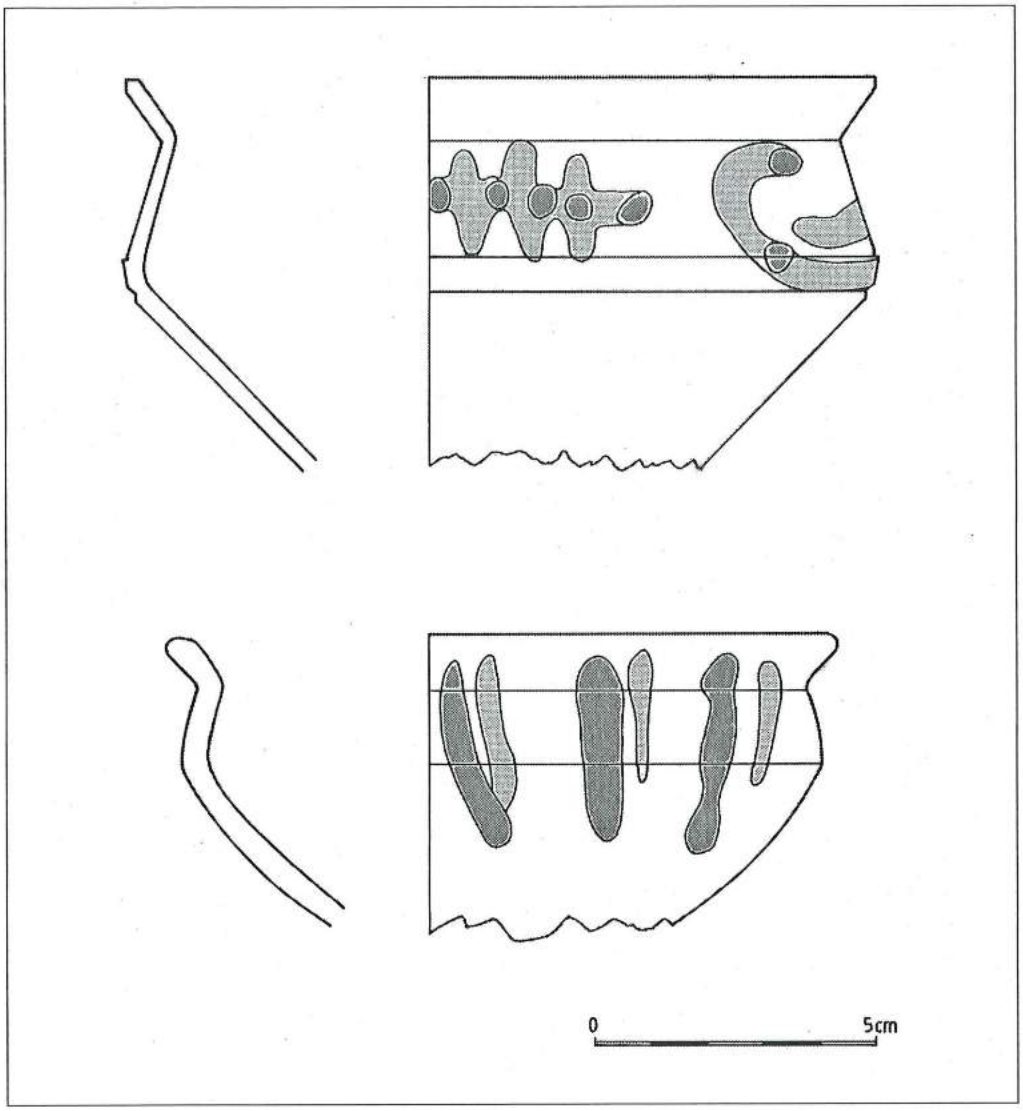


Fig. 12: Weser Ware drinking bowls, found in the area of Vågsbunnen and at Bryggen. The drawing is a reconstruction based on the shape of the fragments. (B 6849 + BRM 0/32624).

Weser Ware: Decoration

This chapter will present various aspects of the decoration of Weser Ware vessels found in Bergen. This will be compared to examples known from other places. The aim is to present the ornamentation used on Weser Ware in a detailed but brief manner.

Weser Ware decoration: Hollow vessels

As there were just a few hollow vessels found in Bergen, and they were usually in a highly fragmented condition, only limited statements can be made about their decoration. The tripod pipkins and pots – which made up the majority of hollow vessels – occur both with white slip on a light ground and with a brownish fabric being used as darker undercoat. Among these sparse finds of hollow vessels, those with a dark undercoat seem to dominate. On the beaded rims of tripod pipkins and pots, one or more horizontal stripes seem to be common.

The vessel walls are often covered with notch-rouletting patterns, where simple rectangular stamps dominate. The commonest form of decoration of the walls consists of vertical zigzag lines, lines of dots, or simply straight lines, often in alternating green and red or yellowish brown. Sometimes, horizontally running bands of S-shaped hooks can also be found.

The finds in Bergen correspond to a great extent with finds in other places. However, vessel-wall decoration such as that found in *Höxter* or *Stade*, for instance, has not been reported from Bergen. A tripod pipkin from *Hildesheim* (Brandorf 1990, cat. no. 97) resembles a find from the *Kong Oscars gate* site to the point of having identical decoration. This exemplar from *Hildesheim* is one of the few published examples with horizontal stripes on the beaded rim. These are also known on pieces from *Bodenwerder an der Weser*, and can thus be assumed to be quite common.

Two of the three sherds of jugs have a light undercoat, the decoration simply being painted stripes. One of the sherds resembles the foot of a bellarmine jug found in the Netherlands (Stephan 1981a, plate 132/2).

Two bowls with inturned mouths and everted rims are also to be included in this category, as they are decorated on the outside *(cf. fig. 12)*. One of the vessels has a rather simple decoration of alternating stripes in red and green. The other sherd displays ornaments consisting of a bar with shorter vertical crossbars as well as a bend, possibly a helical stripe. Both designs are in orange-brown with padded dark-green dots. A very similar form of decoration has been reported concerning a handled bowl with footed base from *Leiden* (Stephan 1981a, Plate 131/1). Similar ornamentation can also be seen on several finds from workshops in *Völksen* in the *'Pottland'*.

Weser Ware decoration: Shallow vessels

When dealing with the decoration of the shallow vessels, it seems sensible to differentiate between the various parts of the vessels. This simplifies the analysis, and the differences in decoration between the types of vessels become more obvious.

First of all one should differentiate between vessels with a light undercoat, i.e., where the decoration consisted of darker colours on a usually light slip, and those with a dark undercoat, where the decoration was applied directly onto the reddish

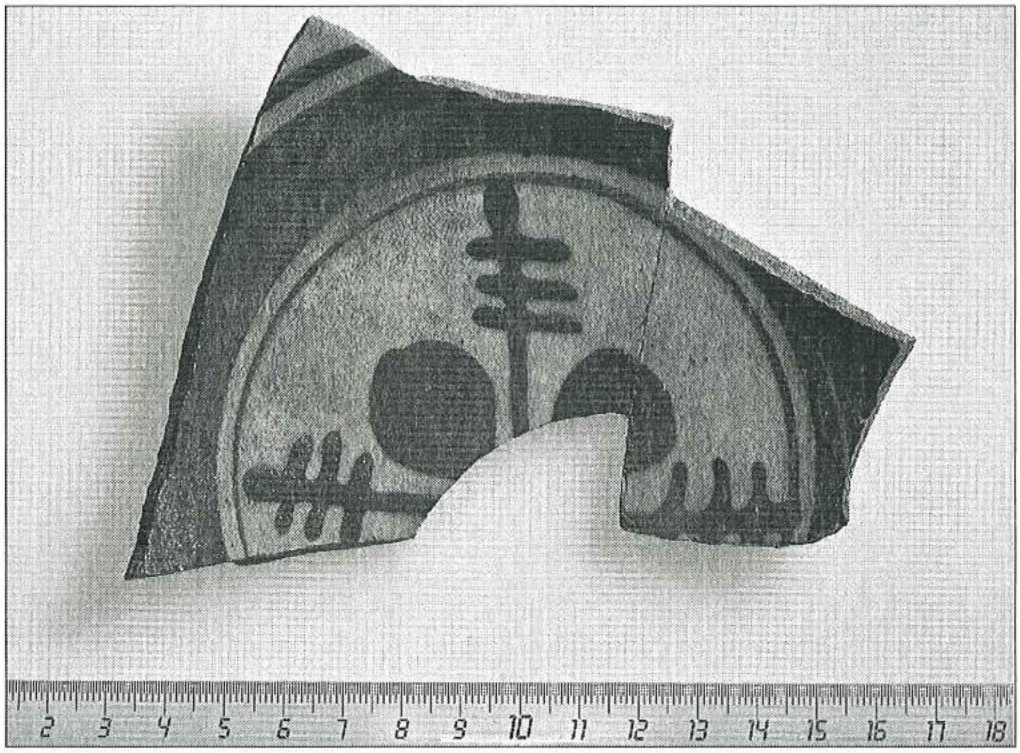


Fig. 13: Weser Ware base fragment with geometrical ornament, eventually stylised flowers (BRM 236/8839 + B 8790).

fabric. In general it can be said that vessels with a light undercoat are the commoner, though the ratio varies from place to place.

For example, only one-eighth of the sherds found at *Domkirkegaten* had a dark undercoat, compared to one-third of all fragments found at *Lille Øvregate*. At *Strandgaten* there were considerable differences between the individual phases. In phase 5 approximately two-thirds of all sherds showed decorations applied directly onto the reddish fabric. Phase 4 produced finds of which half had white slip and dark decoration. In Phase 3 this type comprised four-fifths of all finds. This striking variation is partly caused by the presence in phase 5 of a particular group of vessels, which will be described in more detail later on. It is most likely that these vessels had their origin in the area of the Upper Weser, but they differ from the 'classic' Weser Ware on account of their dark undercoat and monochrome decoration.

Among the vessels with a light undercoat, a more or less pronounced tinge of green in the translucent lead glaze is to be noted occasionally. It remains unclear whether this was done intentionally for decorative reasons or was caused by impurities of copper in the glaze. This kind of greenish glaze has been observed in the wares of several production centres.

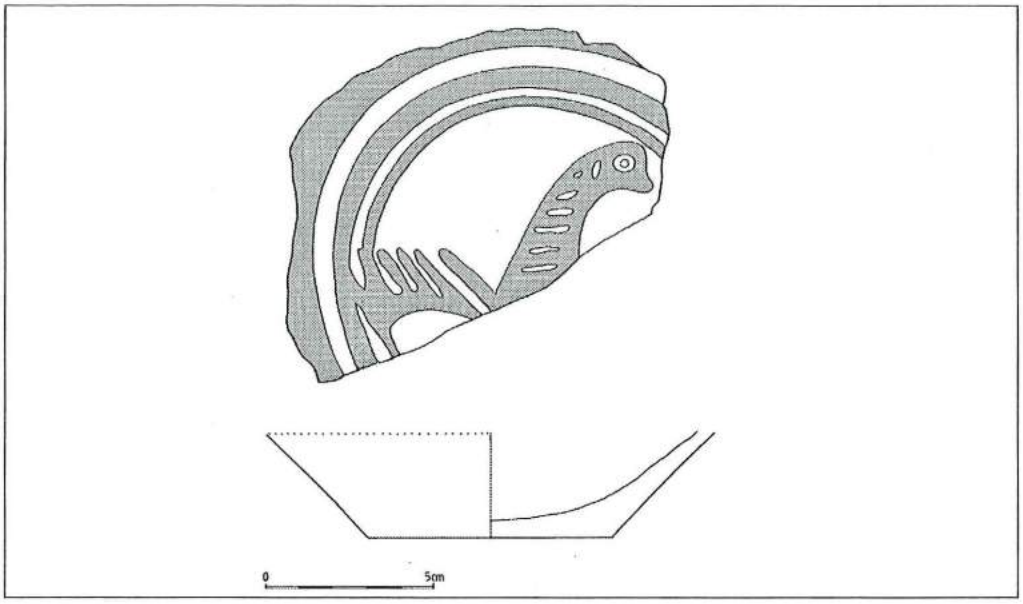


Fig. 14: Weser Ware base fragment with picture of a bird (BRM 236/6410f. + 236/15038 + BRM 0/00573).

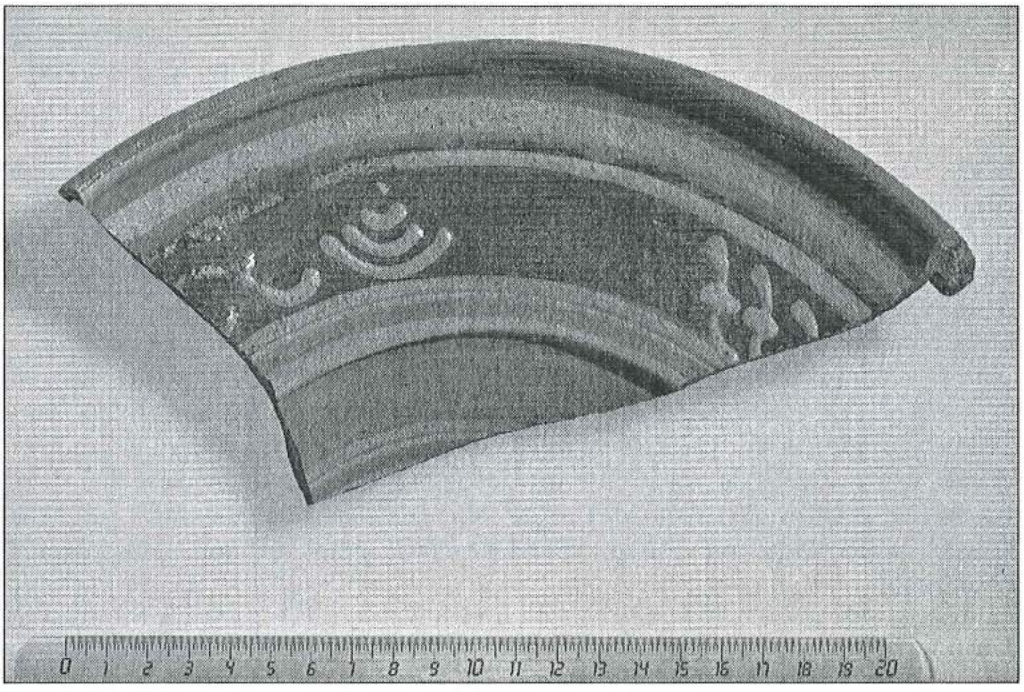


Fig. 15: Weser Ware rim fragment with geometrical decoration in darkbrown and yellow, found 1986 during an excavation in Strandgaten 55-57 (BRM 236/15723 + 236/9677 f. + 236/13528).

The main surfaces for decoration are the central and the intermediate zones. Separation of the zones by means of spiral lines is typical. Due to the fragmented condition of the finds, it is not possible to comment on the ways in which the decorations of the different zones were combined.

Weser Ware decoration: Central illustrations

The decoration is most often to be seen on the central disk (German *Spiegel*) is a stylised flower or sun, or possibly a star. Centred on a focal point, trefoils as well as wavy lines or other geometric shapes are often applied in a radial manner *(cf. fig. 13)*. The individual elements are frequently painted alternately in green and reddish brown, or orange-brown and yellow on a dark undercoat. This is typical of Weser Ware. Radial ornamentation of this kind occurs in many variations, and in both polychrome and monochrome. Such central illustrations are common to Weser Ware in all areas, both throughout the production centres and the export regions. Floral – or solar – decorations can be found on diverse decorated earthenware in Northern Germany. It is difficult to say whether this motif was widespread because Weser Ware was used as an example, or whether it was simply a popular, widespread contemporary symbol. In view of the simplicity of the decoration and the many variant forms it could take, it seems more likely to have been a popular motif.

Simple geometric central decoration such as zigzag or wavy lines, or other lines and dots, is to be found almost exclusively on Weser Ware with a light slip. The patterns alternate in reddish brown and green, with the main attractiveness of this decoration deriving from the brightness of the colours. Parallel finds have been published from the Netherlands and Great Britain, as well as from the production centre of Coppengrave (Stephan 1981a, plate 88).

Figures are only rarely to be seen on vessels of Weser Ware. A few sherds found in Bergen show stylised birds *(fig. 14)*. Again, this decoration is common to contemporary wares of various provenances. Different examples of decorated earthenware with pictures of birds have been recovered in Bergen. Weser Ware with depictions of birds has mainly been known from the Netherlands (Stephan 1987a, p. 103). With regard to the extensive distribution of this bird motif, it is reasonable to assume a contemporary symbolic value.

Weser Ware decoration: Intermediate zone

A variety of decorations are to be found on the intermediate zone of the vessels. Characteristic of Weser Ware vessels are green and red or green and yellow alternating zigzag lines. Such decoration is known from many finds in Bergen as well as from other places in Europe, and from the production centres. The idea of alternating colours has also been applied to V-shaped hooks, dots, wavy lines and straight lines.

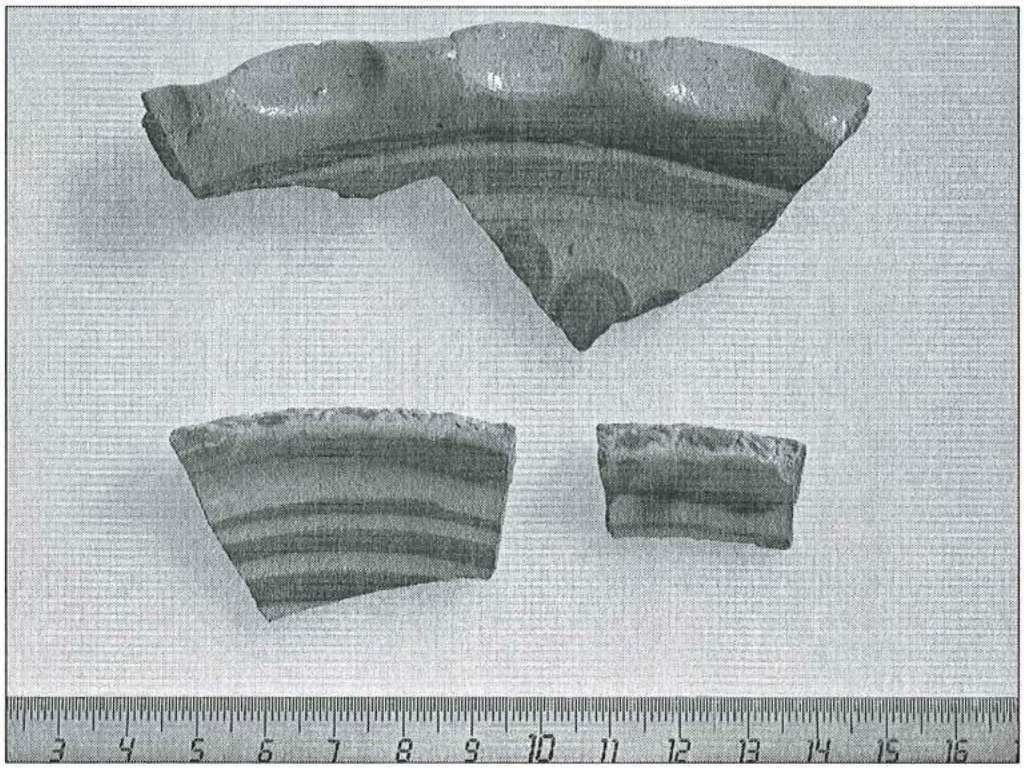


Fig. 16: Weser Ware rim fragments with rouletted and pie-crusted decoration (B 6489).

Vessels with a dark undercoat occasionally show broad black-brown bands bearing decoration in yellow shades *(fig. 15)*. The same decoration has been reported concerning finds from *Hildesheim* (Brandorf 1990, 67) and *Völksen*. It was also found in the Netherlands on a highly decorated plate, possibly originating in a yet unknown production centre in Northern Germany (Hurst *et al.* 1986, pp. 260). On several occasions, intertwining arches alternating with rows of S-shaped hooks have been observed. Disks and garland-like ornaments are also repeatedly to be seen. The diverse combinations of the above-mentioned elements are rather remarkable.

Occasionally, grid-like or triangular patterns as well as highly stylised floral decoration can be found on the vessel walls. This was typically done in polychrome, whereby different colours, mainly green and red, were used to outline and fill in the ornamentation, achieving a highly aesthetic effect. Very similar floral decoration can be found on the centres of bowls from *Höxter* and *Hildesheim*, as well as on the side of a bowl found in the Netherlands (Stephan 1987a, 102; Brandorf 1990, cat. no. 83).

Weser Ware decoration: Rims

Rims went undecorated in most cases. Exceptions to this are two rim-sherds from plates with a light slip and hammer-headed rims, found at *Nedre Korskirke-allmenningen.* They have rectangular and triangular notch-rouletting and a double row of green and red dots. Rouletted decoration and slip trailing along the rim are rare on shallow vessels, but do occur occasionally, as, for example, on a bowl with inturned rim from the Netherlands (Stephan 1987a, 104). Another rare form of rim decoration has already been described before – sherds with hammer-headed rims with applied piecrust thumbed strips *(fig. 16).*

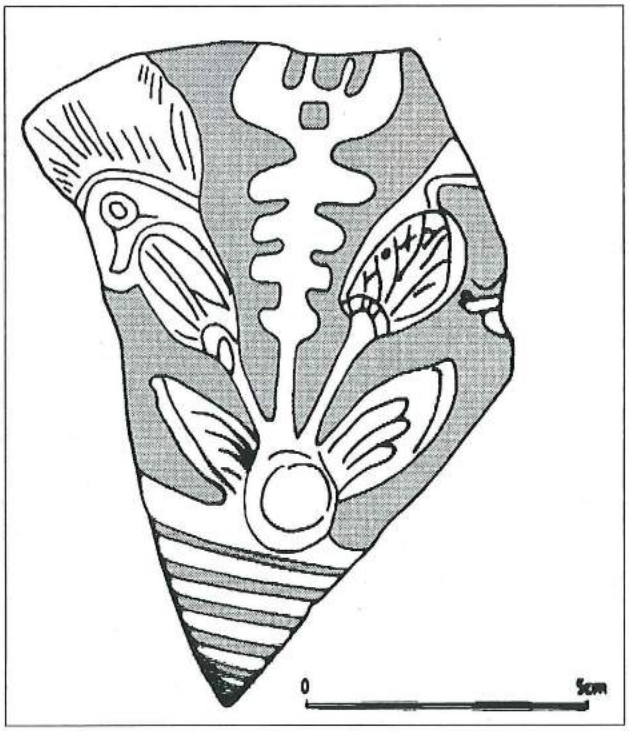


Fig. 17: Base fragment of Werra Ware with picture of flowers (BRM 0/03556+ 0/51702 + B 6792), found during the excavation at Bryggen.

Werra Ware decoration

Similarly to the discussion of Weser Ware, the decoration and motifs used on Werra Ware vessels found in Bergen will now be introduced in more detail. Due to the small number of finds, it will not be possible to present more than a small part of the diverse iconography and ornamentation of Werra Ware.

Werra Ware decoration: Central illustrations

Unfortunately, due to the great fragmentation of the material, only a few sherds can be classified. Floral illustrations seem to be commonest. It is difficult to identify the particular plants, despite their usually having been executed with a high degree of precision. The fragmentation of the material makes these attempts even more difficult. Typical pictures are usually identified as thistles or carnations. Such paintings can be found in great numbers in nearly all production centres of Werra Ware. It is impossible to provide exact parallels to the sherds from Bergen, as the illustrations are highly individualistic. Most of the sherds found in Bergen seem to show a tripartite shrub.

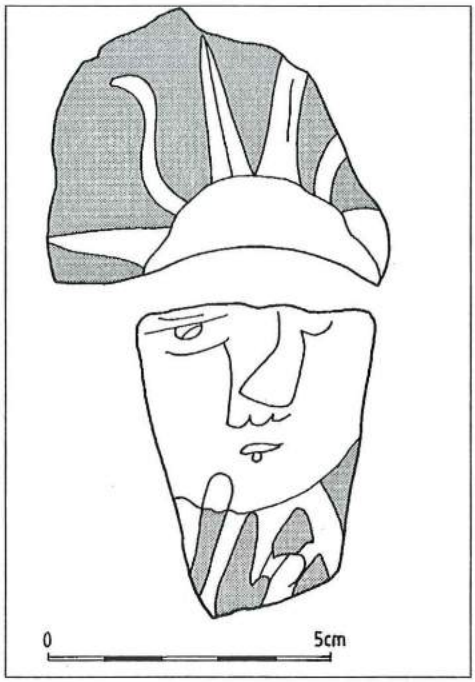


Fig. 18: Base fragments of Werra Ware with personalized image of the sun, fond during the excavations at Bryggen (BRM 0/06700 + 0/56547).

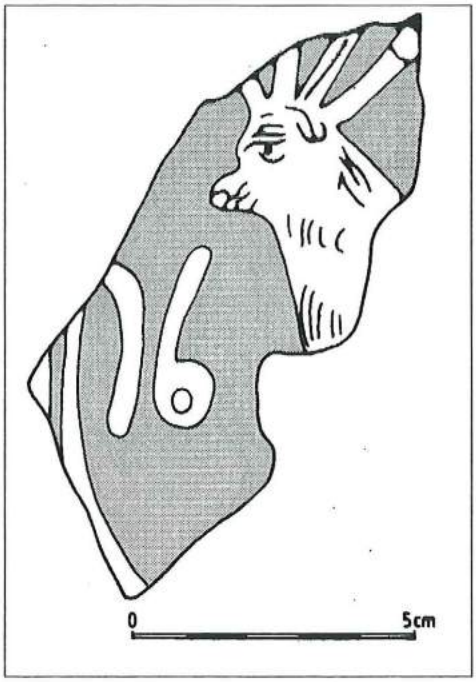


Fig. 19: Werra Ware base fragment with picture of deer, dated 16.., (BRM 245/1181) found during an excavation in Domkirkegaten 6.

The quality of the pictures ranges from rather simple exemplars to those with a rich and carefully done sgraffito decoration. One of the sherds is also exceptional because of its remarkably light and hard fabric, and the presence of a dark-green, thickly applied and glazed spot of colour. The fabric indicates that the vessel was made in *Großalmerode (fig. 17).*

Two examples show pictures of a personified sun, with the rays, contours and face done in sgraffito. The dark, almost black, glaze and the dark-green painting on one of the sherds are particularly interesting *(fig. 18).* Allegorical depictions of the sun were very common on Werra Ware, and can also be found in slightly different forms in the contemporary architecture of the Upper Weser area. Matching the motif's popularity is the diversity of its application and its distribution. A picture of the sun that closely resembled those found on Werra Ware formed part of a wall-painting in a stone building used for military purposes in *Malmö,* Scania, Sweden (Rosborn 1973, 38).

Birds were another popular motif on Werra Ware. Again, identification of the species is only rarely possible. A bowl with the picture of a long-legged, walking bird is known from Bergen *(cf. fig. 21).* Apart from the detailed application of the decoration, the date (1597) and the very dark glaze are also noteworthy. On

another sherd, from a plate, there appears to be a feathered tail. Birds as well as fishes, deer and hares are among the commonest animal-drawings on Werra Ware. Birds have also been painted on various other contemporary earthenware – for example, Weser Ware and North Holland slipware.

One instance of a picture showing a deer is known from Bergen. The dated sherd (16??) shows carefully done sgraffito decoration, and stripes of blue and green can be seen on the animal's neck *(fig. 19)*.

Even though illustrations of humans are common on and characteristic of Werra Ware, they have only rarely been recovered in Bergen. One example is the base of a plate with a picture of messengers from the Holy Land with a large bunch of grapes slung on a pole between them. This, too, is a very common motif on Werra Ware (Stephan 1987a, pp.91). The sherd dates from relatively early (1591 or 1595); it is neatly done, with sgraffito emphasising clothing details such as garters, pleated suit jackets and even puffy sleeves. The latter were very typical features of German costume in the 16th century (Hoffmann-Klerkx 1992, pp. 143) *(fig. 20)*.

Another well-preserved plate found in Bergen harbour (Ellmers 1983) shows a religious scene with a man in a long gown and a halo, holding a scroll in his right hand. It remains unclear which saint or biblical figure this is supposed to be. Ellmers suggests that the figure represents one of the prophets, because of the scroll. I am not aware of any direct parallel from other places to the example described, but, generally speaking, saints are among the more usual subjects depicted on Werra Ware.

Werra Ware decoration: Intermediate zone

Werra Ware is not only characterised by the central illustration, but also by an ornamental band, surrounded by stripes. Once again, the decoration shows great diversity. However, there are a few basic shapes that recur in a number of variations.

Among the commonest forms are groups of vertical streaks alternating with swirls, circles, little stars, or q-shaped elements *(cf. fig. 21)*. There are plenty of examples of such intermediate-zone decorations, as well as others, in the pro-

Fig. 20: Base over a Werra Ware dish with picture of the messengers from the promised land, dated 1591 or 1595, found during an excavation in Halvdan Kjerulvs gate

duction centres and the export regions. Now and then the designs described above are combined with a spiral pattern.

Garland-like designs of varying types are also common. Leaf-like designs also hold certain similarities to spirals and garlands.

One sherd found in Bergen is decorated with a St. Andrew's cross. At the corners of the diagonal bars, trefoil-like scrawls have been applied. Similar decoration, in conjunction with leaf-like designs, has been found on a bowl in *Hannoversch-Münden* (Stephan 1992, 46) as well as on ornamental bands of vessels from *Enckhuizen* (Bruijn 1992, 61). Decoration of the intermediate zone sometimes consists merely of bands or stripes, as on the plate recovered from Bergen harbour. In one case, a second, relatively broad band was slip-trailed onto the middle of the main band in the intermediate zone, and wavy lines were incised into it. The same technique is to be seen on a plate from *Hannoversch-Münden* (Stephan 1987a, 997).

The ornamental effects were sometimes heightened by the application of colourful dots or streaks. On the last-mentioned vessel, lanceolate blue-green streaks can be seen on the intermediate zone, and there are patches of the same colour on the recovered part of the central illustration. Similar decoration can be found on many sherds, with uneven speckles just as common as rectangular stripes. Several colours can be observed, though all are various shades of blue and green.

Werra Ware decoration: Rims

Another characteristic feature of Werra Ware concerns the regular decorations around the hammer-headed rim, usually consisting of vertical or slightly oblique strokes of whitish slip, which the glaze often gives a light-green tinge. These short strokes occasionally alternate with longer horizontal lines. This decoration was often applied directly onto the surface, which was first washed with a red slip; sometimes the rim was first given a dark-brown coating.

Weser and Werra Wares found in Bergen: Summary

Finally, the essential conclusions about the slipware from the Upper Weser and Werra regions will be presented in brief. Of primary interest is the comparison between the West Norwegian finds and those from find-spots in Central Europe.

Weser Ware

Comparing observations from Bergen with those from other export regions or the production centres themselves, it becomes clear that all types of this ware are well represented in Bergen. Except for depictions of people, which admittedly are very rare, almost all the common Weser Ware motifs and decorative elements are

present among the Bergen finds too. There is only a small proportion of hollow vessels in Bergen, but this holds true for all export regions compared to the production centres, though perhaps not to quite the same degree. It can reasonably be assumed that decorated tripod pipkins were rarely used in Bergen, in view of the small number of finds of this particular vessel-type. Weser Ware drinking-vessels were also extraordinarily rare in Bergen.

The occurrence of monochrome-decorated Weser Ware and of variants of the same in the earliest periods of the spread of highly decorated slipware is fairly interesting. However, further investigations in the various production centres would be necessary in order to evaluate this process in greater detail.

Generally speaking, it should be noted that Weser Ware was by far the commonest type of decorated earthenware in Bergen around 1600. It turns up on nearly every excavated site with Early Modern Age deposits, and thus must have been used in many households. Another interesting point is that it appeared rather early, from the 1580s onwards. It can be assumed that, from the second half of the 17thcentury, imports started again on a somewhat smaller scale. This must remain unproven for the time being, though, due to the lack of archaeologically investigated stratified assemblages. According to results from other places, the dominating occurrence of Weser Ware decreased from the second quarter of the 17th century onwards.

Werra Ware

Despite the fact that the sherds of Werra Ware found in Bergen number scarcely 160, many of the common decorations, both abstract and figurative, are present.

The application of decoration varies greatly, and it would appear that vessels of very different quality were imported to Bergen. All the same, there are definitely many examples of excellent craftsmanship among the finds, reinforcing the impression of Werra Ware's being a top-quality product of European pottery-making in the Early Modern Age.

Unfortunately, there is a particular dearth of basal sherds compared to rim-sherds or wall-sherds. This may explain why such a popular and widespread motif as the *Drinking Couple* is missing. The more amazing, then, to find that in and around Bergen there are locally produced, enamel-painted windowpanes showing a couple wearing rich Renaissance-period costumes, holding glasses of beer in their hands (Fossen 1979, 255). These pictures are almost identical to those known from Werra Ware plates found elsewhere.

It is obvious, however, that floral and zoomorphic motifs dominate among the decorations of Werra Ware pieces found in Bergen. The Bergen finds seem to differ in this respect to those from other places. In view of the small number of finds, however, this statement should not be given too much weight, particularly as examples of anthropomorphic motifs do occur. What can be stated with

justification is that the body of Werra Ware material in Bergen constitutes a representative cross-section of this important ware, even though the diversity of decoration is greater in areas with more numerous finds. All the same, it would be unwise to underestimate the frequency of Werra Ware in Bergen, since it is in fact widely distributed within the city and turns up relatively regularly, often in conjunction with Weser Ware. It was probably a popular, even if somewhat sophisticated product. From a chronological point of view, the finds cover almost the entire period of production, and the presence of one sherd probably dated 1586 indicates that exports started not long after the start of production. This suggests that Bergen became acquainted relatively quickly with improvements and changes taking place in the material culture of Central Europe.

5. The Historical Background

One of the attractive aspects of studying the Early Modern Age is the chance to combine archaeology and history, allowing the researcher to form more complex models of the past. The written sources enable the material to be examined in the light of the reported social and intellectual tendencies of the time. Archaeological fieldwork and research, on the other hand, illuminate aspects of everyday life that were mostly deemed not important enough to be worth writing down.

As the historical situation in Bergen is mentioned briefly in the introduction, the following chapter intends to give an overview over topics that can be related to imported slipware, such as economy, trade, eating habits and people's mentality at about 1600.

Economic History

In the following, aspects of the economic connections between Western Norway and the Weser region will be discussed. Primarily the type and the extent of trading – as far as can be reconstructed on the basis of historical records – will be examined. The aim is to draw a sketch of the fundamental structures of goods exchange between the above-mentioned regions. Furthermore, an attempt will be made to illuminate aspects of the trade in ceramics. As there are very few written sources about this topic, information from other regions and different periods will also be used, not forgetting the available archaeological evidence.

Maritime trade to and from Bergen; commerce in Bergen

Because of the rough and mountainous landscape of Western Norway, waterways remained the major routes of trade until the 19th century. One of the main reasons for the foundation of Bergen was its excellent natural harbour. Maritime trade had

been a life-necessity for Bergen and the whole of Norway since the 13th century (or even earlier), as not enough cereal (one of the main basic foodstuffs) was being produced in the country. This led to the strong influence of the Hanseatic League under the leadership of Lübeck, which regularly transported cereals from the 'granaries' of the Southern Baltic coasts to Norway and in return demanded certain privileges. However, in the course of the 16th century the strength of Lübeck's influence decreased notably (Postel 1989, pp.127).

Norway's main export was dried fish, which was in high demand across Europe. Norway was by far the greatest supplier of this foodstuff. It was salt-water fish, mostly cod, that was usually caught in late winter along the north-western and northern coasts of Norway. It was gutted right away and preserved through drying. From the north it was brought to Bergen either by the fishermen themselves or by intermediaries. Here it was exchanged for cereal products from the south.

Basically this pattern of 'fish for cereal' remained unchanged from the Middle Ages up to the Modern Age. For the present work, certain details about trade affairs around 1600 are of importance. One way of understanding trading connections is to look at the ships calling at Bergen. In the early 16th century the majority of the exported fish went to Lübeck and other seaports around the Baltic Sea from which Bergen received the cereal. Towards the end of the 16th century the picture changed. Most of the cereal deliveries still came from the Baltic region, but many ships went back without carrying any considerable exports. The export of fish was primarily done by ships coming from cities of the North Sea coast, particularly from Bremen. Around 1600 about 50% of all ships going from the North Sea region to Bergen were from Bremen (Nedkvitne 1983, 191), while in 1597 31% of all ships from the North Sea region came from Dutch cities.

In 1550 the guild of 'Bergenfarers' was founded in Bremen (Föge 1958, 68). They mainly traded wholesale with the *Stuben* of the *Kontor* in Bergen. Apart from cereal products, textiles and various *Kramgut* (miscellaneous goods) were also imported. This can be assumed when interpreting the guild's explicit ban of 1532 to import *tand* (any kind of fancy and gilded things).

There was not only organised trade with Bergen, but also independent skippers and merchants from Bremen. Again this is implied by a 1601 mandate of the council of Bremen, in which any kind of independent trade with Bergen is forbidden (Föge 1958, 24). These 'loose fellows' were the most important trading partners for the Norwegian merchants (Fossen 1979, 24). They imported not only cereal products, but also *Kramwaren.* So did numerous Dutch merchants, some of whom even had their own market stalls. Complaints made by citizens about "merchants walking about and selling day and night" show that there must have been trading in various ways done by people from different regions.

In conjunction with this it should be noted that ordinary sailors were allowed to use part of the hold space, the so-called *'Führung'*, to store goods for their own trading businesses (Brück 1993). It remains unclear to what extent they made use

of this possibility, which goods they preferred to trade, and under what conditions this trading was done. But one should assume that a certain amount of goods reached Bergen in this way. It is possible both that the goods were sold to local merchants and that trading was done directly with consumers.

Inland trade on the R. Weser

With regard to the importance of Bremen for Bergen as a trading partner and the function of the R. Weser as the most important artery route for ceramics export of the Upper Weser region, the trading affairs on the river will be examined in more detail now.

The most important source of information about the volume of traffic and freight are the recorded customs registers. According to records of custom checks at Schaumburg, shipping increased from the middle of the 16th century to 1616 by about 50% (Rothe & Rüthing 1989, 45).

The main products shipped upstream were basic foodstuffs, like fish, butter and cheese, in addition to tar and cod-liver oil. Dried fish – most of which probably came from Bergen – is one of the commonest products listed in the customs rolls of the year 1616.

The freight travelling downstream was rather more diverse. Transitional goods such as blue colour from *Thuringia* or Hessian iron from *Waldeck* were common. Cereal came from the regions of the Upper and Middle Weser; it was one of the main products on the customs registers. Crafted products made of glass, wood or ceramics came from the Upper Weser Hills.

Those people participating in shipping on the R. Weser had very different backgrounds. Besides professional skippers there were people who would occasionally travel to improve their incomes (Rüthing 1987, 79). Often the professionals were hauling agents at the same time, either specialising in certain products or carrying a wide range of products.

It is difficult, however, to differentiate between hauling agents and skippers who traded independently. Rüthing suggests that the latter may have been found amongst skippers living in the hinterland of the Weser. One example of such a merchant/skipper is *Jost Ziegenhirt* from *Höxter* on the Weser, who was studied in detail by König and Rabe (1995). He not only traded cereals and iron, but to a lesser extent also various other goods, such as pottery. His destination would have been Bremen, from where he imported the usual foodstuffs and occasionally wine. This business must have been quite lucrative, so much so that Ziegenhirt became one of the five richest citizens in Höxter. Archaeological excavations on his property showed that a vast amount of Weser and Werra Ware, which he probably traded himself, was used on his table.

Pottery trade

The customs lists mentioned previously listed numerous people whose freight partially or primarily consisted of pottery. People from Duingen who carried nothing but pottery (Rüthing 1987, 85) would probably have been potters selling their products themselves or traders specialising in pottery.

However, in 1616 most of the pottery trade on the R. Weser was in the hands of skippers from *Hameln*, who mainly carried pottery on their boats (Rothe & Rüthing 1989, 53). Because of the geographical proximity to the production centres of Weser Ware, it is very likely that a great amount of the ware was exported via *Hameln*, or via *Bodenwerder*, whose skippers also carried pottery on occasion.

It can be assumed that the trade in Werra Ware was somewhat less diverse, but primarily transported by specialised skippers, mainly from the Netherlands. This is proven by written sources from *Heiligenstadt*, dealing with the selling of the local pottery to Dutch traders on the R. Werra (Stephan 1990/91, pp. 598).

The majority of skippers and traders going down the R. Weser would have gone all the way to Bremen, as this major Hanseatic city is placed at the point where the river reaches the sea. Presumably the pottery cargo was sold at jetties along the river, which might have contributed to the decline of the pottery production at the Intermediate and Lower Weser (Lehnemann 1981). In Bremen the maritime traffic began; furthermore, the city owned the right of staple (German: '*Stapelrecht*). The exact circumstances of pottery trading in Bremen remain unclear. The pottery was probably sold at market, as is indicated by restrictions of this trading in the second half of the 17th century (Grohne 1940, 52). Additionally there might have been specialised merchants trading in pottery.

From *Bergen op Zoom* on the Dutch Rhine estuary a case is known of a *Kanneman* from the first half of the 16th century, i.e., a trader who specialised in stoneware from the Rhine area (Groeneweg and Vandenbulke 1988). From the Weser region, reports are known about a trader from the end of the 18th century who had a large storeroom for pottery at *Minden* (Lehnemann 1981, 11). In this light it seems very likely that activities of such pottery wholesalers were also common in other important (trading) cities.

Regarding pottery trade in Scandinavia, written sources are fairly rare. From *Nya Lödöse* in the west of Sweden customs rolls have been found, though, that even list the amounts of pottery imported (Strömbom 1924, 276). Between 1574 and 1576, 60 *three scores* of pots were imported, the yearly amount ranged from 16.5 *three scores* (1576) to 30 *three scores* (1575). Bowls have only been noted once: in 1575, 4 *three scores* of them were imported. In 1586, "5 boxes with bowls and plates" is entered, giving information about the way that fragile goods were transported.

There are no entries of pottery in customs registers or the like in Norway. It was probably imported under 'various things'. A note from the early 18th century

reveals that merchants from *Molde* (about 450 km north of Bergen) complained about the illegal trade of pottery by Dutch skippers directly with customers (Sanden 1988, 13). This seems to indicate that boatmen made use of their right of *'Führung'* at least occasionally to improve their incomes by selling pottery, which could be bought in the countries of origin at very reasonable prices.

The question of prices of pottery in general, and earthenware in particular, has often been raised, but due to the lack of price quotations in historical records it has never been given a satisfactory answer. The 1602 patent for Dirck Claesz Spiegel about his right to be the sole producer of Werra Ware in *Enckhuizen* speaks of Werra Ware as being used by the poorer classes (Bruijn 1992, 133). This points toward a rather low price for highly decorated earthenware. Particularly the more simply decorated Weser Ware can definitely be seen as an inexpensive consumer item (Stephan 1993, 308).

Various archaeological examinations in the Netherlands have recovered Werra Ware from complexes belonging to less wealthy social groups (Dongen *et al.* 1995, 8). Thus even this highly decorated ware would probably have been available at relatively reasonable prices. Written sources from Höxter on the Weser also indicate low prices for pottery (Rabe 1998, 151). A comparative examination of finds in rural settlements of the Early Modern Age in Sweden produced a higher percentage of decorated earthenware in places associated with socially underprivileged groups of people (Rosen 1995, p. 35). Thus decorated earthenware was probably inexpensive and had a low status in Sweden in the Early Modern Age.

History of everyday life, traditions and mentality

In order to evaluate archaeological material, it is important to look at contemporary lifestyle and attitudes; this is the only way in which the people of the time become understandable to us. Regarding objects used at table, one obviously must examine events associated with eating. For further understanding sources discussing the worldview of the people will also be consulted. However, only a broad overview can be provided. Particular attention will be given to comparison of these aspects between the Northern German inland and Western Norway.

Nutrition and eating habits

As became clear in the previous chapters, basic foodstuffs were important, maybe the most important goods traded within North-western Europe (Henn 1996, 23). Everywhere, cereals were an essential component of the diet. For North-western Germany this is shown well by documents from hospitals and garrisons. For Norway the high quantities of imported rye suggest an equivalent consumption of the same. Also in North-western Germany rye was the most important cereal; it was mainly used to make sourdough bread. In the rural areas of North-western

Scandinavia people would instead make *flatbröd*, a type of crispbread, which was unleavened and kept well for a long time (Wiegelmann 1996b). It can be assumed that in Bergen, however, bakers – who had been organised in a guild since the late 16th century – produced bread of a 'Central European style', as is shown on contemporary paintings.

Beer, another basic foodstuff, can also be counted as a cereal product. It was exported from Northern Germany to Western Norway in considerable quantities. Besides this expensive imported beer, locally or home-brewed small beer was a popular drink that was even consumed at breakfast. The considerable consumption of beer is typical of Western Norway as well as North-western Germany.

In 1600 meat was eaten regularly and in great amounts even by members of less-privileged groups such as soldiers and hospitalised people in North-western Germany (Krug-Richter 1996, pp. 185, Bäumker 1996, pp. 220). The importance of meat to the inhabitants of Bergen is not clear. A copperplate etching by Hieronymus Scholeus in the late 16th century shows several grazing animals, probably sheep, on the roofs of houses on the town's outskirts. Thus even for the poorer population of Bergen there seems to have been a certain availability of meat. The results of osteozoological examinations of early-15th century bones from the Hanse *Kontor* showed that dogs were also used as food (Hufthammer 1992, pp. 234). The results probably indicate that meat was in short supply in Bergen in the Late Middle Ages. To what extent this was still the case 200 years later is not certain.

Of course, fish was eaten frequently in Bergen. Two pictures from the 17th century show pictures of tables on which not only bread but also fish are the predominant foodstuffs: on one of the paintings herring is to be seen, the other one shows mackerel (Fossen 1979, pp. 297, 308). In the Northern German inland, fish was less available, yet it was eaten quite regularly, mainly imported dried fish or salted herring (Heinrich 1995, 387). Freshwater fish was rather expensive and thus mainly eaten by the upper classes (Bäumker 1987, 94).

Written records and contemporary paintings have handed down some information about eating habits. Both types of source usually originated in the upper classes and there is some doubt about the validity of these records for the lower classes. But it can generally be noted that underprivileged groups tended to copy the manners of the upper classes (Mohrmann 1996, 167). In conjunction with this, Mohrmann points out that crockery made of wood, pottery or glass was common throughout all classes, they "were not objects of social distinction". The dishes were served in bowls and on large plates from which everybody ate. Plates were rarely used for serving food to the individual; normally platters were used (Dongen & Ruempol 1991) or slices of bread (Mohrmann 1996, 170). On the already mentioned paintings of the 17th century from Bergen, on each of which one person is shown whilst eating, similar scenes can be seen. They portray fish being served on plates, a loaf of bread lying on the table and a slice of bread filled with pieces of fish on a small

platter. On one of the paintings a deep plate made of pottery or pewter is added, and in it an unknown fluid and a spoon made of pewter can be seen.

Even though everyday food was rather frugal for the majority of people around 1600, great emphasis was put on plenty of food and drink for celebrations (Angermann 1995, 302). Typical for this was the serving of otherwise rare food and strong drink. The richness of the food and drink was also important (Wiegelmann 1996a, 7). The authorities were not particularly pleased with these occasionally very excessive 'banquets', and they even tried to ban them, but with little or no success. Particularly the consumption and abuse of alcohol must have been very widespread in Norway, whose head of state, King Christian IV – as well as many people of high rank – was an alcoholic (Fladby 1977, 109). Contrary to the present, the use of alcohol in the Early Modern Age was not very different in Western Norway than in Lower Germany.

Mentalities and worldview

Despite the complexity of the topic, which makes a detailed presentation in the context of this work impossible, some aspects of the mentality of people in the late 16th/early 17th century will now be examined briefly. This will be achieved mainly by analysing official documents that were produced as reactions to certain kinds of behaviour, allowing some insight into the psyche of the people concerned. Therefore, the emphasis will be put on the interplay between authoritarian endeavours and common conduct.

A characteric of the time after the Reformation seems to have been that sexual morals became increasingly oppressive. This is shown by the growing pursuit of prostitution and any other kind of extramarital sexuality (Fossen 1979, pp. 122, pp. 335). It should be doubted that all occurrences described as 'whoring' in the official files were what today would be called professional prostitution. It is clear, however, that sanctions against extramarital relationships were strongly intensified around 1600. This tendency was to be observed in Bergen just as well as in Höxter, for example (Rabe 1998, pp. 262). Contrary to this, the majority of people had a rather sensual, pleasure- and body-orientated attitude to life, and neither in Norway nor in Germany they were willing to obey bans on private forms of enjoyment. This is proven by countless verdicts and charges. In the years 1607–1608 about 40% of all verdicts in Bergen were concerned with offences against 'morality' legislation (Fossen 1979, 337).

Contemporary thinking was also strongly coloured by ideas about magic or superstition. Examination of files of Norwegian witch trials indicate that traditional 'white magic' practices were relatively common, as the accused admitted to them freely (Naess 1983, 169). 23 such cases are known from Bergen in the 16th and 17th centuries, and traditional healers seem to have been the preferred targets (Fossen 1979, 339). It is certain that in Lower Germany too, traditional, presum-

ably widely practised magical rites were recorded as charges in witch trials many times (Decker 1983, 206).

6. Weser and Werra Wares as culture-historical sources: Interpretation of finds and results

Following the presentation of the archaeological material and relevant information about its context in the previous chapters, the meaning of these observations for culture-historical questions will now be discussed within a broader perspective. In conjunction with this, one cannot expect 'truths' that can be proven beyond doubt, but an attempt will be made to create a basis for interpretation.

In general, one can differentiate between several possibilities of interpreting the archaeological material. On the one hand, finds can provide information about processes that are barely touched on in the written records (e.g., the trading of *kramwaren*). In this way, existing written sources can be seen in a new light; archaeological finds and results can complement a picture made only with the aid of written sources. On the other hand, the material can be used to make the past more tangible, and with the aid of other objects of material culture an outline can be drawn of the people who used them and of their lives. Finally, evaluation of the various types of decoration found on highly decorated earthenware will lead to a discussion of the significance attached to the designs by the potters and the users.

For this work the most interesting aspect is the relation between consumers in Norway and German producers. Can the pottery finds indicate similarities and differences in various cultural aspects of these regions, and can it throw light upon the question about how the regions were connected?

Pottery as trade goods

Looking upon medieval and early modern pottery as an indicator of trade connections has long traditions within archaeological research (Dunning 1968; Davey & Hodges 1983). Verhaege (1992) thoroughly and critically discusses the possibilities and risks that should be considered when interpreting archaeological material in trade-historical perspectives. He has formulated five questions to be considered:

(1) What information do the finds give about trade – or other connections? If trade: were the wares primary trading goods or rather additional freight in the trade with other goods?
(2) Do the finds indicate the relative importance of pottery and/or other trade?
(3) Do the finds indicate tendencies of development within trade?
(4) Do the finds and their distribution give any clues about the type of trade and/or other contacts?
(5) Do the finds give any indication about routes of trade and/or other contacts?

As for this work there is sufficient written information at least about some aspects of trade history available, certain questions could best be answered by written records (e.g., regarding the goods primarily traded in the foreign trade of Bergen). Particularly concerning the finds of Weser and Werra Wares, the following questions should be considered:

- Were the finds particularly imported as trading goods or did they reach the country as parts of households or as souvenirs?
- What might have been the trade mechanism? Who participated in it?
- Along which trade routes did the pottery come from the Weser region to Bergen?

In answering these questions, the finds and results of the *Strandgaten 55-57* excavation play a major role. With regard to the great quantitative (over 20,000 sherds) and qualitative importance of pottery (99% of all finds) at this particular site, the question arises why there was such an accumulation of pottery. Both written records (Fossen 1979, 38, Ersland 1990) and the excavation results (Dunlop 1993, 40) suggest that a warehouse had been built on the property, used for both storage and selling. Thus pottery would have been the main product to be sold, though other products made of organic material that have not been preserved could also have been involved. The mentioning of numerous Krambuden in this part of the city corresponds with the conclusion that pottery have been sold there. Also the wide range of pottery products and their functions supports the idea of a specialised trading house. Apart from the ordinary kitchen and tableware, figurines, technical ceramics and melting pots were also found. Furthermore, building material such as pan-tiles and stove-tiles was recovered. The range of finds can hardly be explained by an ordinary household or a workshop, which would not be expected in this place anyway, as written records confirm. Thus, one can conclude with some certainty that the remains at *Strandgaten 55-57* derived from the warehouse of a pottery trader.

The relatively heterogeneous origin of the wares may indicate that the trader bought his goods off ships coming from different harbours. Against this background of occasionally reported journeys where the ships were loaded with ballast-stones from the southern North Sea regions to Bergen, it seems likely that goods such as pottery were loaded if the primarily demanded cereal products were not available at reasonable prices. It should be noted that the layers pre-dating the building's construction contained non-local stones that may have been used as ships' ballast.

As mentioned earlier, some pottery may also have been imported by sailors. To what extent these sailors sold their goods to traders or tried to sell them directly to consumers cannot be determined. But complaints made against local *kram*-traders show that the latter was attempted at least occasionally (Sanden 1988, 13; Fossen 1979, 25).

Regarding the range of goods, Weser Ware dominated amongst the highly decorated earthenwares. It was probably a highly demanded commodity. Dutch

majolica as well as North Holland slipware and slipware of unknown North-western European origin were much rarer. Werra Ware was only found in small amounts, as were sgraffito ware from Beauvais, Mediterranean faience and green-glazed bowls from the Lower Rhine or from the Maas area.

The appearance of these different types of ware points towards a trade with more unusual, because rarer, wares. Considering that Werra Ware has been found regularly at excavation sites in Bergen, one can assume that it was imported commercially. Furthermore, it has to be taken into account that Weser and Werra Wares may have been household items belonging to German or Dutch immigrants.

It is not certain whether the rare earthenware types were imported directly from their production centres. Even though this is not impossible, it seems more likely – particularly in the case of French and Mediterranean wares – that they came via the Netherlands, as did the majority of stoneware and a large proportion of redware cooking vessels. With regard to intensive shipping between Bergen and Bremen, it can quite surely be assumed that Weser Ware was transported on ships from Bremen. Werra Ware might have come the same way, but with regard to the extensive spreading of Werra Ware in the Netherlands and, as has already been mentioned, the activities of Dutch merchants in the pottery trade of *Heiligenstadt*, the import of Werra Ware from the Netherlands could also be possible. At the present state of research it is not entirely clear to what extent pieces of the simpler crockery from various regions of North-western Germany came via Bremen.

The *Krambude* found at *Strandgaten* would not have been the only one of its kind; probably there were numerous similar stalls. It is possible that the very extensive finds of Weser and Werra Wares recovered at *Nedre Korskirkeallmenningen* were remains of an assortment of goods of a craftsman, who not only sold his own products in his stall, but also various other things, such as pottery. Written sources prove that craftsmen sometimes did indeed trade in a range of goods (Fossen 1979, 68). The idea that the pieces of Werra Ware that were secondarily sintered together are the remains of a stack of dishes once meant for sale is fascinating yet, sadly, not provable.

The high proportion of Weser Ware among the decorated earthenwares found in Bergen, together with the regularity of its incidence throughout the city, shows the great prevalence of this ware in Bergen around 1600. This is also indicated by finds of Weser Ware in Northern Norway. As there were close economic connections between Northern Norway and Bergen, it can be assumed that the ware came via the latter. The vessels were possibly 'souvenirs' bought by fishermen or hauling agents from the North who could spare some money after they had sold their dried fish and bought the essential cereal products.

Perhaps this finding can also serve as an indication of relatively low prices of the wares in Bergen, as fishermen were hardly amongst the richest groups of the population. Furthermore, it is possible that fishermen got decorated earthenware from their creditors on Bryggen as small 'donations'. Additionally, merchants from

Bergen travelling north to trade fish for cereal and other goods may also have carried some pottery with them. The same could be true for Dutch merchants who went to the North illegally from time to time. But presumably the greatest part of ceramics from the 17th century was purchased directly in Bergen.

Probably most of the Weser Ware found on Bryggen was no trade commodity, but used by the men living there themselves. A property-mark found on one of the plates could lead to the conclusion that it was a fairly valued item. It remains unclear whether this plate belonged to a specific person, who perhaps brought it with him from home, or was part of the inventory of the property. Since other items that were more likely to be part of the inventory rather than somebody's private property were also tagged the same way, the latter seems more likely (Koren-Wiberg 1935, pp. 16).

The route of Weser Ware to Bergen may thus be modelled as follows: first of all the pots were shipped down the R. Weser to Bremen. This was done either by specialised pottery-traders – for example, from *Hameln* – who bought the products right from the potters, or by skippers with a range of goods, like Jost Ziegenhirt from *Höxter.* As there is little information available about the conditions in Bremen, only speculations can be made about this stage of the trade: it may be that specialised traders bought the pottery, as is known from the Dutch city of *Bergen-op-Zoom* (Groeneweg & Vandebulcke 1988). Pots would probably also have been offered for sale at the market, to be bought there by skippers, merchants or sailors who were looking for goods to take on their journey to Bergen. Finally, it is also possible that a trader or a hauling agent from the Upper Weser region had arrangements with a skipper or a merchant from Bremen.

The next stage was in Bergen, where the pottery was unloaded at the gangway of a pottery-trading merchant – again possibly arrangements that had been made beforehand about the business. Smaller amounts of Weser Ware may also have been sold by sailors at the market in Bergen. Amongst the buyers of Weser Ware were not only inhabitants of Bergen, from all social classes, but also fishermen from the North who wanted to buy some pretty, colourful vessels for their families after they had finished their trading.

Finally the following brief answers to the initial questions will be proposed:

To (1): The finds of wares only partially reflect the picture drawn by contemporary sources about trade connections. It should be noted that the important connections to cities in the Baltic region, which supplied Bergen with most of the cereal, are not represented by the pottery trade.

To (2): The finds suggest that pottery was a popular commodity amongst the *'Kramwaren'* and was traded in considerable amounts. Its total amount, however, was much smaller than the amount of basic foodstuffs, which were by far the most important trading goods, as written records show.

To (3): Regarding the relatively short period of time – about 50 years – in which the majority of the finds would have reached Bergen, it is difficult to define any

long-term tendencies. The dominant position of Weser Ware within this period may partly be explained by the strong commercial influence of Bremen.

To (4): The archaeological finds and results indicate that the trading of pottery was done by specialised merchants/traders. The occurrence of Weser Ware in Northern Norway suggests that it was possible to buy inexpensive wares in Bergen. Differentiation between those vessels imported as trading commodities and those brought to Bergen by immigrants as part of their household can be made very occasionally according to the finds' circumstances.

To (5): The finds verify the known trading connections between Bergen and Bremen and the Netherlands.

Finally, it should be emphasised that the study of Weser and Werra Wares can produce valuable information about trading in the Early Modern Age. The pattern of the finds and results gives hints about the type and extent of import. Examination of written records allowed the circumstances associated with pottery trade to be illuminated.

Decorated earthenware as an expression of habits and customs

Weser and Werra Wares also reflect the table manners of their former owners, as special tableware requires certain conventions for eating. Furthermore, the striking decor of the tableware expresses affection for adornment.

As already mentioned, Weser and Werra Wares were mainly represented by shallow vessels such as plates, bowls and dishes, and to a lesser extent by tripod pipkins and pots. Drinking- and serving-vessels, such as jugs of various kinds, will not be considered, firstly because they were rather uncommon and their function is fairly evident, and secondly because they can reasonably be seen as imitations of stoneware. Hence, primarily the functional aspects of shallow vessels will be examined.

Bowls and plates made of pottery appeared in North-western Germany in significant numbers from the mid-16th century onwards (Stephan 1996,102). In the Netherlands decorated plates were used somewhat earlier, from about the 15th century (Hurst 1986, pp. 146). In the rest of North-western Europe the utilisation of decorated tableware did not arise until the last quarter of the 16th century. Thus, Weser and Werra Wares mark the beginning of a certain kind of table culture throughout North-western Europe. Of course, it should be assumed that wooden dishes were used in Central and Northern Europe, which have not been preserved quite as well, because they deteriorate easily and may also have been used as fuel.

Therefore, I regard the emergence of shallow vessels made of pottery as an indication of changing table manners. These had probably been spread amongst the upper classes since the 15th or early 16thcenturies; where mostly metal crockery would have been used (Mohrmann 1996, pp. 167). The extensive distribution of decorated earthenware implies that these habits had spread amongst

large parts of the population by the end of the 16th century. Bowls and plates would not have served as individual crockery, but would have been used as serving dishes from which all the people around the table would have eaten. Plates were probably used for serving meat and fish, and bowls contained porridge or (vegetable) mash. The greater amount of plates compared to bowls found in Bergen may suggest that meat and fish were preferred for festive meals. Yet this does not take into consideration that other vessels made of different materials might have been used simultaneously.

According to Gaimster (1986, 31), the rise of shallow vessels should not just be seen as an expression of more cultivated table manners, but also as a result of a greater availability of different foodstuffs and a greater diversity of dishes. This important change in everyday and culinary culture seems to have happened in North-western Germany and in Bergen at about the same time.

Tripod pipkins were mainly vessels used for the preparation of dishes above an open fire. The Weser Ware tripod pipkins also seem to have been used as serving dishes, as is suggested by their decoration and their relatively small size (König and Stephan 1987, 375). In conjunction with this, it should be noted that a type of pot-roast meat was a popular dish for celebrations in Northern Germany and Westphalia in the Late Middle Ages and the Early Modern Age (Wiegelmann 1996, pp. 4, 10). It was called '*Pottharst*' in Westphalia and '*Grapenbraten*' in Northern Germany. These decorated tripod pipkins of the Early Modern Age may have been produced especially for these festive dishes, which were cooked and served in their special vessels. The relatively small size of the vessels could be due to the fact that special portions were cooked and served in them.

The Hanseatic merchants in Bergen probably also liked to have their traditional dishes served during celebrations, whereas the dish was largely uncommon amongst the rest of the population. One should be careful to draw the interpretations too far. It is, however, tempting to assume the presence of North-western German immigrants when larger amounts of decorated tripod pipkins are found in a complex in Bergen. There is also the possibility that the dishes may have been popular among other citizens, and could also have been used for other purposes. Nevertheless, it is likely that the highly decorated tripod pipkins, as opposed to the undecorated, were destined for the festive table.

Generally speaking, the use of highly decorated earthenware can be seen as an expression of a lifestyle focused on sensual pleasures. Not only the pleasure of eating and drinking was important, but the dinner table had to have an aesthetic value too. (*"Das Auge ißt mit"*). The occurrence of decorated earthenware in Bergen shows that this attitude held true there, just as much as on the Continent.

Weser Ware can be seen as an expression of the enjoyment of life of underprivileged parts of the population. The great amount of finds throughout the city of Bergen, combined with written sources from the Netherlands describing utilisation of decorated earthenware by poorer social classes, support this

conclusion. The upper classes presumably had other ways to distinguish themselves from the lower classes and to proclaim their wealth; for example, by objects made of metal. However, decorated earthenware was probably present in wealthier households too, even in considerable numbers. It was likely used for decorative reasons, though, rather than as a sign of status. Unfortunately, early modern finds-complexes clearly showing the social status of the former inhabitants have so far not been identified in Bergen.

The decoration of Weser and Werra Wares: Thoughts about ornamentation and symbols

The material under discussion has not only a purely decorative meaning, but also a symbolic one. As only a fraction of the population was literate around 1600, communication via pictures and symbols would have been quite significant. In this sense the depictions on Werra Ware have been called "painted words" by Bruijn (1992, 86).

Other researchers believe the illiteracy level to have been much smaller in the Netherlands, but without questioning the symbol-like meanings of the decorations (Dongen *et al.* 1995, 5). In Bergen, however, only about 10% of the young people in the 17th century would have had a chance to learn to read (Fossen 1979, 317). In the villages and towns in which Weser and Werra Wares were produced, the level of illiteracy would have been equally high. Verbal and pictorial traditions seem to have outweighed written records in Höxter (Rabe 1998, 263). Thus, it should be presumed that for many producers and consumers, reading and writing were not the main means of communication.

It seems likely that the illustrations had more meaning than just the obvious one. The specific symbolic meaning would have been known to the observer through traditions. It should be noted that the individual pictures might have had different levels of interpretation to contemporary viewers. It is not possible, therefore, to give a definitive explanation of the depicted subjects. Instead, feasible approaches will be presented and discussed.

Even though it is difficult to determine the original meaning of the figurative designs, it is even harder when it comes to the geometric and very stylised ornamentions of Weser Ware. It is also questionable whether such decorations have any deeper meaning at all. The question about possible symbolic aspects should therefore be approached as the working hypothesis: firstly, this is the only way of enlightening the problem; and secondly, some evidence does suggest such symbolic connotations, such as the contemporary belief in and practice of traditional magic and the semiotic perspectives on the symbolic meaning of abstract ornaments (Frutiger 1978, 287). The context and significance of the supposed symbols often remain unclear and should be subjected to a critical examination.

My aim is to gain an insight into people's imaginations in the late 16th/early 17th century through the analysis of the decorations. As the variety of depictions on Werra Ware is only partially present amongst the finds in Bergen, due to the small number of finds, only those subjects found in Bergen will be considered.

Figures of saints, like the one recovered from the harbour in Bergen (Ellmers 1983), can be interpreted as personifications of Christian values and the Biblical message, or as an expression of continuous veneration in the predominantly Protestant production and sales areas of Werra Ware. Obviously, the desire to being shown one's faith through certain figures seems to have existed even in the Protestantism, actually opposing imagery. The already mentioned statue of Mary found at *Strandgaten (cf. fig. 9)* could be interpreted thus.

The popular depiction of Joshua and Kaleb, the messengers bearing a huge bunch of grape, may have been immideately associated by the contemporaries with a Biblical story. Furthermore, grapes were a common symbol of fertility in the Early Modern Age (Bedaux 1987). This meaning, probably including wealth and health would have been seen as a desirable condition. The idea of the Promised Land would also have been very popular and may have occasionally merged with ideas about the "land of milk and honey".

Even though the otherwise widespread image of a couple with a drinking glass has not been found on Werra Ware in Bergen, most of the population was probably familiar with that particular image, since a painted glass window-panel with the same depiction has been found in Bergen, and may even have been produced there (Fossen 1979, 255). Such pictures of young couples on decorated vessels have been seen in connection with engagement or wedding celebrations (Dongen *et al.* 1995, 9, Hoffman-Klerkx 1992, 162). Enamel-painted sheets of glass are also known to have been used as gifts for important celebrations. They are represented on Werra Ware, too. The dates painted on many of the vessels may be explained in such a context. In *Zwolle* a plate of Werra Ware with the depiction of two lovers and the date 1617 was found on a property whose owner got married in 1617, as reported by written sources (Dongen *et al.* 1995, 19). The same motif has also been found on a very highly decorated earthenware dish of the early 18th century from the Lower Rhine region. The researcher, being familiar with traditional wedding rituals, identified the picture as clearly being a wedding scene; this time the exact date had been written onto the vessel (Bartels 1986, 45). The custom of collecting wedding gifts in a bowl during the celebration also connects the pottery with weddings (Hoffman-Klerkx 1992, 160). Against this background it seems plausible to interpret vessels of Werra Ware and other decorated earthenware as gifts at weddings or similar celebrations.

The classification and interpretation of the meaning of the various pictures of flowers on Werra Ware presents difficulties. Many of them might depict thistles, which Bruijn interprets as a reference to a chapter in the Bible where God condemns humanity to till ground over with thorny weeds (Bruijn 1992, 90). In

folklore the thistle is rather seen as a protective, evil-warding plant (Bächthold-Stäubli 1987, vol. 2, 301). In folksongs of the 16th century the thistle also appears as an erotically laden, perhaps phallic symbol (Böhme & Erk 1972). Following a different approach, the depicted plants could be seen as carnations, symbolic of marital fidelity (Dongen *et al.* 1995, 17).

As for the interpretation of the widespread solar-illustrations, there are many different suggestions. Whereas Bruijn favours a Christian interpretation with reference to the story of Creation, Garthoff-Zwaan reads it as a defence symbol as well as a symbol of regeneration (Bruijn 1992, 98, Garthoff-Zwaan & Ruempol 1988, pp. 33, 38). Garthoff-Zwaan has presented an inspiring approach and suggested some interesting aspects in her work "*Communicerende vaten*", although unfortunately some of her statements are rather questionable.

Obviously, the sun was a popular motif in the Early Modern Age. It is understandable that this source of light and warmth was of great importance in the minds of people in Northern and Central Europe. In my opinion, the popularity of the sun motif may be explained as a general symbol of well-being and protection. This interpretation is strongly supported by ethnographical sources from rural areas in Northern Germany from the first part of the 20th century (Weigel 1941,17).

It has already been mentioned that birds were commonly illustrated on decorated earthenware, and such pieces have also been found in Bergen. Along with plants, pictures of birds are among the commonest figurative motifs here. While Bruijn and Garthoff-Zwaan see birds as general references to Biblical stories or as protection-symbols, I favour a different interpretation. Even though birds have occasionally been found on paintings in conjunction with Christian themes, within traditional thoughts "a non-Christian level of meaning of birds should be assumed." (Roth-Bojadzhiev 1985, IX). Birds were often associated with love in the Middle Ages; and in an illustration of the Stages of Life from the first half of the 16th century, the female row is entirely represented by birds (*fig. 21*).

In his analysis of the painted art of the early 17th century, de Jongh concludes that many, at first sight purely realistic pictures of birds also have an erotic double meaning (de Jongh 1968/69). This theory can be supported by numerous observations. For example, *'Vogelfangen'* (bird catching), or in the short version *'vogelen'* in the Dutch language, was the commonest metaphor for sexual intercourse. The ambiguity of bird pictures is clearly expressed on a contemporary German print showing a hunter, who holds a fox and several birds, and a woman (de Jongh 1968/69). In the text below the hunter says: *"Ich hab ein Fuchs und Vögl beij mir, So ihr wollt, könnd ihrs haben hier."* ("I have a fox and some birds here, if you want you can have it here."), and the woman answers: *"Beij mir Seijdt ihr gar woll empfangn, Nach Vöglen hab ich stets verlangn."* ("You're most welcome by me, I always feel like (having) birds."). The witty-erotic content of these phrases will not remain hidden even to today's readers, because *'vögeln'* is still a common metaphor for intercourse also in modern German slang.

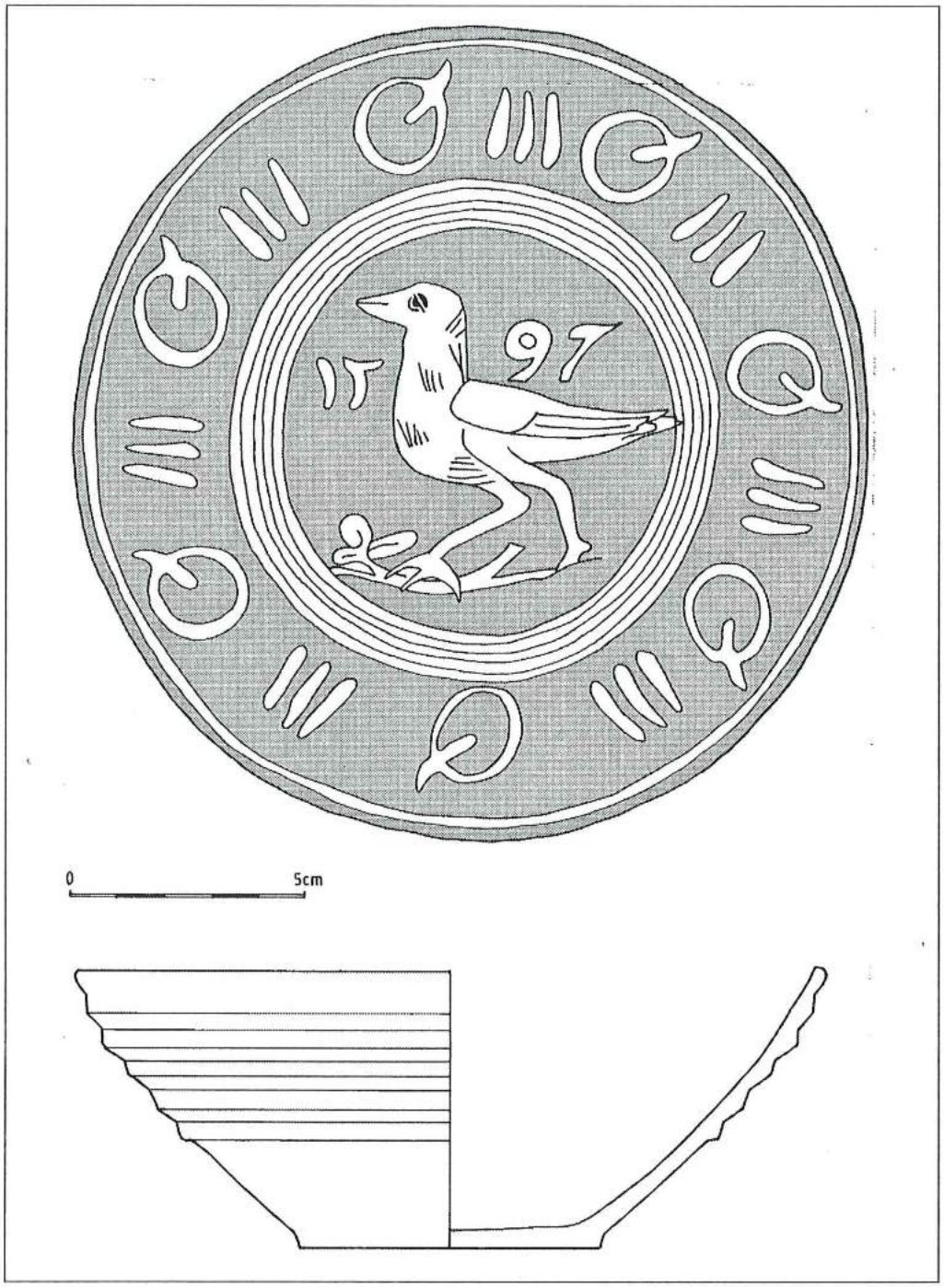


Fig. 21: Werra Ware bowl with a bird picture, dated 1597, found in 1915 during earthworks in the area of Vågsbunnen (B 6792).

Furthermore, the male sex organ was sometimes called a 'bird', and women of loose morals 'hens'. The rooster (cock) was commonly seen as a symbol of promiscuity, while a lecher was called '*hennetaster*'. In a letter from 1635, it is mentioned that birds sent as gifts may awaken memories of the joys of love. In Bergen the expression 'loose bird' seems to have referred to a prostitute (Fossen 1979, 122).

In conjunction with the pronounced sexual drive – despite the prevalent, rigid moral ideas – the bird therefore seems to have been used as an erotical metaphor in many ways. Against this background, vessels with bird decorations may be seen as objects with clearly ambiguous meanings. As such they were not unsuitable for slightly suggestive presents, when given at engagements or weddings, perhaps symbolising wishes for a happy sex life for the couple.

In conclusion, it should be noted that various meanings could often be read into the different pictures. Possibly one of the main attractions of using such symbol-laden gifts was precisely their ambiguity. As has already been mentioned, pictures and symbols would have been the most important means of communication, apart from speech, for most of the population. Therefore, often-recurring geometric motifs are also likely to have conveyed symbolic meanings. Decorations consisting of simple geometric shapes, such as dots and lines without any particular pattern, will, however, most likely have been a purely decorative in nature. The line between symbolic and merely decorative painting is difficult to draw. Unfortunalety, little has been published on geometric decorations in a communicative perspective. Garthoff-Zwaan emphasises in her publication *Communicerende vaten* the importance of signs and symbols in folklore in order to influence invisible fources. This was widespread practice in the Late Middle Ages and Early Modern Age, and she interprets abstract decorations on Dutch earthenware in this perspective.

The motifs presented by Garthoff-Zwaan are generally described as symbols of either fertility, regeneration or defence. I find it difficult to support this interpretation. Regarding people's religious beliefs at the time, it can be supposed that there was a mixture of Christian and traditional ideas. The simpler geometric patterns on decorated earthenware have probably been used primarily for decorative reasons.

I therefore want to present my own thoughts about the decoration of Weser Ware, especially the carefully painted central motifs. As noted earlier, they often comprise radially arranged scrawls. Such scrawls are simple patterns, and as such common. They can be found in runic alphabets as well as in medieval property-marks, the latter perhaps copied from the former (Koren-Wiberg 1935, 12). To what extent the decorative element in question might have had a similar origin cannot be determined as yet. The simple geometric shapes may have appeared independently at different time and in different contexts. On the other hand, continuity over several centuries is not inconceivable. The central illustration identified as a stylised flower or sun appears on numerous occasions (cf. König

Fig. 22: Weser Ware bowl with stylized sun painted on the base (BRM 0/56707 + BRM 245/1065 + 236/16809 f + 236/13621 + 236/12216).

1991, 165). That it should represent the sun seems not only plausible in my opinion, but is also supported by the fact that the sun both occurred regularly as a motif on Werra and other decorated earthenware, and is often to be found depicted in stylised form in the architecture of the Upper Weser region *(fig. 22)*.

Hence, it is only to be expected that pictures of stylised suns appear on decorated earthenware. The decoration of a plate of Weser Ware recovered from the sewer of the monestary Brenkhausen e.g. shows a *triskel* as ornament (Mersch & Thier 1995, p. 322). Such symbols are known all across Europe from the Neolithic Age onwards, and are identified as symbols of the sun (Harbinson 1989, pp. 65, 78, Hultkrantz 1994). It is, however, questionable to derive continuity of ideologies or other traditions from this. One may rather regard this symbol as a sort of archetypal sign (Biedermann & Schwarz-Winkelhofer 1994, pp. 10-17). The same might also hold true for spiral figures, considereing that an eye blinded by sunlight might sometimes perceive the sun as a spiral-like or whirling phenomenon.

Some of the radial figures may also be understood as stylised flowers, particularly those designs that are arranged symmetrically and cruciform. An ornament found on Dutch slipware, and strongly resembling the decor seen on one Weser Ware plate from Strandgaten *(cf. fig. 13)*, has been identified as a stylised flower by Garthoff-Zwaan.

Still, it is difficult to interpret the meanings of these symbols. The Sun may be seen as a force giving happiness and pleasure, as well as protection. The use of sunsymbols on the facades of houses may indicate some such function, as people would have tried everything to keep misfortune away from homes. A similar interpretation is supported by Weigel (1941, pp. 17).

Flowers, too, are likely to have been a source of joy to the people of the Early Modern Age.To what extent flowers were additionally associated with certain magical ideas is not easy to determine. However, considereing the '*Zeitgeist*' it is a reasonable possibility that such ideas did exist.

Lastly, it should be noted that the people of the Early Modern Age and their attitudes to life are revealed to us through the figurative world and ornamentation of Weser and Werra Wares. Even though it is difficult for us to grasp former worldviews entirely, interdisciplinary approaches based on written, figurative and archaeological sources can help towards an improved understanding.

Decorated earthenware can be seen as an embodiment of attitudes to life, and strongly focused on its joys. Although Christian teachings and morals provided the theoretical basis, such aspects of life were not particularly appreciated by strict moralists. To most people physical well-being was probably more important, and expressed in part through a rich figurative imagery.

Many of the carefully done abstract decorations can also be seen as stylised forms of natural objects such as flowers and the Sun. These symbols were probably understood in Bergen in the same way as they were in the production centres.

7. Conclusions

In this paper, I have examined in detail the occurrence of highly decorated earthenware of the Early Modern Age in Bergen from production centres in Southern Lower Saxony and Northern Hessen. In addition to presenting the finds, other relevant sources have been consulted in order to understand them in a broader culture-historical context. My aim has been to compare aspects of life in the production centres and export areas. In this way the finds have been able to throw light on the complexity of relations between these regions.

The analysis of Weser Ware has shown that it was widely distributed in Bergen in the decades around 1600. Weser Ware appears in considerable amounts in the town not later than the 1580s, and seems to be the most prevalent highly decorated earthenware of the Early Modern Age in Bergen. The wide distribution of the ware suggests that it was also available to poorer people. In the earliest phase of importation, it seems that the majority of vessels had only monochrome decoration. From the last decade of the 16th century onwards, vessels with a light undercoat and polychrome decoration began to dominate. Hollow vessels such as tripod pipkins and pots were much scarcer than shallow vessels. Jugs were only seldom found. The proportion of tripod pipkins and pots varies from area to area. Whereas at Bryggen about 10% of all sherds belong to hollow vessels, this proportion is much lower at the other excavation sites. Whether this can be explained by differing eating habits and table manners, possibly induced by the users, can only serve as a hypothesis.

Compared to Weser Ware, Werra Ware occurs to a much lesser extent. It is, however, regularly found in association with Weser Ware. In comparison with other contemporary, highly decorated earthenware types, Werra Ware is relatively common. Due to the rather small absolute amount, it may have been rather exclusive. Still, it appears more frequently than French or Mediterranean pottery of high quality. All sherds of Werra Ware in Bergen stem from shallow vessels; amongst the decorations, simpler floral illustrations dominate, though carefully painted pictures of humans or animals also occur. The appearance of Werra Ware in Bergen by as early as the 1580s, and definitely by the 1590s, is remarkable. As would be expected, Werra – as well as Weser Ware – appears only in redeposited contexts from the second quarter of the 17th century onwards. However, finds of slipware from the Upper Weser and Werra regions that are typical of the second half of the 17th century are available. At the present state of research, it is not possible to draw further conclusions about the distribution of pottery in this later period.

The diverse connections between Bergen and the Weser region, and various aspects of life in these regions, have been examined by means of a varied source material – historical, art-historical and folkloristic sources. Special emphasis has been placed on those aspects most connected with the pottery finds. The trade

along rivers, maritime and *kram*-trade have been highlighted as well as ways of living – eating habits, table manners, and mentalities. Parallels between Western Norway and Northern Germany have been discerned in many respects. This is not all that surprising, given the close trade connections and the considerable influx of German nationals in Bergen in the Early Modern Age.

Examination of 1600 sherds of Weser and Werra Wares found in Bergen, has thus made it possible to widen our knowledge about the contemporary material culture in a broader chronological and geographical framework, as well as in its socio-cultural setting.

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FAGBOKFORLAGET

The Bryggen Papers present results based on the archaeological material from the excavations at Bryggen and other medieval and early sites in the town of Bergen. Starting out as an episcopal seat and regional royal administrative and residential centre, Bergen developed in the 12th and 13th centuries into the first truly international trading centre of Scandinavia and one of the most important ports of northern Europe, at the same time becoming the first capital of the Norwegian kingdom. The Hanseatic League established one of its four main trading stations or *Kontore* in Bergen around 1360, lasting into the latter part of the 18th century.

The Supplementary Series of *The Bryggen Papers* contains studies on central subjects, preliminary results and thematic presentations. The aim is also to stimulate interdisciplinary approaches as well as methodological and theoretical issues. The present volume focuses on ships and commodities. The Bryggen "Ship Stick" and the "Big Ship" represent two of the most famous finds from Bryggen. In two articles an art historian and a runologist look more closely at the carved motifs and the written text of the "Ship Stick", in order to throw light on mental and technological images of ships. The volume includes four articles on problems concerning the dating of the big Bryggen ship. Its dating has been revised by new dendrochronological and stratigraphical analyses, and it turns out that it was built several decades earlier than hitherto assumed, towards the end of the 12th century – at the same time as the Bryggen quay-front expanded towards deeper waters. The final article deals with imported pottery, the most common and numerous finds group in Bergen. The analysis of the late 16th and early 17th century Weser and Werra Wares presents the finds in a broad cultural-historical context, comparing aspects of life in the German production centres as well as in Bergen.

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