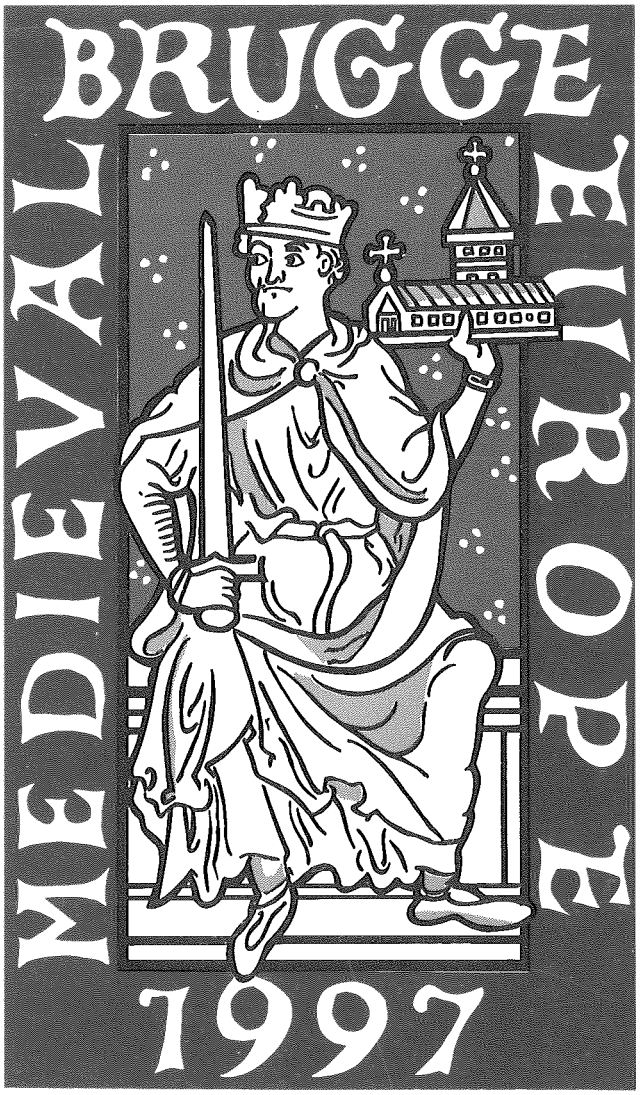

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in Historical Archaeology

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Volume 10

edited by
Guy De Boe & Frans Verhaeghe

I.A.P. Rapporten 10

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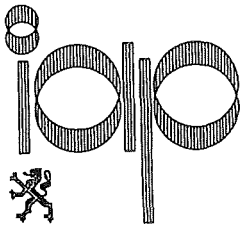
Prof. Dr. Guy De Boe



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10 METHOD AND THEORY IN HISTORICAL ARCHAEOLOGY
METHODE EN THEORIE IN DE HISTORISCHE ARCHEOLOGIE
MÉTHODOLOGIE ET THÉORIE EN ARCHÉOLOGIE
METHODE UND THEORIE DER HISTORISCHEN ARCHÄOLOGIE

was organized by
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Anders Andrén
Frans Verhaeghe

Preface

In terms of methods and techniques, the archaeological study of the Middle Ages and Early Modern Times is not *basically* different from that of other and mainly earlier periods. This applies as much to fieldwork techniques and problems related to natural sciences dating and analysis, environmental work, and management and inventorying as to the whole range of 'traditional' archaeological approaches and all possible aspects of archaeological interpretation. It can reasonably be argued that not even the broader questions are basically different. The specificity of the periods concerned has of course to be taken into account and it would not be very useful to apply KAr dating techniques to 13th-century AD contexts or to query 10th-century monasteries or 11th- and 12th-century motte-and-bayley castles in a totally identical way to Neolithic religious compounds or Iron Age hill-forts. But even in the latter cases, the differences remain limited and the basic questions related to the nature of defense-works or religious compounds, their positions and possible meanings and significance within the societies they belong to, and the patterns of human behaviour and perception they reflect, are very much the same.

Taking into account a certain degree of specificity of medieval and later archaeology, there is a good case to discuss methods and techniques as applied to these branches of the field of archaeology. This is why the organizers of the MEDIEVAL EUROPE BRUGGE 1997 international conference of medieval and later archaeology (1 - 4 October 1997) decided to include the subject as part of a special section of the conference. This section was organized by Anders Andrén (S, University of Lund) and Frans Verhaeghe (B, F.W.O. & V.U.B.) under the general heading 10 - METHOD AND THEORY IN HISTORICAL ARCHAEOLOGY - MÉTHODOLOGIE ET THÉORIE - METHODE UND THEORIE DER HISTORISCHEN ARCHÄOLOGIE - METHODE EN THEORIE IN HISTORISCHE ARCHEOLOGIE.

But as the title indicates, part of the section related to another topic considered by the organizers to be of major importance: theory and theoretical approaches in the archaeology of medieval and early modern times. This requires a few comments.

On the whole, medieval and later archaeologists profess little if any interest in theory, models and theoretical approaches above and beyond the most basic interpretative work of identifying objects and buildings, their builders and users, the possible symbolism of particular ornaments, trading networks, basic production and consumption patterns, etc. There are of course exceptions, notably in the United Kingdom and in American historical archaeology, as well as more isolated ones in some countries on the European Continent. But by and large, medieval and later archaeology can hardly be said to be in the frontline of the theoretical debate. This situation is both remarkable and understandable.

It is remarkable because there is no inherent reason for this apparent lack of interest and involvement as medieval and later archaeology are not fundamentally different from archaeology as a whole. Therefore, medieval and later archaeology are involved with all the important issues related to any possible form or component of material culture and its multiple meanings as well as the many ways in which those 'objects' – including landscapes and buildings – were transformed and even actively used. Put otherwise, just like any other branch of archaeology, medieval and later archaeology ultimately study their behaviour and their societies through their material culture and without neglecting any other possible source of information. In this respect, archaeology is indeed a *total* discipline, however difficult it may be to realize the full potential of the material sources.

If there is a difference between for example prehistoric archaeology and medieval and later archaeology, it seems to be linked to the mass of other sources of

information available, notably written sources and for the later phases also iconographical ones. These other types of sources provide other kinds of information and tell us more not only about some of the components of material culture archaeologists study but – more importantly – also about their context(s). This implies that medieval and later archaeology could help archaeology as a whole by contributing to the development of interpretative approaches.

But apparently, this does not really happen. Quite to the contrary, there would seem to be a direct and inverse relationship between the mass of information other than that of an archaeological nature and the interest in theory. Thus, for instance, work on the 'Dark Ages' – which are far less well documented by texts than say the 14th or 15th century – is much more strongly involved in the theoretical debate than archaeological studies of the late Middle Ages. In practice, this approach means that the more written sources are available, the less need there seems to be for theoretical work. We believe this to be a fundamental error. This notion implies that the material culture of literate societies is less informative than that of societies less well documented through written sources, which is not the case. It also implies that the non-archaeological sources reflect the total complexity of society, which again is untrue. It neglects the bias in non-archaeological sources (though the archaeological ones are not themselves devoid of bias). And, finally, it neglects the potential of archaeological data to reveal all kinds of behavioural patterns and perceptions which are not otherwise documented.

Still, the question remains why such a large part of European archaeology of medieval and early modern times fails to realize its own potential and to contribute significantly to the theoretical debate on material culture, its nature and its many interactions with humans. It can reasonably be argued that this is largely the result of the historical development of this discipline, which can be seen as one of the youngest descendants of many fathers, including history, art history, the history of architecture and even archaeology itself. In practice, two main factors seem to hamper the theoretical development of the field: the weight of historical – and even institutional – traditions and questions on the hand and the continuously increasing pressures of rescue work and the changing nature of the practical world of archaeological work on the other. This deserves detailed comments but unfortunately this is not the place for an encompassing debate. It may be sufficient to emphasize that we believe the potential of medieval and later archaeology to be such that it should passively submit neither to the dictates of traditional historical work (which should be a friend and partner rather than a *magistra*) nor to those of developers who so often set the agenda of archaeological work. In addition, it would be most useful if university training paid more attention not only to efficient practical work but also to the many questions of a more theoretical nature which confront every archaeologist willing to go further than an often somewhat mindless collection and description of data which are then often presented as the 'objective' (and 'sensational') truth.

All this again explains why the organizers of the MEDIEVAL EUROPE BRUGGE 1997 international conference of medieval and later archaeology felt it worthwhile to include a section on method and theory, hoping that this will contribute to the development of the discipline and help it to take its rightful place. The present volume offers a collection of pre-printed papers, a number of which were presented orally and debated during the sessions of section 10. Unfortunately, a number of contributors to this section did not submit a text in time for inclusion in the present volume while other colleagues could not attend and present their contribution. This explains why the general structure and the contents of the present volume do not conform exactly to the programme of the conference. The volume has been organized keeping in mind both the complexity of the subject and the general lines of the structure of section 10 of the conference as proposed by the organizers. This means that the contributions in the present volume have more or less been grouped according to the following topics:

- *The nature of medieval and later archaeology* groups the papers on some of the recent developments within the field as a whole and on its possible meanings.
- A number of papers confronting archaeology with other sources of information have been brought together under the heading *Confronting objects, images and texts*.
- In view of the importance of the use of space, a section on *Spatial analysis* was included.
- The developments in the field of archaeometrical techniques as applied to medieval and later archaeology have found a suitable place in the section *Archaeometry*.
- A series of case-studies where different 'non-traditional' questions and topics are looked at within the context of different theoretical approaches which deserve suitable attention and these contributions are grouped under the heading *Special subjects*, even though their theoretical base may relate to discussions already mentioned in the previous sections. To some extent, they also reflect the practical application of a few theoretical approaches, showing that theory (and ideology) pervades all archaeological work, whether consciously or otherwise.

- Finally, it was felt that heritage management and public archaeology deserved a place here because they derive from specific theoretical, ideological and methodological approaches and these papers constitute the section on *Building archaeology, conservation and public archaeology*.

The volume of course does not do justice to the many and complex issues involved. Nor does it provide a complete overview of the many problems to be addressed, the results attained and knowledge acquired. Nevertheless, the 26 papers included in the present volume provide an idea of the present state of the question in these fields. Taken together, they also illustrate that theory and methodology have a direct impact on all aspects of the archaeology of medieval and early modern times and this is in keeping with the basic philosophy of the MEDIEVAL EUROPE conferences that none of the subjects and topics of interest to medieval and later archaeology can rightfully be divorced from one another. This is also illustrated by the fact that some of the papers in this volume – and particularly those grouped under the heading *Special subjects* as well as a few others – could arguably have been included in other volumes of this series of pre-printed contributions and have been presented in other sections of the MEDIEVAL EUROPE BRUGGE 1997 conference.

Frans Verhaeghe & Guy De Boe

Charles E. Orser Jr.

Expanding Historical Archaeology

Archaeologists around the world are often constrained by the periodization of history. Such limitation is particularly evident in medieval and later archaeologies. Medieval, post-medieval, and historical archaeologists know the time limits within which they should concentrate their efforts, and their work often becomes problematic when they leave these boundaries. Problems with how we envision archaeology become clear when we think about conducting historical archaeology, as defined in the United States and Australia, in Europe. In this brief paper, I explore the nature of the apparent differences between historical and post-medieval archaeologies and propose a way to link them, and even medieval archaeology, through a concept of modern-world archaeology.

In 1994, I began a multi-year investigation into the material conditions of Irish peasant farmers in the years immediately preceding and including the Great Famine, which began in 1845. Prior to this research, I had spent the preceding twelve years examining the material culture of African-Americans, both slaves and their tenant farming descendants in the American South and runaway slaves in northeastern Brazil. My initial thinking was that I could directly transfer my knowledge and experience with the archaeology of the dispossessed and overlooked in the New World to the archaeology of the dispossessed and overlooked in one part of the Old World. In addition to sharing similar positions near the bottom of their countries' social ladders, both slaves and peasants were also contemporaneous.

Irish peasants and African-American slaves were, without question, enormously different in terms of history and culture. Nonetheless, my initial supposition that there would be a similarly in the archaeology of these dispossessed peoples was indeed correct. I was happily surprised that much of what I knew about the archaeology of African-Americans could be transferred directly to the study of Irish peasants. In addition, I discovered several intriguing historical similarities between the two peoples as well, including how they were similarly perceived by outsiders (Orser 1996a, 1996b).

While I was gratified by the similarities I could see in the archaeology of slaves and peasants, I was also aware of a troubling dimension of the research. Though understanding and being quite intrigued by the similarities between these two really diverse peoples, I experienced a somewhat disquieting uneasiness. The slave research was never a problem. In fact, the archaeology of African Americans, both slave and free, has become a staple of historical archaeological research in the United States and the Caribbean, and it is starting to make great strides in South America as well. So my unease was not about that side of my research. My disquiet revolved around understanding where the archaeology of nineteenth-century Irish peasants fit into Irish archaeology in general. Though archaeology of the nineteenth century is not entirely unknown in Ireland, it is usually conducted as a sideline to research being conducted at sites where the real interest is focused on an earlier occupation. Given the laws of simple stratification, it only stands to reason that archaeologists interested in cultural levels dating before AD 1700 would often come upon archaeological deposits of more recent date. In some cases, enlightened Irish archaeologists analyze this more recent material along with the earlier, and to them more interesting, material. But even among the most forward-looking archaeologists in Ireland there is a lack of the anthropological perspective that I brought to the study of the Irish peasants. The reason for this difference is obvious: as an American, my principal training is in anthropology rather than strictly in archaeology. As a result, it only stands to reason that my outlook and research perspective would be somewhat unique within the Irish context. But this uniqueness has caused some confusion. Am I really an archaeologist studying modern history, a historian who chooses to dig in the ground, or a folk-life specialist who finds research materials buried in the ground rather than in old sheds and barns (Orser 1997)? These kinds of questions are not at all problematic in the United States where historical archaeology means post-Columbian archaeology and where I would definitely

be classified as an anthropologist. However, they were not so clear-cut in Ireland.

The root of the problem seemed to lie in the difference that exists in the conceptualization of historical archaeology in North America and Europe. In those parts of the world that had been colonized by Europeans after 1492 – for example, North America, South America, Australia, and South Africa – historical archaeology is generally understood as the archaeology of the post-Columbian world. But in Europe, historical archaeology is generally presumed to be archaeology that occurs at sites associated with a literate tradition. The methodology of both link together archaeological field research and archival, documentary research. Thus in Europe, the subject of historical archaeology has much deeper roots than in the colonized world. My understanding is, and my training supports the idea, that the field now widely known as "historical archaeology" was originally created as a way to use archaeology to help understand the material dimensions of the post-Columbian world. In fact, to highlight this idea, I prefer to use the term "modern-world archaeology" to describe the archaeology that is overtly focused on the concept of modernity itself. Modern-world archaeology – or the historical archaeology of the modern world, if you like – becomes the study of the development of the world as we know it today. It provides a way to examine ourselves through our history in clearly archaeological ways. Based on my understanding, it is pertinent to investigate the supposed difference between historical archaeology – as it is conceptualized in America and elsewhere as a modern-world archaeology – and post-medieval archaeology, as a distinctly European kind of historical archaeology.

In 1967, the prominent anthropological journal Current Anthropology announced the formation of the Society for Historical Archaeology (Anonymous 1967). The author of the announcement said that the primary geographic concern of the new organization would be "the Western Hemisphere." The society would also include "Oceanic, African, and Asian archaeology during the relatively late periods," but Europe would only be considered a part of the new discipline's focus if the subject had "a definite bearing upon problems in the non-Western world." Thus, the intent of the Society for Historical Archaeology right from the very beginning was to focus on issues of Europe but not European. In other words, as it was initially conceptualized, historical archaeology would examine the same exotic, ostensibly non-European places and people traditionally studied by cultural anthropologists. The theoretical emphasis of the founding members of the Society for Historical Archaeology was clearly on understanding exploration, colonization, and acculturation in the non-European world though the study of archaeological sites and materials (Jelks 1993; Pilling 1967, 6).

About three years before the organizational meeting of the Society for Historical Archaeology and across the Atlantic, K. J. Barton and John Hurt had launched the "Post-Medieval Ceramic Research Group" in Bristol, England (Barton 1968, 102). The goal of the research group was to develop and exchange information about English ceramics manufactured between 1450 and 1750. Interest in the group grew so large that in 1966 – just when American archaeologists were thinking about founding the Society for Historical Archaeology – the members of the ceramic research group dissolved their organization and created the Society for Post-Medieval Archaeology (Anonymous 1968). The new society kept the temporal focus of the first group – on the years from 1450 to 1750 – because "there is something distinctive about the years between the impact of the Renaissance and Reformation at one end and the onset of the Industrial Revolution at the other" (Society for Post-Medieval Archaeology 1993, 93). As initially conceptualized, then, post-medieval archaeology is the logical and more modern extension of medieval archaeology. Thus conceptualized, the historical and cultural trends of the European Middle Ages are seen to blend into the post-medieval period in an easy and relatively straight-forward way. And, post-medieval archaeologists are generally interested in the same sorts of questions as their colleagues in medieval archaeology (Addyman 1989; Austin *et al.* 1989; Ayers 1991; Broberg 1992; Crossley 1990; Kajzer 1991; Martins 1992). In every sense, this archaeology was designed as truly "post medieval."

Though the gradation from medieval to post-medieval makes great sense in Europe, it is not so easily imagined outside Europe. When Europeans took their cultural institutions beyond their borders and across titanic seas, they and the indigenous peoples they encountered created new worlds. In some ways, these worlds were odd reflections of the Old World, albeit situated in new places. But in other, and perhaps even more important ways, the hybridized patterns of life in these newly created multicultural places were unlike anything that had existed before. In an important sense, what was created represented nothing less than a "decisive break in world history" (Amin 1989, 1). The New World was not just a reinvented version of the Old; it was a unique creation, woven from diverse strands of culture and tradition.

Considered in this light, then, it appears that historical archaeology and post-medieval archaeology

really are two distinct kinds of archaeology. Historical archaeologists investigate the creation of new ways of life that bound together diverse peoples originally from widely divergent places. Post-medieval archaeologists, on the other hand, study the continuation of ways of life that had developed indigenously over hundreds of years. As a result, it only stands to reason that the archaeologies of these places and traditions indeed would be different. Thus, when archaeologists study the English settlers at Jamestown, Virginia, they are historical archaeologists but when they turn their attention to the seventeenth-century English in Southampton, they are post-medieval archaeologists.

Even in light of these differences, however, I would be one of the first to argue that any substantive distinction between historical archaeology and post-medieval archaeology is trivial. The only important difference between the two archaeologies rests on the location of their work: post-medieval archaeology is practiced in Europe, historical archaeology is practiced outside Europe. Though any kind of semantic distinction seems relatively insignificant, I am still compelled to believe that the two archaeologies really are distinct. With the exception of the recent work by British-trained archaeologist Matthew Johnson (1993), who thinks nothing of bridging the Atlantic with his ideas and approaches, post-medieval and historical archaeologists generally stay aloof from one another. (Here, I should point out parenthetically, however, that the degree of separation may be changing. This year, the Society for Historical Archaeology and the Society for Post-Medieval Archaeology held two joint conferences – one in Williamsburg, Virginia, and the other in London – to celebrate each society's thirtieth anniversary. Though this linkage is a positive sign for the kind of globally scaled modern-world archaeology I envision, it remains to be seen whether this union was simply generated, not by a shared sense of common purpose and subject matter, but only because of the coincidence of the anniversaries themselves. The Society for Historical Archaeology, for example, did little to advertise or to promote these conferences among its membership and most American historical archaeologists ignored them.)

Since historical and post-medieval archaeologists study much the same segment of time, what accounts for the apparent distinctions between them? The explanation for the separation is undoubtedly complex and multifaceted, and it may include such practical matters as personal preference and educational training. Post-medieval archaeologists are trained first and foremost as archaeologists, whereas historical archaeologists today are almost always trained as anthropologists. But beyond this educational difference (which in the end may not mean much), part of the explanation lies, I believe, in the perception that the histories of Europe and of the many non-Europes around the globe are so uniquely different that they require separate archaeologies to examine them. The parts of the world studied by historical archaeologists have colonial histories that are so different from the histories of Europe that it appears natural that the archaeology of each is inherently distinct. We may conclude, perhaps, that it takes someone with anthropological training to excavate sites associated with the cultural interactions, exchanges, and acculturation that accompanied colonial Europeans wherever they went in the world. Thus, one could argue that post-medieval archaeologists ask different questions than historical archaeologists by virtue of the realities of the pasts they study. The root cause of the apparent distinction may be laid at the feet of the presence of colonialism, Eurocentrism, capitalism, and modernity – what I term the four haunts of modern-world archaeology (Orser 1996a) – in the non-European world. Writing from the United States as I do, this reasoning seems to make sense. But does it really? Is post-medieval archaeology really different than historical archaeology just because post-medievalists tend not to examine the four haunts? (And again, I must pause to mention parenthetically an exception in Matthew Johnson's An Archaeology of Capitalism [1996].) One answer to the question of whether post-medieval and historical archaeologies really need be different, based on the uniqueness of the histories they study, can be found in Robert Bartlett's (1993) *The Making of Europe: Conquest, Colonization, and Cultural Change, 950-1350.*

Bartlett's book is enlightening. Rather than to describe the tortured, political rise of Europe's nation-states or to chart the turbulent history of the medieval Church, Bartlett concentrates on social and cultural history to demonstrate that medieval Europe was multicultural and international. In these respects, much of European history seems to have been repeated, albeit in colonial guise, after 1492. Bartlett even builds a convincing case that colonialism, capitalism, Eurocentrism, and modernity each gained expression in Europe between 950 and 1350.

Bartlett argues, for instance, that colonialism was definitely a reality during this period. The Germans moved into Pomerania, the Castilians settled Andalusia, and the Anglo-Normans invaded Ireland. The intent of these colonies was to replicate their homelands on foreign soil, not to subjugate the people in a push toward economic dependency as was the case during the modern age (Bartlett 1993, 306). But still, the efforts of these functionaries were clearly colon-

ialist in scope and nature. Bartlett also shows how thirteenth-century knights in the Austrian countryside acted like budding capitalists when they looked at quiet, unproductive marshlands and envisioned bountiful fields of swaying corn raised by rent-paying tenants (Bartlett 1993, 121). Notions of Eurocentrism and modernity were not absent in Bartlett's Europe, either. For example, he argues that the word "Frank" was a generic term that gained widespread usage to refer to Western Europeans who travelled outside Europe either to settle or to conduct warfare. By the twelfth and thirteenth centuries, however, the term had become synonymous with forward-looking, progressive thinking. As Bartlett (1993, 105) says, "to be a Frank implied modernity and power." It seems, then, that many medieval Europeans were as concerned with modernity as their descendants would be many years later. "Race relations" were also "a central issue" during the Late Middle Ages because so many diverse peoples from so many different cultures lived adjacent to one another in Europe's progressive cities (Bartlett 1993, 197). The medieval concept of race was not similar to its modern understanding. Instead of being related to the usually vague concepts of blood, heritage, or national affiliation, medieval race was rooted in overt cultural distinction. For example, perceived racial differences between Germans and Slavs gained tangible expression in each people's customs, dress, language, and law. So, when European explorers sailed out of European ports beginning in 1492, they came from places that sometimes had generations of experience with colonization and cultural transformation (Bartlett 1993, 313-314). In other words, if we believe Bartlett, these explorers had experienced the incipient forms of colonialism, Eurocentrism, capitalism, and modernity in Europe long before traveling to the vast world that existed for centuries beyond Europe.

Bartlett's brilliant analysis opens up exciting possibilities for archaeology. In my opinion, he does nothing less than to provide the commonality of topics that can unite post-medieval and historical archaeologies into modern-world archaeology. In addition, his analysis suggests that this modern-world archaeology can be extended into the medieval past. In fact, Bartlett (1993, 156) explicitly makes the case that a modern-world archaeology has "enormous future potential" in Europe. The goals of this archaeology should include, but not be limited to examining the deeply significant transition from feudalism to capitalism. It should also investigate the beginnings of the modern world among the castles, the peasant villages, and the cathedrals of the feudal world.

Once we, as historical archaeologists fully accept the connection between Europe and non-Europe in more than a tangential way, I believe we will discover whole new vistas for research. As far as modern-world archaeology is concerned, it does not really matter whether we choose to call what we do "historical archaeology" or "post-medieval archaeology." As we begin to operationalize a research program that openly examines colonialism, Eurocentrism, capitalism, and modernity, the importance of the apparent distinction between the archaeologies will fade into memory and become irrelevant. The incorporation of medieval archaeology into this modern-world archaeology further illustrates the futility of attempting to hold onto any sort of disciplinary name that retains rigid, and defining, temporal boundaries.

At this point it is perhaps necessary for me to anticipate some of the unrest among my European colleagues. Both from personal discussions with European archaeologists and from reading, I have come to realize that many archaeologists stubbornly cling to defining historical archaeology simply as an archaeology that makes frequent and abundant reference to textual sources of information. In fact, the following comment made in 1995 is still common: "The unifying theme for historical archaeology simply seems . . . to be history" (Becker 1995, 6). Archaeologists who think along these lines tend to classify Mayan archaeology, for example, as historical archaeology even though they would search in vain for anything resembling the modern world among the pre-Columbian Mayas.

The willingness to classify historical archaeology simply as research that links together the disciplines of archaeology and history is an old theme that cannot be put to rest. I have argued on more than one occasion why historical archaeology is so much more than just a method (see, for example, Orser 1996a, Orser & Fagan 1995, 14-22). And, I have argued in the clearest possible terms why I do not believe Mayanists are historical archaeologists. It seems to me that the creation of a truly modern-world archaeology solves the ongoing debate about historical archaeology. Modern world archaeology requires us to step out of the temporal confines within which we often place ourselves and to look at the world in ways that breaks down the often-arbitrary barriers of space and time. Bartlett (1993) shows that the themes running throughout our modern world – the things that affect and even bedevil us today – have roots that often extent into the Middle Ages. If the roots of colonialism extend into the tenth century, then in attempting to understand the archaeological nature of colonialism, we would be short-sighted if we went no further back than 1450 because that is where post-medieval archaeology becomes medieval archaeology, or than

1492, because that is where historical archaeology becomes prehistoric archaeology.

I believe that we are now facing the most exciting time in world archaeology. Part of this excitement lies, I think, in the creation of a global, modern-world archaeology that examines today through the lens of the past. For too long, we archaeologists have said as a profession that archaeology is important to all people because it teaches us about ourselves as members of the human family. But we have done little to show anyone outside the profession how archaeology really can be relevant to non-archaeologists. Through the archaeological study of colonialism, Eurocentrism, capitalism, and modernity, I believe that we really can use archaeology to teach us about ourselves from our history. The creation of an expanded historical archaeology, a modern world archaeology, can do exactly that.

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Historical Archaeology – A Challenge for Archaeological Thought

When dealing with periods of history for which we have written sources, archaeologists have the possibility to investigate the competence of archaeology. Archaeology can be refined and strengthened when compared with written sources and the information they contain. For prehistoric periods, we do not have this opportunity. In this paper, I will discuss the potential that historical archaeology has to improve archaeological thought. Traditionally, the archaeology of historical periods has been dominated by questions asked by historians.

1 Perspectives of Historical Archaeology – a subordinate discipline?

The pioneers of archaeological research did not distinguish between prehistoric and historical archaeology. In fact, before archaeology became a science, the same learned persons dealt with written sources, monuments and objects found in the earth. An example of this is the Norwegian historian Gerhard Schøning. In 1760, he was one of the three founders of the first scientific institution in Norway, which was established in Trondheim in 1760. After this, Schøning became a professor in Denmark, and travelled in many parts of Norway in the 1770s. In this way, he not only described many ancient monuments for the first time, but also made drawings of them. (Schøning 1910, 1968.)

Later, when archaeology was established as a science, Hans Hildebrand continued this tradition as the director general of the Central Board of National Antiquities in Stockholm. However, Hildebrand's successor, and the father of archaeological typology, Oscar Montelius, restricted his own research to prehistoric archaeology (Andersson 1993, 13-14). In Trondheim, the only archaeologist at the museum, Karl Rygh, declared prehistoric archaeology to be his sole domain (Petersen 1916, 21). It was, of course, too much work for one person to establish both the historical archaeology and the prehistoric archaeology at the same time.

The separation between prehistoric and historical archaeology, in the 19th century, confined the study of prehistoric archaeology in Scandinavia to the universities and the large archaeological museums. The study of historical archaeology, or archaeology of periods where written sources were available, has been non-existent, or has mostly existed in institutions separated from the universities. The University of Lund in the south of Sweden is one of the very few exceptions.

Historical archaeology in Scandinavia has been synonymous with the excavation of cultural deposits in the medieval towns, and also with the study of monuments such as churches, castles and monasteries. Meanwhile, archaeological research in the countryside, except for the above-mentioned monuments, has been almost ignored. Investigations of dwelling-places and similar sites in woodland and mountain areas, and in the archipelago, far from the sites and areas close to home are mostly absent. This is certainly the result of the lack of contact between historical and prehistoric archaeology.

Another result of the separation between historical and prehistoric archaeology is that the excavations in the medieval towns, to a large extent, have been guided by information gathered from written sources.

Monument-archaeology, and archaeology based on written sources, are not especially Scandinavian, but they abound in the rest of Europe. The most obvious example is the use of written sources and monuments in the study of classical archaeology. The classical archaeologists' use of Pausanias' reports from his travels in Greece, in the second century AD, is typical. His reports describe a great number of ancient monuments. Archaeologists have spent a lot of energy rediscovering these monuments. This is an obvious example of the restricting effect that the use of written sources has on archaeology. Classical archaeological research has been so concentrated on the monuments from the classical periods mentioned in the written sources, that sites relating to the lives of ordinary people have generally been ignored.

The dominance of monument-archaeology in Scandinavian historical archaeology was long-lasting, but, in the 19th century, objects of archaeological interest in the cultural deposits of the medieval towns began to be discovered. The cultural deposits themselves were of less interest. It is typical for this period that the professional archaeologists had practically no interest in finds from the cultural deposits in the towns. They concentrated on prehistoric archaeology.

When professionals took over the archaeological work in Scandinavian medieval towns, it was usually kept separate from the prehistoric archaeology. The cultural deposits in the medieval towns were protected by law. The excavation of Bryggen, after the big fire in 1955, in the Hansa town of Bergen on the Norwegian west coast, was the start of modern excavations in medieval towns in Norway. Bryggen, with its large storehouses, was the quayside where the fishermen from north Norway brought their cod-fish for further distribution to Europe.

The excavation developed into a large, money-demanding project. It is not only the excavation but also the conservation of the finds that is expensive. If we look at the large amounts of money put into the archaeological investigations in the relatively few medieval towns in Norway, we could have expected that these investigations alone would have brought archaeology ahead. Therefore it is time to examine what this form of research has contributed to the development of archaeology.

2 Today's strategies in the archaeology of medieval towns

The Icelandic Sagas say that king Olav Trygvason founded Trondheim, and king Olav Kyrre founded Bergen. Therefore, the principal goal for the excavation of the cultural deposits of these medieval towns has been to discuss how and when the towns were founded – an interesting question discussed by historians for decades. My objection to this is that the information we have gained from the Sagas has limited the scope of these investigations. The archaeological interpretations are seen in relation to history, mostly without discussion of the value of the written sources. The use of Icelandic Sagas by archaeologists, without any discussion of their value as historical sources, is certainly due to a limited knowledge of the comprehensive linguistic and historical discussion surrounding the use of these Sagas during the post-war decades.

Finds from excavations in medieval towns are usually published in groups: ceramics, household utensils, agricultural implements, etc., all individually. This makes it difficult or even impossible to integrate the information from the many groups and to relate it to archaeological questions. Too often the finds are completely isolated, while the synthesis is strongly influenced by problems historians have formulated. With Hans Andersson (1989), it is justified to ask why medieval archaeologists do not formulate their own questions. I want to widen this question to all historical archaeology.

Questions about social structure in the towns, for example, are normally not discussed. However, a very important objection is that the towns are usually seen as isolated from their surroundings. This is also the result of a dependence on the written sources, since these are questions that the written sources do not normally say anything about. Of course no town was isolated from its hinterland. In any case, the inhabitants of a town were dependent on the surrounding countryside for a food supply, even if the town itself had developed without any support from the area. Examples of questions demanding investigations of both the towns and their surroundings are:

- Who lived in the towns?
- Did the craftsmen come from the surrounding countryside?
- Where did the food supplies come from?
- Did urban and rural culture differ from each other, or did they influence each other?

Not only have the written sources restricted historical archaeology, but also the way in which investigations of churches, castles and monasteries have been done. These have concentrated so much on the monuments themselves that the everyday-life in the monasteries, for example, has been overlooked. The inhabitants of a monastery also had to cook, produce and mend clothes, and repair buildings. They also had to have some connections with the people in the surrounding countryside, and they certainly influenced them in many ways.

I do not want to make Scandinavian urban medieval archaeologists responsible for this situation. The universities have not been aware of their responsibility for the rural historical archaeology. For example, with regard to excavations performed due to development, it is much more difficult to argue for the funding of such excavations of rural historical dwelling-places, than it is for the excavation of cultural deposits in medieval towns. Why do we have this situation?

Do we consider medieval town populations to be more important than populations living in the countryside?

- Is it because we think that towns, as places to live, are more interesting?

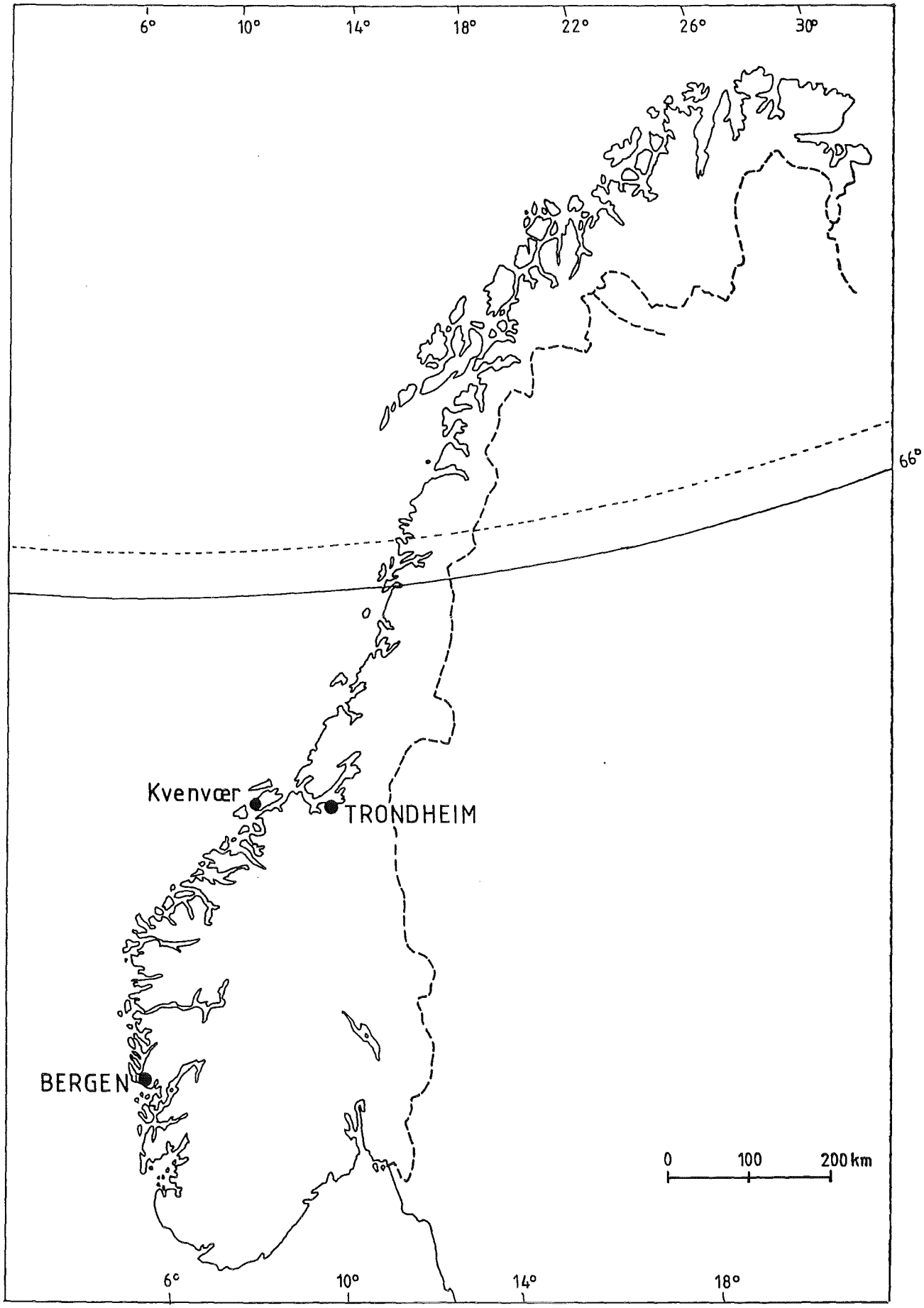

Fig. 1. - *The location of places in Norway mentioned in the text.*

- Is it because towns are so often associated with the power of a king?
- Is it because we find the archaeological institutions, and therefore the archaeologists, in the towns?
- Is it because the cultural deposits in the towns are much more frequently threatened by development?
- Is it because we are told so much about the towns by the written sources?

The answer is probably a combination of affirmative replies to all the questions. But, personally, I think the last two questions are the most important ones. If this is so, why is it that only the medieval cultural deposits are usually excavated, while the younger layers are removed without investigation? Are archaeologists not interested in the living conditions of people in the 17th and 18th centuries? Why are these textiles, food remains, handicrafts and forms of living not as interesting as those in medieval times? Perhaps the abundance of written sources for this later period has made archaeology unwanted. Or do we already know the answers, because such a large body of material remains from these centuries has been preserved? If this is the case, we have forgotten that these remains are often the most valuable ones. Everyday materials like worn out clothes and tools are almost never preserved.

3 Other examples of archaeology as footnotes to history

I have proposed earlier that archaeological excavations of medieval towns in Scandinavia are dependent on questions from the historians in the same way as classical archaeology is dependent on written sources. Authors of surveys in medieval archaeology are also looking at archaeology as a part of history (c. Andersson 1994, 193).

Historians often use the archaeological material as illustrations, while the serious text is limited to the written sources and to the questions they can answer. It is a challenge to archaeologists that our publications about past historical periods are not exciting enough. This is especially valid for the medieval period, where the written sources are limited while the archaeological sources are rich. I think the reason why archaeology has to be satisfied with the role of being a footnote to the written sources so often is the archaeologists themselves, myself among them.

Another example of the use of archaeology, as a comment on the written sources, is the way that Scandinavian finds in the British Isles are usually discussed. The written sources tell us about the Viking raids on the British Isles. The most well-known raid is the one the British clergyman Alcuin (about AD 730-804) tells us about, which is the plundering of the monastery on Lindisfarne, on the coast of Northumberland, in the year of 793.

In the British Isles, especially in the northern areas, the place-names are often said to be of Scandinavian origin. Names such as 'Scar' on the Orkneys are almost identical with Scandinavian names. Many non-Christian graves in the northern areas of the British Isles have the same types of grave-goods as Scandinavian graves. Several places in the British Isles have Scandinavian runic inscriptions (Holman 1996). Since the written sources tell us that the Vikings came to these areas at the end of the 8th century, it is usually presented as a fact that graves and place-names with the same characteristics as Scandinavian ones are attributable to the early plundering raids and later colonisation of these areas by the Vikings. The belief in this theory, given to us by the written sources, is so strong that its value as a historical source is not discussed.

Why do archaeologists not discuss the possibility of a common culture in the North Sea basin (cf. Berglund 1995, 517-518)? In many areas along the North Sea coast the practice of having farm-houses in the same place for hundreds of years is usual. On the coast of north Norway the farm-mounds are a good example of that. The establishment of a farm-mound could start as early as around the birth of Christ, in the Viking Age, in the Medieval times or even later. The people living on the farm-mounds did not move until the distance between the houses and the nearest harbour became too far, due to the rising of the land. On the Orkneys, there are similar types of dwelling-places (Davidson *et al.* 1983, 39-44). In Friesland (Frisia) the 'terpen' and 'Wurten'-sites are examples of the same process, although the history of their formation diverges from that of the others. The Norwegian farm-mounds consist of fire-layers, remains of turfwalls and floor-boards, other types of building remains, waste-products (especially garbage), and humus (Bertelsen 1979, 1989, 171-182; Berglund 1995, 345). The mounds in the flat, sinking Frisian landscape are consciously built up by man as protection from flooding during the spring tides (cf. a.o. van Giffen 1936, 40-47; Haarnagel a.o. 1963). In addition to the material used to build up the 'terpen' and 'Wurten' -sites, these mounds consist of similar material to the Norwegian farm-mounds. However, around the North Sea coast one can trace a common tradition of living in at the same place for a long time.

It is noteworthy that the north Norwegian chief Ottar seems to have been able to make himself understood in England, in the 9th century (Bately 1980). In Trondheim, the power of the medieval archbishops encompassed Greenland, Iceland, the Faroe Islands,

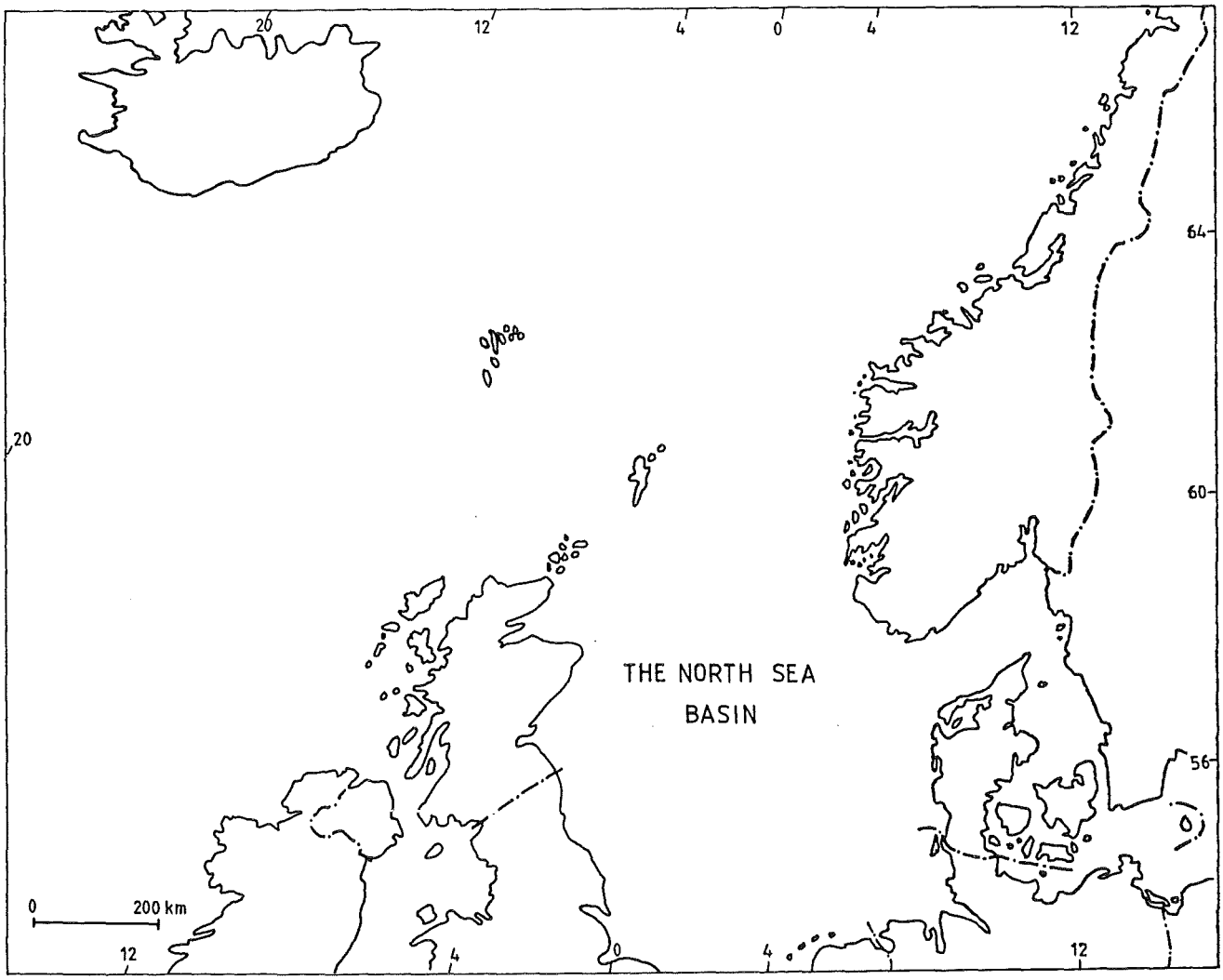

Fig. 2. - *The possibilities for contacts between the peoples around the North Sea basin are very good as long as one can travel by ship. Therefore, contact must have been established long before the Viking period.*

the Orkneys, the Hebrides, and the Isle of Man. This could be the result of an old fellowship around the basin. Politically, the areas seem to have been associated with each other in a North Sea prosperity in early Medieval times.

In Herjólfsdalur, in the Westman Islands in Iceland, Margrét Hermanns-Audardóttir (1989) has excavated farm-houses of Norse type older than the Viking Age. These results are in direct opposition to what the written sources from the medieval period tell us. According to these there were no people living in Iceland before the Viking Age, while in Herjólfsdalur the oldest settlement has been dated to the 7th century (Hermanns-Audardóttir 1989, 70). This is a good example of how our opinion can be dependent on the presence of written sources and what they say. The contrast between the archaeological evidence and the written evidence makes it necessary for us to strengthen both archaeological and historical source-criticism and methods.

As soon as the peoples around the basin had developed sea-worthy enough boats, the contact between the different peoples must have been intensified. It is not difficult to think of the existence of a common culture around the basin, even a substantial time before the Viking period. The problem is that the information we gain from the written sources makes us unable to discuss the possibility of contacts around the North Sea basin older than the Viking Age.

My opinion is that the archaeologists have the responsibility to interpret the archaeological record, even if it does not correspond with the written sources. Why not study what the archaeological record can tell us about Scandinavian finds in the British Isles? Methodologically, it is very interesting to interpret these finds without being dependent on the written sources. Such comparisons, between the results from archaeological investigations and the written sources, also provide a good opportunity to develop prehistoric archaeology.

4 Archaeology on the boundary-line of other disciplines gives us independent knowledge

In this case, I am looking at archaeology on the boundary of history, but other disciplines could also have been chosen. The study of archaeology in association with other disciplines can refine the discipline. The questions we ask, about what knowledge we can gain from archaeology that we cannot gain from the written sources, must be strengthened. Below are some examples of areas of research that archaeology is able to answer. These are questions about:

- where the dwelling-places were. The written sources tell us what farms existed in an area. However, they do not say where the farms were situated. One cannot be sure that all the farms in a particular area are mentioned in the actual written source. This depends on why and how the source was created.
- ordinary life and work in these dwelling-places. The Icelandic Sagas tell us about struggles and conflicts in the aristocracy, and between the various kings and the aristocracy. The administrative written sources, such as land-registers, say which farms belonged to which landowner and how much the tenant had to pay the landowner. They do not tell us what people were eating and drinking, how the food was prepared, what kind of table-ware was used if any, or how hygienic the standard of the food-preparation was. Written sources seldom tell us about wood-carving, iron-working or other handicrafts used on a farm.
- work in soapstone-mines and iron-bloomeries, hunting, fishing, summer dairying in the mountains, and other types of work in the woods, mountains and on the coast. The administrative written sources dealing with Norway seldom mention these types of activities. The reason for this is that the Danish officials who wrote these documents did not consider these activities, since in Denmark the farm and its lands were the most economically important resource. In Norway other resources were often more important.
- trade-goods and connections with other areas. Registers of taxable wares tell us about trade and trade-goods, but they are in complete and have mostly been lost for the period. It is the archaeological sources that tell us what the trade-goods looked like and where they came from.
- long-term perspective. The written sources are not able to give us this as they are not old enough.

As an example of the last point I can mention the archipelago Kvenvr, in the Atlantic outside Trondheim. The oldest known written sources first mention settlements on these islands in the 15th century. New archaeological excavations have shown that the area was already used for settlement several thousand years before the birth of Christ (Berglund & Johansen in prep.). In fact, the excavations have also revealed settlements from the Medieval period, the Iron Age and the Stone Age.

The list of questions could, of course, have been much longer. In spite of the important archaeological questions we could ask, it is so easy to forget them, when we are working with access to the written sources. In these cases, we rely so much on the written sources, and the historians' interpretations of them, that we forget our own questions. We also forget to compare the archaeological results with the historical results. By doing this we can also improve the prehistoric archaeology, as this type of archaeology is unable to compare its results with contemporary written sources.

As these comparisons between archaeology and history clarify what archaeology is best suited to tell us, we are simultaneously becoming aware of the limitations of archaeology and the advantages of history.

Since history, and the questions the historians are asking, are so dominant, it is not my intention to do any further exploration of the discipline of history here. In fact, both the archaeologists and the historians are trying to create their own pictures of the past. As long as the foundation for the two disciplines is different, the pictures produced cannot be the same. Nor is this an appropriate aim since, in any case, it is impossible to create a true story of the past.

5 Conclusion

The separation of prehistoric and historical archaeology, in 19th-century Scandinavia, has caused the two different types of archaeology to develop in different ways. Historical archaeology has been dependent on written sources and on monument-archaeology, and on the boundary-line of the history of art. The result is that archaeological questions have been suppressed while questions asked by historians have predominated. Now it is time to use the advantage historical archaeology has in being on the boundary-line of other disciplines, such as history.

With historical archaeology it is possible to look at the archaeological results in the light of what the written sources tell us. Obviously, this is not possible in prehistoric archaeology. Comparisons of knowledge gained from both the archaeological and the written sources make the advantages and disadvantages of the two types of sources obvious. This

experience is also useful for prehistoric archaeology, and should also enable us to ask more interesting questions in this field.

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Medieval Archaeology: beyond Method and Theory

The aim of this paper is to explore new approaches to medieval archaeology and history through the exploration of one site: that of Kenilworth Castle. Kenilworth, as a site, sits not just in the middle of England. It sits in the middle of our concerns as archaeologists. It occupies a place at the centre of our thoughts and labours and dreams as practitioners of the discipline at the end of the millenium.

When I first thought of writing on this topic, I considered the question: which thematic session at Bruges does this paper fit into? Certainly it fits a 'military' context. Kenilworth originated as a motte-and-bailey earthwork castle, the ovoid form of the 11th/12th century defences conditioning and structuring the later form of the stone palace. It was besieged in the 13th century by royal forces, the castle then being held by the supporters of the famous Simon de Montfort, of whom more a little later.

But even the original foundation of the castle had more than a military significance. Alongside the castle there is a 12th century monastery, and a small town grew up around the castle and monastery. The first phase of Kenilworth, then, can best be interpreted as part of a classic piece of Norman elite landscape, combining different elements of social power – the military (fortification), the economic (granting of borough rights, the deerpark), and the religious (monastery).

So, if the castle is not purely military, it is also not alone in the landscape. We must look at its context.

Kenilworth is also part of a symbolic re-ordering of the landscape. A complex series of artificial lakes and meres were created to the south and west of the castle. Whether these were originally purely defensive in nature we shall never know. By the 14th century, however, the large sheets of water in which the red sandstone towers of the castle were reflected had taken on a series of very precise and more wide-ranging allusions. These allusions would have been read and understood by elite travelers and visitors as they made their way towards the castle along the series of causeways that spanned the waters.

Beyond the sheets of water, a moated Pleasance was sited at the other end of the artificial lake. The Pleasance was out of sight of the castle, being hidden by a low hill. At the Pleasance were facilities for the docking of small boats and the housing of picnics. The Pleasance, then, carried a whole series of symbolic allusions and resonances.

Perhaps, therefore, my Kenilworth paper fits not into military studies, but into economics, or religion and symbolism?

There is a final area where my paper might fit, though no session is explicitly devoted to this theme: that of the material culture of 'medievalism'. A self-conscious medievalism was not purely the product of the 19th century. In the 1560s, Queen Elizabeth was welcomed to Kenilworth by the goddess of the lake rising from the waters and declaiming a speech. The speech was a complex narrative affirming the castle's links to its medieval past. It ends with the equation of the original British hero Arthur and Elizabeth herself. Over two centuries later Sir Walter Scott used Kenilworth as the setting for his novel of that name. *Kenilworth* is a work that reads in so unbelievably turgid a manner to us that we can scarcely comprehend its popularity with Scott's contemporaries.

De Montfort, of course, as every English schoolchild reared on the Whig interpretation of history knows, played a central role in the creation of Parliament in the 13th century. De Montfort's less salubrious role in the persecution of the Jews has been rather more easily forgotten. So perhaps my paper should be put into a session entitled 'medieval archaeology in the present', focussing on nationalism, heritage and the socio-politics of the past.

Of course, none of these easy insertions into specific thematic sessions are possible. The red ruins of Kenilworth defy us; the thoughts and emotions we experience as we walk through John of Gaunt's shattered hall can't be put into neat boxes in such an orderly fashion.

If the boxes don't follow from direct experience of the empirical material – the material remains of Kenilworth, or for that matter the material remains of the medieval past – where do they come from? They can only come from one place: the present. Divisions into towns and trade, military, artefacts, and so on reflect our concerns and preoccupations. They reflect an anachronistic imposition of our thoughts on to the past. They tell us more about the thoughts and fears of Europe in the late 20th century than they do about the Middle Ages. They are, by definition, theoretical divisions. In this sense, the session in which this paper appears is the least theoretical of all sessions, the first to sense a move beyond method and theory and to hint at the need for a more contextual approach.

The ruins of Kenilworth laugh at us. They speak mockingly of a past that just wasn't like that. If as archaeologists we really wish to speak meaningfully of the Middle Ages we must listen to them. Their voices will not go away.

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In Search for a Medieval Spirit of Time

How can we find the keys to understand a medieval world of thinking? Is it possible for us to get an understanding of the thought and can the traces be used to reveal the thoughts of the past?

These questions are the starting-points for my attempts to find a medieval time spirit.

In medieval research, it is common to study a geographical area in order to understand the environment. Is it also possible to look upon historically known people in order to attain a picture of the time spirit? In studying people, we must find other methods than those we usually employ in archaeology. Human nature is ambiguous and this ambiguity is a distinctive mark that we have to maintain. Human beings from medieval times have left us sources of various kinds, both materialistic and literary. These sources act as messages directly or indirectly and our ambition is to understand the meaning of these phenomena. When studying medieval personalities, the various kinds of sources speak to us. This language may be difficult to understand but with a careful approach to them and through a combination of them, they reconstruct a world of ideas.

The archaeologist Carl-Axle Moberg has criticized traditional archaeology for being positivistic. The museums and the care of relics have generated a concentration on finds and descriptions of finds in the basic university training in archaeology. This is because there is a great need for diggers, people who catalogue finds and the exhibition of finds.

According to Moberg this has led to a searching only for information about time, geographical regions and the character of the sites. These questions have been more important than the interest in people and their lives. Instead of cutting the wings of archaeology, we should come closer to history (Moberg 1978, 221 ff.).

In historical research, there has for a long period been a discussion on how to study historical personalities. In the 17th century, Descartes advocated a history that turned away from the people and instead focused upon nature, because nature lacks humanity and therefore its subjectivity. The philosopher's ideal was a science based on the precise language of mathematics.

This approach has its opposite in the rhetoric of Giambattista Vico (1668-1744). According to him what we in a real sense can understand or have knowledge of is not of nature, but of things we have ourselves created, that means the phenomena which are shaped by mankind. This we can understand from inside us because our imagination can reconstruct them. We know what it means to be a human being and for instance to have feelings. On the other hand, we cannot understand the phenomena of nature. They are outside us; we cannot imagine what it means to be a bush. In history we are faced with a world created by human beings; it deals with their experiences and actions (Lübcke 1988, 575 f.).

Vico argues that history is to be understood like the knowledge we have of a friend, her character, way of thinking and acting and the intuitive sense for nuances in her personality, emotions and ideas (Berlin 1976, XIII f.)

Accomplishing an historical writing about historical personalities might appear to be subjective. The researcher is influenced by her own experiences. We can never obtain one in a sense of scientific truth about human experience.

But this subjectivism should not be despised. It is not on a par with relativism, on the contrary the interpretations must rest on careful, critical deliberations. It is not a matter of 'anything goes' but of a great cautiousness when approaching human experiences.

The philosopher, archaeologist and historian R.G. Collingwood distinguishes between outer and inner relations of an event. The outer relations are data about the event, while the inner are the thoughts connected with it. In the research of history, we can first study the outer relations and then observe the inner ones. This is not only a study of the actual event but also the conscious action connected with it. This means we must search for the hidden thoughts behind it. We must pass the directly observable, find the thought and understand it. Hereby imagination is an important tool. Collingwood states that the work of

the historian is like that of a detective. Like the historian, the detective starts with indications of various kinds and from this – with the help of imagination – he constructs a picture of how the crime was committed and by whom. But unlike the historian, the detective often obtains a confession from the perpetrator (Collingwood 1994, 241 ff.).

Now, however, a problem arises. With our experiences, how can we understand people from ancient times who lived under very different circumstances?

The philosopher Martha C. Nussbaum is of the opinion that this deals with a responsiveness and illustrates it with an example from the anthropologist Martha Chens' work *A Quiet Revolution* (1986).

The example deals with women's education on the countryside in Bangladesh. A group of development assistance workers had the task to increase womens' ability to read and write in order to improve their possibilities to live a better life. This ability was seen as closely connected with other important values such as economic development, independence and self esteem. But this conviction had no roots in the local traditions of the villages where the women had no experience of education. Instead, it built upon the development assistance workers' experiences and opinions. They knew nothing about the womens' concrete way of living. Their lack of contextual knowledge made it impossible for them to succeed. What the women were offered, they thought of as boring and of little relevance. So the group had to change its attitudes. They did not abandon the conviction that the ability to read and write was important to these women; on the other hand, however, they realized the necessity of understanding the womens' lives and thoughts. In this way, they gained a more subtle understanding of the situation. They learned to understand the context in which these women lived and were active and the particular qualities which were shaped by their poverty and their limitations (Nussbaum 1995, 153 f.).

This is a way of arriving at understanding. We should not transfer our own values to a material, but must be sensitive to the context, the unique and particular environment. It is possible to study another cultural situation. There are, according to Nussbaum, certain features common to all people which makes it possible for us to understand the thinking and acting of others. These qualities are basic experiences which are fundamental to us all, i.e. fear of death or our need for kinship with other people. These qualities work as bridges between different cultures (Nussbaum 1995, 159 f.).

History is what people have done and what has happened to them. Human beings are subjects bound under natural laws, there is a need for food, shelter and reproduction. This never seems to have changed throughout the centuries and it seems to underline the collectiveness of human actions. Moreover we can study peoples' emotions and thoughts but this requires, as Isaiah Berlin puts it, the use of common sense and a constructive imagination (Berlin 1980, 105 f.).

The historians of science Allan Janik and Stephen Toulmin have underlined the importance of contextual studies. In their work *Wittgenstein's Vienna* (1973), they investigate the background for Wittgenstein's ideas and thoughts. They write:

'Despite the valiant efforts of positivists to purify philosophy of historical dross and reframe its questions in the kind of abstract, general form already familiar in mathematics, the philosophical problems and ideas of actual men – the young Ludwig Wittgenstein, as much as anyone – confront us like geological specimens *in situ*; and, in the process of chipping them free from their original locations, we can easily forget the historical and cultural matrix in which they took shape, and end by imposing on them a sculptural form which reflects the preoccupations, not of their author, but of ourselves.' (Janik & Toulmin 1973, 27).

The authors mean that we have to understand the context in order to avoid misunderstandings. Only in subjects like pure mathematics we are allowed to overlook the historical and cultural environment in which the arguments and concepts were invented and seen. In this kind of studies, we can perhaps assess weaknesses and merits isolated from the environment. This is not, however, possible in subjects like philosophy and history. Janik and Toulmin scrutinize Vienna regarding Wittgenstein's childhood, the political and social problems, the cultural activities and the general philosophical overall conception common to all thinkers as much as to the academic philosophers.

It is important to understand the economy, politics and cultural situation at that time. To reach an understanding of ideas and thoughts we should use various kinds of sources; written, artistic and architectural are examples which transmit conceptions and ideas. If we can combine these sources they might give us a picture of a medieval thinking. But how can this combination be made as the sources are very different?

The medieval archaeologist Anders Andrén suggests that a combination of the sources thing and script can give us a wider understanding of ancient times. Through various media, we can study the physical state, actions, world of conceptions, language, music, movement and speech of human beings. We can, Andrén claims, come closer to the human totality although no media can give us a total picture (Andrén 1988, 17 f.).

A medieval archaeologist who also uses written sources comes closer to the subject of history but has also the advantage of studying the material traces. Both things and scripts transmit conceptions and ideals, but in different ways. The question is: how can they meet?

They can complement and support each other. The art historian Richard Krautheimer has given a perspective on this subject. According to him it might be difficult to understand the meaning of architecture to the medieval person. When medieval texts compare two buildings with each other and state that one is similar to the other, the similarity might not seem convincing to us. Perhaps, Krautheimer writes, this is because medieval conceptions of what made buildings comparable differ from ours. In medieval time, there was no strong attention for geometrical figures. If an item had more than four corners it was regarded as a circle (Krautheimer 1969, 116 f.).

Can the combinations of sources give us insights that otherwise would have been alien to us if the comparison had not been made? Can the knowledge obtained give us a common medieval understanding? One possibility to gain a deeper understanding of the medieval world of ideas is to start with unique examples; persons of whom we have enough detailed knowledge in order to create a notion of a unique world of ideas. The historical person may give us an insight into a medieval thinking. Through reconstructive imagination we try to recreate an atmosphere – a spirit of time. The individual person's way of thinking is influenced by the environment in which she or he lived; through caution and openness, we should try to arrive at an understanding The caution consists of responsiveness and a critical attitude, openness of the ability to discern the salient features.

Like attempting to learn to know a friend, we try to learn to understand the medieval person. But in the friendship there must be a distance. We are not allowed to be so engaged that we loose the critical stance. The picture obtained is as ambiguous as human nature. This must be accepted because the material is rooted in a living tradition and is not universal.

During the 13th century, a monk named Petrus de Dacia (approx. 1230-1289) lived in Visby, Gotland. He belonged to a group of people who had the opportunity to study at universities in Europe. Petrus took part of higher education in both Colonia and Paris.

During this period, Visby was constructing large buildings; there was an intense creation of art and churches. During the days of glory of the town, more churches were built here than anywhere else. There was a variety, a prosperity and a Christian devotion (Lagerlöf & Svanström 1990, 13 f.).

In the 1250s, a Dominican order was founded in an older church building, which was rebuilt according to new ideals. A simplification of the stylistic features is conveyed. The church room was enlarged in order to have room for more people, the tower was pulled down and the apse taken away. The new church building is characterized through clear and simple proportions.

Petrus de Dacia wrote a biography about Kristina of Stommeln. This and their correspondence are sustained to the after-world. After having met Kristina for the first time, Petrus was caught by her humbleness and piety. Their meetings developed into a close friendship which lasted for many years. There is a constant feature in their story. It deals with the question of how they shall be able to live a virtuous life, so that they can be one with Christ. Their lives are ruled by the conception of God. The book gives us historical facts, but above all it is a description of life, a book filled with thoughts from medieval times.

In the text, we can distinguish ideals comparable with the scholastic philosophers. The whole existence is grounded in a hierarchical order. At the top of the hierarchy stands the pure *materia*. The human being stands over all other things in nature, since she or he is provided with sense. The finite can to a great extent understand the endless, but this godly knowledge is limited. Through revelation we can gain deeper knowledge of the essence of God. Through her ability to see revelations, Kristina has a higher position in the hierarchy than Petrus has.

Both the stylistic traits of the church and the text by Petrus have common features which remind of each other. One strives after a simple style of life, where everybody fits into the system. The absence of church towers and Petrus' minimizing his own value make the message plain: man should not plume himself. The picture of the world is characterized by a totality where everything has its given place.

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Richesse archéologique: source historique et loisir culturel. Le cas d'Ourense, Galice

En cet endroit, dans cette ville de Brugge qui a su si bien conserver son héritage historique, cette intervention peut paraître très inopportune. C'est une réflexion formulée depuis un pays, la Galice, dans le nord-ouest de la Péninsule Ibérique, où l'exploitation archéologique du passé médiéval est encore très réduite et où le chercheur du passé médiéval – et même toute personne intéressée – trouve dans la dilapidation du patrimoine de nombreux motifs de regret. Je suis néanmoins certain qu'une problématique identique se présente en beaucoup d'autres lieux. Les lignes suivantes veulent attirer l'attention sur cette situation, pour démontrer – dans la perspective de l'historien, pas de l'archéologue – l'utilité que les sources archéologiques ont pour l'étude du monde urbain.

L'archéologie médiévale en Galice

On ne peut en disconvenir: l'archéologie médiévale est toujours une curiosité en Galice. On ne considère absolument pas qui'il soit indispensable pour un médiéviste d'être plus ou moins initié à l'archéologie, ni même d'utiliser dans ses travaux les moindres informations provenant de cette discipline – bien qu'il soit de bon ton le faire. Le curriculum académique se contente de quelques matières de Troisième Cycle. Jusqu'ici, l'Histoire médiévale se bornait exclusivement à l'étude des archives, sinon simplement aux livres ou à la spéculation.

Les raisons de cette situation sont évidentes. On considère que l'énorme (et heuresement brillant) développement de l'archéologie préhistorique chez nous – grâce aus très féconds efforts du Séminaire des Études Galiciennes durant les années 30 et de F.L. Cuevillas par après, continués avec succés à l'interieur et en dehors de l'Université de Saint-Jacques-de-Compostelle – a fait s'identifier l'Archéologie avec la Préhistoire, empêchant d'orienter également les efforts vers les périodes postérieures, considérant que cela était superflu. En fait, l'intitulé du Département universitaire concerné le reconnaît implicitement, parce qu'il unit les deux dénominations. Mais cette explication est erronnée (ou du moins incomplète) et elle dévoile une certaine réticence à assumer les propres responsabilités.

En fait, le monopole de la préhistoire en archéologie est deja cassé en quelques points. Appliquée à la période de la romanisation, l'archéologie a permis de remarquables progrès, et aujourd'hui elle se trouve en plein développement, aussi bien dans les aires rurales et maritimes (fouilles de *villae* agraires et côtieres) que dans les villes, avec de récentes trouvailles révélatrices à La Corogne, à Pontevedra et à Vigo. Certes, pour cette époque les documents sont très limités et, à cause de cela, l'archéologie a toujours été considerée comme activité légitime. En revanche, l'histoire contemporaine n'est pas sujette à cette limitation, tout au contraire, mais les chercheurs savent néanmoins de plus en plus apprécier l'aide de l'archéologie industrielle ou navale qui, malgré un réel retard, commencent aussi à faire leurs premiers pas chez nous.

Tout cela ne signifie cependant pas que l'archéologie médiévale n'ait absolument pas avancé, ces lignes n'auraient pas été possibles sinon. Mais son progrès est limité et discontinu. D'ailleurs, une grande partie des découvertes concernant la période médiévale ont été produites au cours de fouilles réalisées avec une finalité et suivant des méthodes propres à la préhistoire ou à l'histoire de l'art; elles sont, en ce sens, plutôt fortuites. En tout cas, les découvertes strictement médiévales (faites depuis la Guerre Civile) peuvent être comptabilisées rapidement: quelques nécropoles suèves (la plus importante dans le sous-sol de la Cathédrale de Saint-Jacques, une autre, aussi grande, à O Grove); quelques nécropoles du haut Moyen âge (par exemple à Allariz, découverte pendant un reconditionnement); à Padron-Iria (près de Compostelle) on a entamé la fouille du château archiépiscopal de La Roche, où ont été trouvés d'intéressants restes architecturaux et artistiques; auparavant y avaient été étudiées les restes des tours occidentales; il y a quelques années on a fait (par fouille de sauvetage et de façon incomplète) des

trouvailles de structures portuaires à Pontevedra; récemment on a fait des fouilles en des points bien déterminés du périmètre défensif haut-médiéval de Saint-Jacques; enfin, les bulletins des musées recueillent des trouvailles épigraphiques et céramiques. Il manquera peu de chose dans ce rapide dossier.

Quand, en 1980, on a réuni à Saint-Jacques-de-Compostelle, un "Séminaire d'Archéologie du Nord-Ouest Péninsulaire" (sans continuité), ses sections voulaient, dans un but très sage, embrasser le Moyen Âge. Mais, dans la pratique, elles se sont elles-même limitées au haut Moyen Âge, peut-être encore parce qu'on considérait que le seul but de l'archéologie consiste à suppléer le manque de sources écrites. Malgré cela, les deux communications médiévales[1] se bornaient à l'analyse des réseaux urbains au regard des témoignages architecturaux visibles, c'est-à-dire, sans aucune intervention archéologique.

L'archéologie, source historique

Cependant, nous avons tous conscience que l'archéologie constitue une source indispensable pour la recherche en histoire médiévale, de sorte que, tout en étant parfois profanes dans ses techniques, nous ne pouvons pas éviter d'inclure autant que possible le répertoire des témoignages archéologiques visibles dans toute étude globale d'une certaine société, aussi bien rurale qu'urbaine; traces de vieilles unités d'exploitation agraire, restes de l'infrastructure des communications, d'installations industrielles, vestiges de l'enceinte urbaine, éléments défensifs, rues, bâtiments, installations portuaires; pour les époques antérieures l'information fournie par les trouvailles numismatiques a en outre une grande valeur

Il semble que la méthodologie oblige à faire place à ce chapitre dans la recherche. M. Barceló critique non sans raison cette fonction de "banale illustration" à laquelle le médiévisme veut limiter l'archéologie[2]; mais il faut aussi l'interpréter comme un salutaire désir de la part des historiens.

On ne peut pas nier la priorité du document écrit dans l'histoire médiévale (et Ourense en possède un grand volume), mais il est également vrai que, en l'utilisant exclusivement, notre vision de la réalité reste incomplète et plusieurs aspects ne sont nullement éclairés. L'auteur cité ci-dessus rappele que certains secteurs sociaux ne sont pas représentés dans la documentation, soit parce qu'ils n'ont pas produit d'écrits, soit parce qu'elle est perdue ou dispersée; en tout cas – poursuit-il – la volonté de transmission de la documentation écrite lui donne une intention déterminée[3].

Donc, l'archéologie complète nos champs d'observation ou bien les illumine elle même. Prenons un exemple révélateur (récemment exposé): même avec l'aide de l'iconographie (représentations, dessins) nous ne pouvons pas reconstuire une caravelle du XVe siècle avec la précision suffisante pour qu'elle puisse naviguer avec succés; seules les découvertes très récentes (sous la direction du prof. F. Alves) de témoignages archéologiques de ces bâteaux (tant terrestres que sous-marins) à Aveiro et Lisbonne (Portugal) permettront leur reconstruction fidèle.

"L'objectif de l'archéologie est de produire des connaissances historiques"[4]. C'est pour cela que le médiéviste, de la même façon qu'il a étendu son attention de la documentation royale et seigneuriale à celle privée à mesure que ses champs d'étude se sont élargis, doit aussi inclure de plus en plus les données de l'archéologie dans ses sources.

Le modèle d'Ourense

En Galice, les villes de Pontevedra[5] et Ourense[6] sont les seules à avoir fait l'objet, jusqu'à présent, d'études complètes concernant le Moyen âge. Concernant cette dernière, nous ne pouvons réellement guère ajouter du neuf à tout ce qui a déjà été publié et qui sont des observations de l'historien attendant l'intervention de l'archéologue. Mais au delà du fait d'avoir fait l'objet de nos recherches, elle offre sans doute un modèle privilégié: ville moyenne (environ 4.000 habitants vers la moitié du XVe siècle[7]), elle contrôle un passage important sur une grande rivière (le Miño), que tout le trafic entre la Galice côtière et

[1] X. BARREIRO SOMOZA & P. DEL LLANO CABADO, Estructuración urbana de Compostela (1037-1140); A. LÓPEZ CARREIRA, A estructura urbana de Ourense no século XV, *Actas del II Seminario de Arqueología del Noroeste (Santiago de Compostela, 1980)*, Madrid, 1983.

[2] BARCELÓ M. 1988: *Arqueología medieval. En la afueras del "medievalismo"*, Barcelona, 12.

[3] *Ibid.*, 74-75.

[4] *Ibid.*, 11.

[5] J. ARMAS CASTRO, *Pontevedra en los siglos XII a XV. Configuración y desarrollo de una villa marinera en la Galicia medieval*, Pontevedra, 1992. J. JUEGA PUIG, A. DE LA PEÑA SANTOS & E. SOTELO RESURRECCION, *Pontevedra, villa amurallada*, Pontevedra, 1995.

[6] A. LÓPEZ CARREIRA, *Ourense no século XV. Economía e sociedade urbana na Baixa Idade Media*, Vigo, *1991; ID., A cidade de Ourense no século XV. Sociedade urbana na Galicia baixomedieval*, Ourense, 1997.

[7] Vid. E. ENNEN, *Die europäische Stadt des Mittelalters*, Göttingen, 1987, 225.

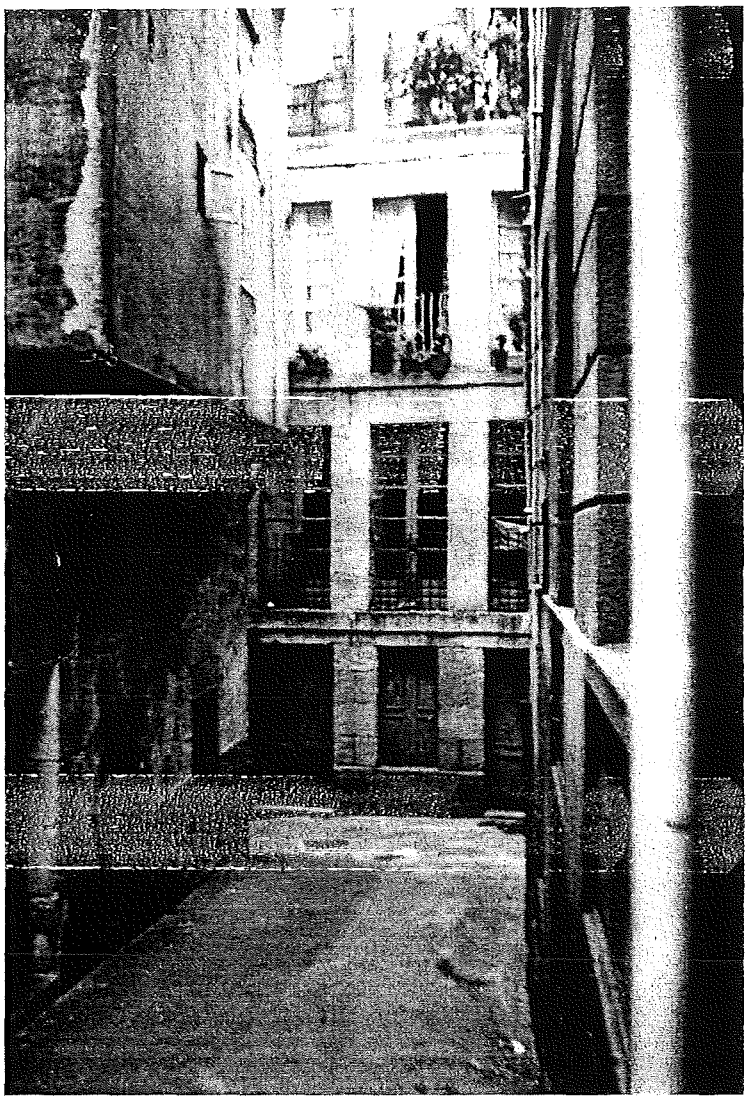

Fig. 1. - *Rue médiévale.*

l'intérieur du pays doit traverser sur un pont dont la construction initiale remonte a l'époque romaine; elle est siège épiscopal et la Cathédrale y exerce la jurisdiction seigneuriale (l'évêque) et territoriale (le Chapitre); elle exploite avec profit une agriculture viticole intensive destinée à l'exportation, et entre ses murs prospérait un riche éventail de l'artisanat, surtout le textile. Comme toute la Galice urbaine, Ourense fut un protagoniste important des conflits durant la deuxième partie du XIVe siècle et de la moitié du XVe, avec de lourdes conséquences matérielles. Malgré une intéressante tradition d'études historiques, archivistiques et archéologiques, et surtout une richesse documentale sans égale en Galice, il n'y a cependant aucun indice de progrès dans le domaine de l'archéologie médiévale, et son patrimoine, nullement négligeable, demeure toujours à la vue des observateurs... et se consume inexorablement.

L'analyse superficielle du patrimoine archéologique

A côté d'une exhaustive documentation médiévale (gardée aux Archives de la Cathédrale –ACO– et aux Archives Historiques départementales –AHO–), Ourense conserve en état relativement excellent la structure de son enceinte urbaine historique. Certes, la documentation nous permet de reconstruire en bonne partie la ville médiévale, mais elle est évidemment insuffisante pour connaître des aspects importants qu'elle ne reflète pas. Il n'y a que le travail sur le terrain qui peut fournir des informations sur le tracé irrégulier des rues et sur leur largeur, sur l'étendue des demeures et leur occupation; sans ces ressources tout plan que nous pourrions dresser resterait inexact ou superficiel.

Ces données sont conservées au-dessus du sol et avec elles (et l'aide de la documentation) on peut aussi confirmer et évaluer les différentes étapes du développement du noyau urbain, en identifiant les

Fig. 2. - *Aspect extérieur d'une maison.*

zones construites et celles où les vergers et terrains incultes ont subsisté au fil du temps (on dispose également de plans du siècle dernier pour le confirmer). La délimitation la plus exacte possible du plan constitue un pas crucial pour établir la capacité démographique de la ville; dans notre cas on peut pour cet aspect facilement remonter jusqu'au XVe siècle grâce à une documentation exceptionnelle, mais, pour les périodes antérieures, il faut utiliser l'analyse de l'espace occupé, ce en quoi l'archéologie devient indispensable.

Les documents citent les éléments et les matériaux de la maison urbaine médiévale (fig. 1); ils parcourent même son intérieur. Mais cela n'aurait pas suffi à nous faire une idée exacte (ils ne parlent jamais de la cuisine, par exemple) si quelques bâtiments (très rares et en nombre toujours plus restreint) n'eussent conservé leur aspect extérieur et les matériaux originaux. Peut-être que certaines maisons de la vieille ville, avec prolifération de bois, n'aient guère altéré leur structure intérieure au cours des siècles (fig. 2).

Enfin, les bâtiments seigneuriaux montrent l'exercice du pouvoir, parce que leur signification politique se manifeste simplement à travers leur étendue et la position qu'ils occupaient dans la ville.

Tout ceci est bien connu. Il s'agit de méthodes de base utilisées dans toutes les études sur la ville médiévale et on a seulement besoin de l'heureuse circonstance d'une bonne condition de transmission, sans altérations par les destructions de la guerre ou par des interventions urbanistiques assez agressives. À Ourense il n'est arrivé rien de tout cela, encore que la spéculation urbanistique ne soit pas absente non plus: on a alteré en certains points la largeur originale des rues considerées historiques et on a même bâti, il y a quelques années, une nouvelle place au coeur de

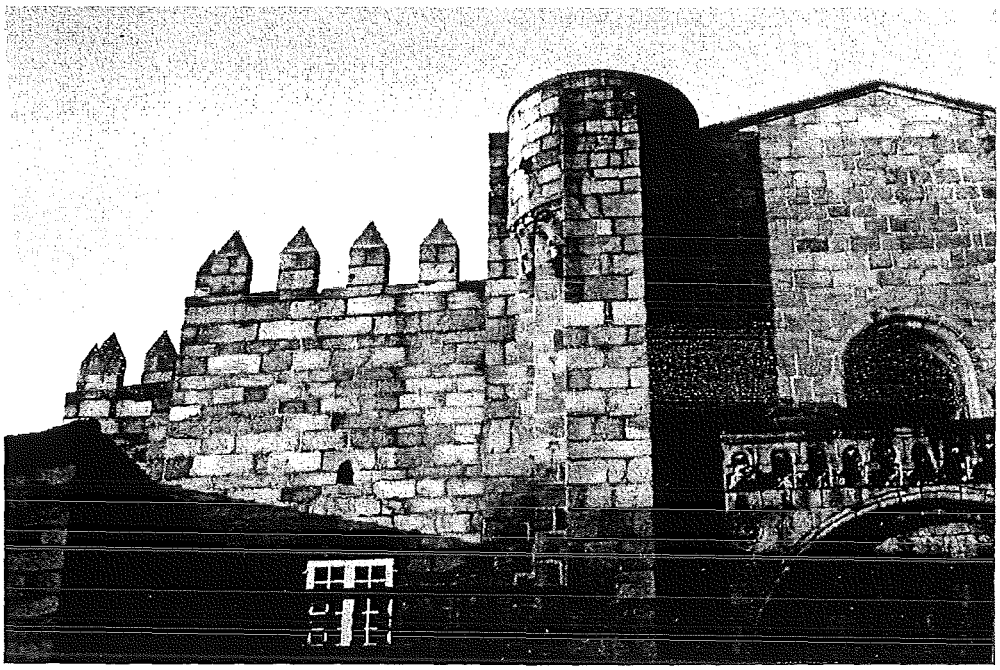

Fig. 3. - *Eléments défensifs de la cathédrale.*

la zone monumentale. Au début du siècle, une église gothique complète a été arrachée de son lieu et déplacée. Mais, malgré tout, la structure de la ville médiévale subsiste dans la vieille ville, avec toute son enceinte.

Ce que la recherche découvre sur le terrain

Un deuxième niveau d'observation suppose déjà une petite recherche sur place, pour attirer l'attention sur ce que, peut-être, on ne voit pas de prime abord. Alors sortent des vestiges très intéressants, il est surprenant qu'ils demeurent encore exposés au total abandon.

La structure défensive fondamentale à l'intérieur de la ville était constituée par la Cathédrale et par le palais épiscopal. La première a été peu alterée par la succession des styles architectoniques et conserve en essence son aspect original. Mais le second a souffert des altérations remarquables et on peut aujoud'hui le reconstuire grâce aux fouilles archéologiques dirigées par F. Fariña[8] (fig. 3).

Ourense n'avait pas de muraille, mais elle avait, malgré cela, des portes à l'entrée des rues. Elles ont toutes disparues, mais non sans laisser de trace: la documentation décrit l'une d'elles superficiellement au XVe siècle; ailleurs, un pilastre (déjà du XVIe siècle) de la Porte de l'Aire (Porta da Aira) subsiste sur place, incrusté dans le mur d'une maison, quoiqu'il passe en général inaperçu (fig. 4).

Le château Ramiro (Castelo Ramiro) – appartenant aussi à la mitre – est situé dans la banlieue; il fut définitivement rendu inutile en avril 1467, pendant la Révolution Irmandiña. Ses restes sont demeurés parfaitement visibles jusqu'il y a quelques années, quand la municipalité a construit sur le même terrain un reservoir d'eau. De toute façon, un simple coup d'oeil à cet endroit permet de voir les restes d'une muraille et d'évaluer son enceinte. Une fouille pourrait révéler, avec certitude, une grande quantité d'information (fig. 5).

On peut dire la même chose sur le réseau des communications[9]. Les documents nous informent sur les chemins importants, mais il n'est possible de les tracer sur plan qu'en suivant à pied les tronçons qui subsistent (et ceux que nous nous rappelons encore). C'est le cas de celui qui menait jusqu'au Vieux Port (Porto Vello) près du fleuve, aujourd'hui partiellement transformé en rues urbaines. Nous pouvons le suivre parallèlement au fleuve pour aboutir finalement à la place du port, après avoir dépassé le petit sanctuaire gothique de Sainte-Marie (un peu spolié déjà).

Dans l'aire suburbaine il y avait des constructions industrielles. Quelques unes ont totalement disparu

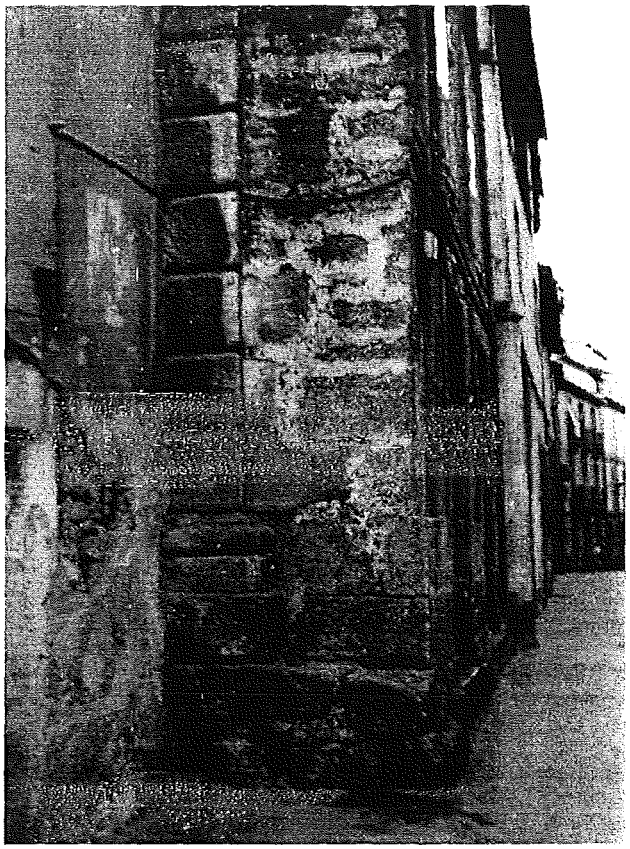

Fig. 4. - *Pilastre de la* Porta da Aira.

de notre vue et nous ne les connaisons plus qu'à travers la documentation écrite, mais il y en a d'autres qui subissent (avec difficulté) le passage du temps, ruinées ou transformées. Les moulins fluviaux constituent un groupe très notable[10], enregistrés dans les documents à l'époque médiévale et utilisés presque jusqu'à nos jours. Leurs murs et leur machinerie restent cachés par la végétation des rivages.

Au centre de la ville, devant le vestibule de l'église Sainte-Marie Mère, était le cimetière médiéval. Son enceinte est devenue place publique et des travaux de conditionnement y ont mis à jour plusieurs tombes, parmi lesquelles quelques unes avec les symboles habituels des métiers.

Certes, si nous dirigeons notre attention vers l'archéologie spatiale, les vestiges se multiplieront, avec d'importants apports sur la structure du plan de la ville et, dans les campagnes, sur les modalitées d'exploitation de l'agriculture intensive et commerciale de la contrée, encore évidentes dans les petites unités (*leiras*) viticoles typiques.

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[8] F. FARINA BUSTO, *Pazos, torres e curral do bispo de Ourense*, Ourense, 1994.

[9] E. FERRAIRA PRIEGUE, *Los caminos medievales de Galicia*, Ourense, 1988.

[10] LEMA BENDAÑA X.R., Muíños nas proximidades da cidade de Ourense, *Boletín Auriense* XI, Ourense, 1981.

Fig. 5. - *Mur du château Ramiro.*

Restes archéologiques occultes

Tout ce qui vient d'être exposé peut être apprécié par toute personne modérément observatrice, par celui qui connaît sa ville. Cependant, le chercheur reçoit au moyen de la documentation de l'information sur beaucoup d'autres éléments fontamentaux de la ville médiévale, totalement disparus de la surface, mais qui, bien sûr, pourront reparaître avec une intervention archéologique systématique. Les documents indiquent simplement leur existence, mais ils ne permettent pas de connaître leur aspect et parfois même pas leur situation.

Plusieurs fois ils parlent de deux établissements de bains (un pour les hommes et l'autre pour les femmes). Ils existent encore aujourd'hui et il n'y a pas de raison pour penser que leur emplacement ait pu changer. Mais aucune étude archéologique n'a été réalisée et il est certain que si on en faisait une, on trouverait des structures médiévales; peut-être même sont elles visibles à l'oeil nu.

Bien que nous connaissions la forme et les mesures des rues, il y a des éléments importants qui nous échappent, tel le revêtement de la chaussée et l'écoulement des eaux. On doit assumer que la plupart étaient simplement en terre et que les eaux s'écoulaient par où elles trouvaient un chemin, mais un document révèle qu'au XVe siècle il y avait des tronçons pavés et des canalisations. Ces mentions sont assez imprécises et il faudrait une intervention archéologique pour chercher ces éléments, avec l'avantage que les documents nous donnent leur localisation spatiale.

Une autre inconnue subsiste concernant l'enceinte défensive. Il ne peut y avoir de doute qu'en plein Moyen âge (c'est-a-dire, quand on consolide le noyau urbain) Ourense n'avait pas – on l'a déjà dit – une véritable muraille[11], mais des documents du XVe siècle révèlent l'existence de tronçons de clôture (*cerca*) et de fossé (*carcava*), en donnant leur situation approximative. Il sera possible de réaliser des fouilles à des endroits déterminés et les résultats fourniront des données très utiles pour l'histoire de la ville, en précisant les rares références écrites.

On doit encore mentionner un dernier élément à l'intérieur de la ville, sur lequel on a assez spéculé, justement à cause du manque de ces données évidentes que seule l'archéologie peut fournir. Ourense est la seule ville de Galice qui possède une documentation abondante sur la communauté juive. Maintes fois on parle de la synagogue et, avec une recherche minutieuse, nous arrivons à peu près à trouver son emplacement. On ne peut pas, cependant, avoir une garantie complète, parce que rien n'en est visible. Et nous ne connaissons encore moins le cimetière juif, qui n'est jamais mentionné dans les textes. L'intérêt de ces deux éléments, si caracteristiques de la ville médiévale, est évident. Or, on n'a jamais entamé de recherche dans cette direction, quoique l'espoir peut paraître fondé que des vestiges en subsistent sous terre.

La même chose se produit dans l'aire suburbaine: les documents nous mettent sur la piste de construc-

[11] GALLEGO DOMINGUEZ O., Torres, puertas y cerca de la ciudad de Orense, *Boletín Auriense* II, Ourense, 1972.

tions intéressantes, dont il n'y a aucun reste visible. Nous ne savons absolument rien (sauf la mention) du four à tuiles (*forno telleiro*) qui exista aux environs de Saint-Lazare, et encore moins du four destiné à la fabrication de chaux. Tous les deux constituaient alors des éléments significatifs du paysage urbain; peut-être étaient-ce les éléments les plus visibles d'une industrie élémentaire de l'époque, animée d'une intense activité axée sur la construction des bâtiments de la ville et du Pont Majeur sur le Miño.

Justement, pendant qu'on restaurait ce pont, tout au long du XVe siècle, tout le trafic a dû traverser le fleuve au moyen de deux grandes barques, reliant les deux ports respectifs: le Port du Terrón (à côté du pont) et le Vieux Port (en amont)[12] . On peut localiser ces deux endroits; le premier parce qu'on l'a utilisé presque jusqu'aujourd'hui et l'autre parce qu'on y a bâti une construction hydraulique. Mais en ce qui concerne leur aspect médiéval, nous disposons seulement des renseignements impressionistes fournis par les documents. La recherche archéologique sera ici très facile.

Les problèmes que pose l'intervention archéologique

Notre exposé révèle la richesse du patrimoine archéologique d'Ourense et sa valeur fondamentale comme source historique. Ce n'est pas une nouveauté: les chercheurs réunis autour du Bulletin de la Commission départementale des Monuments en avaient déjà conscience au moins depuis les premières décennies du siècle présent. Mais il est vrai que, pour l'instant, on n'a pas encore procédé à une recherche systématique et à la sauvegarde du patrimoine médiéval de la ville. Au contraire, le péril d'une disparition définitive est aujoud'hui imminent, devant l'expansion urbanistique désorganisée, et beaucoup de restes ont déjà été sévèrement atteints.

Le désintéressement des responsables laisse n'importe qui perplexe, car la conservation dépend des décisions politiques. En effet, les raisons de nature technique et économique ne sont pas en elles-même déterminantes. Il n'y a pas de problèmes techniques insurmontables pour procéder a une fouille. C'est particulièrement vrai dans l'aire suburbaine, mais cela ne doit pas non plus provoquer de grands contretemps à l'intérieur de l'enceinte, et en fait l'exécution de fouilles de sauvetage est une pratique normale dans beaucoup de villes européennes. Le facteur économique est plus lourd, mais seulement en fonction de la position très basse qu'on a impartie à ces activités sur l'échelle des priorités.

Ce sont les facteurs de nature politique qui sont décisifs. On tient compte, en bonne partie, des difficultés que provoque une intervention archéologique à l'intérieur des enceintes urbaines, surtout dans les propriétés privées situées dans les noyaux historiques: de telles interventions nuisent sans doute à quelque intérêt et engendrent quelque impopularité. Et si l'on n'assume pas en pleine conscience la nécessité de ce type d'activités, on trouvera toujours d'autres lieux où apparemment il est plus rentable d'investir de l'argent. On suppose (mais cela n'a pas été démontré) que la recherche archéologique ne se traduit pas immédiatement en popularité politique.

C'est pour cela que, quand des vestiges archéologiques entravent l'expansion ou la rénovation urbaines et qu'une collision se produit entre ces intérêts opposés, les lois de protection du patrimoine et les normes urbanistiques sont méprisées et parfois ostensiblement transgressées de la part des autorités municipales mêmes. Certes, il y a des lois et, en théorie, des commissions du patrimoine fonctionnent avec la mission de synchroniser construction et conservation. Dans la pratique elles sont évidemment inopérantes (par négligence, par complicité et par manque de capacités exécutoires). L'approbation, l'année dernière, d'un plan de protection du noyau historique (y compris les allégations de l'opposition quant aux éléments essentiels de la banlieue) n'empêche absolument pas que les dissimulations de la part des particuliers affectés et la négligence de la part des autorités soient encore pratiques courantes. En dernière instance on procède à de rapides interventions d'urgence, avec la perte irréparable de beaucoup d'informations.

L'alternative de l'usage public

Or, la conservation du patrimoine fait partie du progrès de la qualité de vie. Il faut sans doute faire un effort culturel capable de donner conscience au citoyen de l'importance qu'a la connaissence de la propre histoire et du capital humain accumulé dans nos villes au cours des siècles. Mais il est tout aussi fondamental d'assurer à tous ces témoignages une valeur d'usage concret, physique.

Cela n'est peut-être pas quantifiable du point de vue strict du marché, mais on le perçoit manifestement. Près d'Ourense il y a l'exemple du village d'Allariz, promu touristiquement comme un ensemble historique et récemment récompensé par l'UNESCO.

[12] RIVAS FERNANDEZ J.C., Los dos antiguos "Portos" fluviales de Orense: el "Porto Auriense" y el "Porto Vello". Sus barcas, ermitas y caminos, *Boletín Auriense* VIII, Ourense, 1978.

Toute l'enceinte ancienne (et aussi la moderne) de la ville doit être dotée d'une signification historique, faisant saillir les points les plus significatifs, créant des circuits pour le loisir public; mais je veux maintenant, pour finir, mentionner spécialement trois exemples de la banlieue à cause de leurs possibilités particulières et de la menace qui plane sur eux.

Le mont où était situé le château Ramiro offre une perspective excellente sur la contrée. Il offre un cadre parfait pour un parc urbain, après une fouille archéologique préalable, la consolidation (facile) des restes aujourd'hui visibles en surface et l'habilitation de l'espace.

La route du Vieux Port, qui quitte la ville par la rive du Miño, a été massivement utilisée comme espace de loisir jusqu'aux annés 60, quand on a initié la spoliation de sa grande carrière de pierre arrondie (*coiñal*) pour la construction, et par la suite elle a disparu. C'est une aire d'expansion naturelle comme espace ouvert de la ville. Une campagne d'archéologie spatiale permettra de récupérer l'information historique et de restituer son usage publique, avec des indications concrètes dans le port et dans le sanctuaire.

Finalement, les moulins, en plein processus de disparition, unissent leur localisation favorable à une très grande capacité didactique, surtout pour les nouvelles générations urbaines. Malgré l'état particulièrement ruineux de quelques moulins, on peut les remettre en marche et illustrer ainsi des anciennes techniques qui ont conservé jusqu'il y a peu d'années (j'en ai vu moi-même en fonctionnement) la mémoire vivante d'une ancienne civilisation.

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"Distant voices, still-lifes". Late medieval religious panel painting as a context for archaeological ceramics

Pictures as texts: artefacts in the contemporary pictorial record

Ceramics, whether excavated from the ground or surviving in curated collections, provide a rich source of information on material life in past societies. As an artefact which is represented at virtually all levels of late medieval and early modern society in north-west Europe, ceramics may be studied on a comparative basis as a physical index of living standards and social behaviour, including conspicuous consumption and the social emulation process.[1] Investigation of the function, use and symbolic role of ceramics is a steadily growing field, involving the analysis of the technical, physical and typological properties of the medium, its archaeological context and the detailed study of contemporary historical sources, notably the rich pictorial record showing function, use and value. The approach requires the integration of archaeological and historical sources to produce a more contextual picture of ceramics in the home.[2]

The extent to which utilitarian and symbolic roles of domestic ceramics can be identified and separated within archaeological contexts is a matter of some methodological complexity. Much of the excavated record is limited as a source in that it can only throw light on the circumstances of objects once they have been broken, lost or thrown away. Few excavated contexts, apart from time-capsule deposits in destruction horizons or shipwrecks, provide an opportunity to study objects in daily use before the point of discard or loss. Equally, documentary references to ceramic use and value remain sparse and unrepresentative for the late medieval period. For example, although well represented in the ground, ceramics are conspicuous by heir absence in the probate inventories of even middle-class mercantile communities.[3] For this reason it is becoming increasingly important to consult complementary historical texts, most notably pictorial representations of daily life or other human activities, for clarification of the context in which household artefacts were used and appreciated by different communities.

With their ubiquity in the ground at all levels of society across North-West Europe, it is not so surprising that ceramics are frequently represented in the late medieval representational arts of the region.[4] For some time it has been recognised that panel-paintings, prints or miniatures of interior scenes or still-life compositions containing domestic artefacts can provide a missing link between object and context.[5] Decoded for their religious and allegorical biases, they provide an immediate visual snapshot of the functions, uses and the social appreciation of domestic goods and utensils – including archaeological ceramics – among different groups of consumers, ranging from court circles to the socially aspirant urban mercantile and artisanal classes. The pictorial record also gives an indication of the relative functional and social relationship between ceramics and other domestic media which do not appear so frequently, or at all, in the ground. The 'missing artefacts' include precious metalware or organic containers made from treen or leather.

The social world of late medieval religious panel-painting

Characteristic of Netherlandish (i.e. Flemish and Dutch) and North German religious panel painting of the 15th to early 16th centuries is an attention to

[1] Beaudry *et al.* 1991 for discussion of artefacts as 'active voices'; Gaimster 1993 & 1994 for discussion of this theme in post-medieval material culture studies.

[2] Burke 1993; Kühnel (ed.) 1986; Hundsbichler 1992; and Gaimster 1994 for discussion of self-critical and inter-disciplinary nature of late medieval and post-medieval historical studies.

[3] Hasse 1979.

[4] Walcher von Molthein 1902; Peremans 1975; Gaimster 1997, chapter 4.

[5] Rackham 1926; Spriggs 1966; Strauss 1972; Peremans 1986; Erdmann 1991.

Fig. 1. - *The* Mérode-triptych, *the central panel with the Annunciation. By Robert Campin, dated 1428. Metropolitan Museum of Art, New York.*

detail in the domestic interior, motivated by a desire on behalf of patrons to record much of the paraphernalia of their own lives. The carefully assembled imagery or 'bourgeois realism' was motivated by a concern on behalf of artists and their clients to place holy figures firmly in their own world, to share, or at least to be present at, the events in Christ's life.[6] As Robert Campin's Annunciation scene in the centre of the Mérode altarpiece of 1428 illustrates (Fig. 1; see below), domestic details of almost archaeological 'exactness' were introduced in order to amplify the personal, realistic and sacral character of the work: hence household furnishings and utensils such as metalware, glass and ceramics, including tin-glazed earthenware and stoneware used as vases to hold the Flowers of the Virgin. The tradition for pictorial verisimilitude in Netherlandish and German painting continued into the 16th and 17th centuries with the development of sumptuous still-life and social genre painting which is such a rich source of domestic artefacts depicted in a functional and social context. However, despite their pictorial realism, the 'hidden symbolism' of interior scenes and still lifes of the late Middle Ages and early modern period can not be interrogated uncritically, but must be decoded to take account of social and ideological motivations.[7]

The cultural context for the pictorial art of the Burgundian Netherlands and Hanse Germany is a highly cosmopolitan, almost exclusively urban world, pivoting on trading communities and their satellite settlements spread across the English Channel, North Sea and Baltic littorals. As visual sources, therefore, the paintings produced by this culture are as relevant to archaeologists working on traded ceramics or glass in Bruges or London as they are to colleagues in Riga or Stockholm, all of which supported substantial Flemish, Dutch and German communities at this time.[8] Religious panel-painting was an art form sponsored by court and merchant class alike. However, the genre flourished with the emergence of the town-

[6] Grimm 1988, 24-26; Harbison 1995, 50-53 on realism in Flemish painting of the 15th to early 16th centuries.

[7] Hundsbichler 1992, 303-304 on the need for critical interpretation of the social bias in these works which emphasise the depiction of prestige goods at the expense of the everyday utensils.

[8] Gaimster 1993; and Gaimster & Nenk 1997 for a discussion of the (material culture) impact of Netherlandish and German mercantile communities living in South East England during the 15th and 16th centuries.

based mercantile classes in the region, as its visual vocabulary could be used to articulate both the spiritual and material aspirations of this new class.[9] Along with a vast new range of domestic goods, commissioning a triptych became both a good financial investment and an opportunity for social competition: a medium by which town burghers could emulate court fashion and the practices of patronage. Both the established as well as the up-and-coming had themselves depicted as donors on the side-panels of diptychs or triptychs (see Fig. 1).[10]

The late-medieval ceramic revolution

Northern European panel-painting of the late 15th and early 16th century contains two major categories of pottery which also have a wide archaeological distribution within the mercantile network of the region. Both decorative but delicate tin-glazed earthenwares as well as robust but fine-bodied stoneware ceramics were intended as much for the international commodities trade as the local market. Each type is recognised by archaeologists across the region as a physical index of living standards and social competition.[11] The new decorative and technological properties of tin-glazed earthenware and stoneware transformed the quality of ceramic tableware available to the consumer. The expansion in the variety of forms and decorative products enabled ceramics made for household use to migrate from the strictly utilitarian to the social sphere. The new repertoire in ceramic tableware can also be seen as a response to changes in dining practices which, by 1500, had developed into a ritual designed to demonstrate status. Cheaper than metalware or glass, these products enabled groups of middle-class consumers to imitate the dining habits of their betters.[12] The transformation in the status of ceramics over the late 15th to early 16th centuries is also reflected in the contemporary pictorial record. The dining scenes (Last Supper, Marriage at Cana) of Netherlandish and North German religious panel-painting provide an invaluable functional and social context for the tin-glazed earthenwares and stonewares found in the ground. Moreover, the devotional subjects associated with the veneration of the Virgin (Annunciation, Adoration, Virgin and Child and still-lifes) suggest a hitherto unrecognised ritual or sacral role for these wares.

1 Tin-glazed earthenware from Spain, Italy and the South Netherlands

The last decades of the 15th century saw a substantial rise in the numbers and range of Continental painted tin-glazed earthenwares imported into North-West Europe. Spanish lustrewares, Italian polychrome-painted maiolicas and their Netherlandish imitations form the three principal categories of these 'luxury' wares.[13] Characteristic North Italian and South Netherlandish products, such as the 'flower'- or 'altar-vase' (so-called after their depiction in Marian representations of the period c.1490-1510) have been found on over 100 sites in Britain alone, ranging in status from royal and episcopal residences, country manor-houses, to merchant houses in London, Southampton, Norwich and elsewhere. In comparison to even relief-decorated stoneware, the production of Italian and Netherlandish maiolica was a much longer and more expensive process requiring a biscuit firing prior to painting and glazing (in the case of Spanish lustreware, an additional third firing was required to bond the silver or copper lustre). The body was ideally suited to the role as a status possession as the repertoire of painted decoration could be rapidly adapted to meet popular styles trends without the need for technical change or additional investment in production.[14] In this new medium, therefore, the response to fashion was immediate.

The social premium attached in England to imported tin-glazed earthenwares of the early 16th century can be observed in the archaeological record, including the assemblages associated with the royal visit of 1535, at the gentry house of Acton Court, Avon. Here 'Italian' wares account for between 1 and 19 per cent of imported ceramics by sherd count, South Netherlandish wares between around 2 and 11 per cent, and various Iberian lustrewares made up between 2 and 38 per cent of the Continental totals found in the layers dating to c.1500-1535/50.[15] Further archaeological evidence for the enhanced

[9] Prevenier & Blockmans 1986; and van der Stock (ed.) 1991 for study of urban culture in the Burgundian Netherlands. See Hamburg 1989 for survey of Hanseatic culture in northern Europe.

[10] Gaimster 1994; Gaimster & Nenk 1997 on the consumption of domestic goods in late medieval northern Europe; Harbison 1995 on the consumption of artworks.

[11] Gaimster 1993; 1994.

[12] Goldthwaite 1989; Gaimster 1994, 1997; and Gaimster & Nenk 1997.

[13] Gaimster 1994, 291; and Gaimster & Nenk 1997, for commentary on this phenomenon. See Hughes forthcoming for the chemical separation of the respective production sources of Netherlandish and Italian maiolicas of the late 15th to early 16th centuries.

[14] Orton 1985 for discussion.

[15] Vince & Bell 1992, tables, 3, 5, 6.

social role of these wares can be observed in finds from Whitehall associated with the 1530-31 clearance of York Place, the London residence of Cardinal Wolsey as Archbishop of York; the Old Manor, Askett, Buckinghamshire; and the Tower of London which has produced number of vases painted with the royal arms of England.[16] As with stoneware, the demand for polychrome maiolica and lustreware spread early on to mercantile and artisanal consumers, and a number of urban excavations have produced contexts dating to c.1500. The cosmopolitan nature of the Guy's Hospital site, Southwark, the 1507 Norwich Pottergate assemblage and the Southampton Simnel Street tenement finds provide an opportunity to examine the role of imported maiolica in the social emulation process.[17]

2 Rhenish stoneware

From the mid-14th century stonewares from the Rhineland formed a regular and increasingly substantial component of Continental ceramic products traded around northern Europe, from the English Channel to the Baltic and beyond. Their technical superiority over rival wares was ensured by their robust and impervious body, a lustrous ash and salt glaze, a stain-resistant and odour-free surface, and a varied typology which suited the multifarious demands of drinking, decanting and the transporting of beverages along with storage and toilet needs. Mass-production on an industrial scale for both home and international markets resulted in a relatively low cost to the consumer and an ability to reach a broad spectrum of the population.[18]

Over the years excavations on English sites of the 15th to 16th centuries indicate a rise in the frequency of Rhenish stonewares across the social scale.[19] The most dramatic increase in the frequency of stoneware imports to England can be dated to the final quarter of the 15th century. At Southampton around 20 per cent of all imported ceramics (by weight) found in late 15th century contexts came from the Rhineland. The increase coincided with the conversion at Raeren to mass-production for international export. Raeren stonewares dominate imported pottery assemblages the early 16th century in London and across the South-East, inclusive of sites of upper and middle-class status. This centre supplied all the stoneware found in pits sealed by the redevelopment of Whitehall Palace in 1530-31, and almost a third of vessels, and almost all mugs and cups and decanting vessels found in the Norwich Pottergate fire horizon groups of 1507. London sites such as the Tower of London Postern Gate are dominated generally by Rhenish stonewares where they account for over 12 per cent (EVE) of all ceramics found and over 50 per cent of all Continental imports in the early to mid-16th century phases. Sites such as Norwich Pottergate and Toppings and Sun Wharves, adjacent to London Bridge, Southwark, which both produced large assemblages of Raeren stoneware for the table together with Dutch-style redware for the kitchen, suggest that a good proportion of the trade in these wares may have been ethnically motivated. The universal social distribution of stoneware in early 16th-century England is emphasised by the Raeren vessels excavated at the village of Wharram Percy in North Yorkshire and the poorer quarters of Exeter.

Multiplication in the range of vessels designed for table use characterises production in the Rhineland from the end of the 14th century and dominates it after c.1450. Refinements in dining habits over the course of the 15th century, particularly among the town-based mercantile and artisan classes, are probably responsible for an increasing variety of stoneware cups, mugs, beakers and drinking jugs – some suitable only for wine-drinking, others for beer[20] – along with jugs of various sizes designed for decanting liquids into individual drinking vessels. Stoneware captured a niche in the popular tableware market of North-West Europe, enabling the socially aspirant middle classes to imitate aristocratic rituals in a less expensive medium, substituting precious and base-metalware and imported coloured drinking glasses with a range of fine-bodied ceramics which imitated their role.[21]

The sacred and the profane: a religious context for archaeological ceramics of the late Middle Ages

The tradition for incorporating the elaborately painted maiolica jug as a device to hold the Flowers of the Virgin in northern European Marian art can be

16 Gaimster & Nenk 1997.

17 *Ibid.* for full survey of archaeological distribution of these wares.

18 Gaimster 1997, Chapter 3, for a full survey of the medieval to later international stoneware trade.

19 Gaimster 1997 (Chapter 3.4); and Gaimster & Nenk 1997 for full surveys.

20 Clevis 1992.

21 Hundsbichler 1986 for changes in table habits during the 15th century; Gaimster 1997, Chapter 4.4 for full discussion of impact of this custom change on ceramics.

traced back to the Annunciation scene in the centre of the Tournay painter Robert Campin's *Mérode*-triptych of 1428 in which an Italian-style maiolica jug takes centre stage on a table between the Archangel Gabriel and the seated Virgin (Fig. 1).[22] In this case the jug holds the lily, symbol of the Virgin's purity.

Little can demonstrate the high regard in which Valencian lustred ceramics were held in the North of Europe more than the *albarello* (pharmacy jar) depicted in the Ghent master, Hugo van der Goes' *Adoration of the Shepherds* altarpiece for Tomasso Portinari, Medici agent at Bruges, which was painted between 1475 and 76.[23] The lustreware *albarello* is painted with the blue and copper-lustre leaves so typical of the mature phase of Valencian lustreware production alongside a glass beaker: both vessels perform the function of vases holding flowers associated with the Virgin Mary.

The contents of the *Mérode*-triptych jug and Portinari lustreware jar – the Flowers of the Virgin – form a common link between many of the tin-glazed ceramics depicted in Netherlandish panel-painting of the late 15th to early 16th centuries. Polychrome-painted maiolica from Northern Italy and their South Netherlandish (i.e Flanders) imitations made by expatriate Italian potters based there from c.1500 appear in prominent positions in a series of works of the period c.1490-1510, mostly of a Marian nature, by native painters such as Hans Memling, Bartholomäus Zeitblom and Gerard David.[24] Each of the maiolica vessels depicted in the Annunciation, Adoration or Virgin and Child images contain flowers symbolic of the Virgin's purity, sanctity, royalty and humility.[25] Forms and decorative variation among the vessels depicted correspond closely to those North Italian and South Netherlandish maiolicas then in circulation and found on excavations on both sides of the Channnel. Memling's Madonna and Child of c.1490[26] and Bartholomäus Zeitblom's Annunciation of 1492[27] (Fig. 2) are visually precise representations of contemporary North Italian polychrome-painted maiolica jugs.[28] Both panels depict the classic Faenza form with trefoil pouring lip and 'kicked-up' wide strap handle, and are painted with the characteristic central medallion containing the Holy Monogram IHS surrounded by a 'ladder' bor-

Fig. 2. - *A detail from the Annunciation by Bartholomäus Zeitblom, dated 1492. Staatsgalerie, Stuttgart.*

der. The Zeitblom vessel contains Lilies of the Valley, renown for its scent and hence a reference to the sweetness of the Virgin's nature; whereas the Memling holds white lilies, symbolic of the Virgin's purity, and irises, associated with Mary as Queen of Heaven. An identical (the same?) jug appears as a dramatic still-life on the reverse of a portrait of a young man by the same painter of c.1490 (Fig. 3).[29] In this case the vessel contains the white lilies and irises of the Virgins in addition to columbine, a reference to the Holy Spirit. Less typical, a jug of the same form but painted with a maiden-head within a glory (the Virgin's head?) appears holding the Flowers of

[22] Metropolitan Museum of Art, New York; see Scheil cat 21; Strauss 1977, pl. 10.

[23] Uffizi, Florence. See Scheil 1977, cat. 116.

[24] Scheil 1977 for comprehensive catalogue of late medieval Netherlandish paintings containing tin-glazed earthenware ceramics. See also Strauss 1972 and Lechner 1978 for detailed analysis and additional examples.

[25] Behling 1957; and Lechner 1978 for discussions of floral symbolism in Marian art.

[26] SPMK Gemäldegalerie, Berlin. See Scheil 1977, cat. 80.

[27] Staatsgalerie, Stuttgart. See Scheil 1977, cat. 78; Strauss 1972, l.10, no. 6.

[28] See Hughes forthcoming, for confirmation of North Italian origin of these jugs using NAA on British finds.

[29] Thyssen collection, Lugano. See Scheil 1977, cat. 79b.

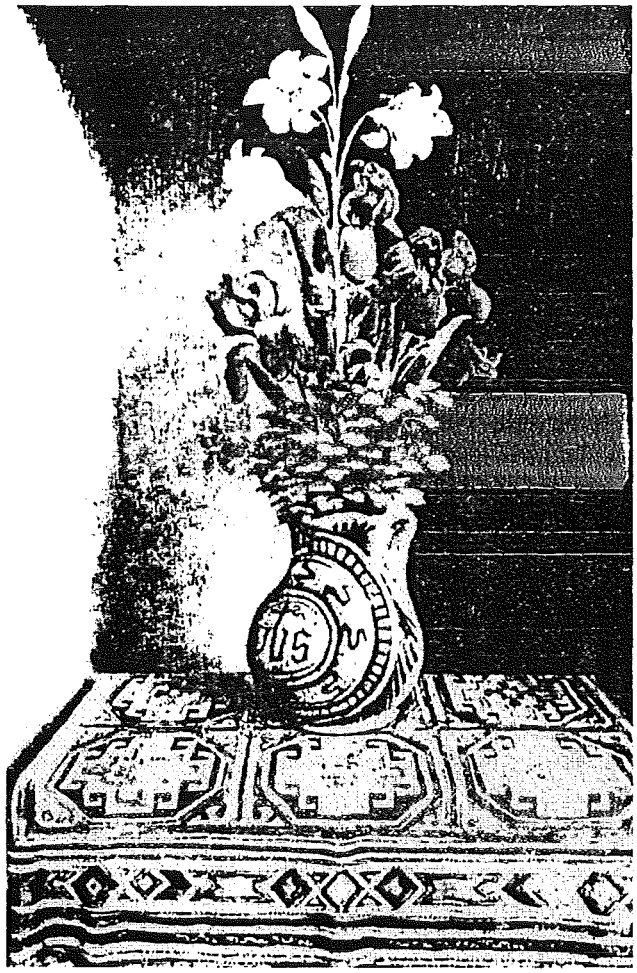

Fig. 3. - *Still-life by Hans Memling, c. 1490. Thyssen Collection, Lugano.*

the Virgin in a portrait of the Virgin and Child by an unknown Netherlandish dating to c.1500.[30]

Vessels of a different form but with the same 'IHS' medallion –the so-called 'flower'– or 'altar-vases' with their two ring-handles – also figure in this genre: the right-hand panel of Memling's 'Lübeck Passion-altar' of 1491 being a case in point (Fig. 4).[31] Here the vessel is depicted in the centre of the Entombment scene: its leather lid is shown to the side, clearly having just been removed in order to apply embalming oils to the body of Christ, possibly the mixture of myrrh and aloes described in John's Gospel (19:38-42).

In all these examples well-known North Italian and South Netherlands maiolica vessels are depicted with archaeological precision in a series of artworks devoted to the cult of the Virgin, possibly the most powerful focus of the devotion in pre-Reformation Europe after Christ himself. She was worshipped by royalty and peasantry with equal fervour and her complex symbolism was understood by all, literate and illiterate.[32] The democratisation of religious practices in pre-Reformation Europe provides a complementary historical context in which to interpret these vessels, their function and social value. The combination of painted ornament – the Sacred Monogram – along with their frequent depiction as vases for the Flowers of the Virgin or containers for holy substances makes an explicit reference to the sacral role of these decorative ceramics. Of course, the 'IHS' monogram, originally the badge of St. Bernardino of Sienna (1380-1444), may have been nothing more than a marketing device to emphasise the Italian character of the ware, whether it was made in the Mediterranean or the North.[33] Although perhaps not intended by the producers for this purpose, it is possible that Netherlandish panel-painters of the period around 1500 appropriated maiolica vessels then in circulation in order to emphasise the religious nature and domestic authenticity of their compositions. After all, there was little else on the household ceramics market which was remotely devotional in form or ornament. But why ceramics at all? Why was precious metalware not selected more frequently for this purpose? Perhaps there was something in the combination of explicit devotional ornament and the nature of the clay medium. Contemporaries would certainly have been familiar with the symbolic references to clay vessels in the bible and their association with the Virgin, the Mother of Christ (Jeremiah 18:3-4; Wisdom of Soloman 15:7-13; Romans 9:21; and Revelations 2:27).[34]

The widespread archaeological distribution of North Italian and South Netherlandish maiolica both in England and in the Low Countries seems to suggest an entirely domestic and, in the main, secular milieu for these wares. Urban tenements, country residences, castles, royal palace households etc. form the majority of excavated contexts[35] (see above). In fact, relatively few finds come from monastic or ecclesiastical sites. The excavated contexts for these wares seems to correspond to the contemporary historical evidence for the 'democratisation' of religious

30 Kunstmuseum Basle. See Strauss 1972, pl. 10, no. 9.

31 Museen für Kunst und Kulturgeschichte Lübeck. See Scheil 1977, cat. 81.

32 Duffy 1992, 256-265 for discussion of Marian cult in pre-Reformation England.

33 Lechner 1978, 92.

34 Lechner 1978, 94.

35 Hurst forthcoming for survey of the British distribution pattern.

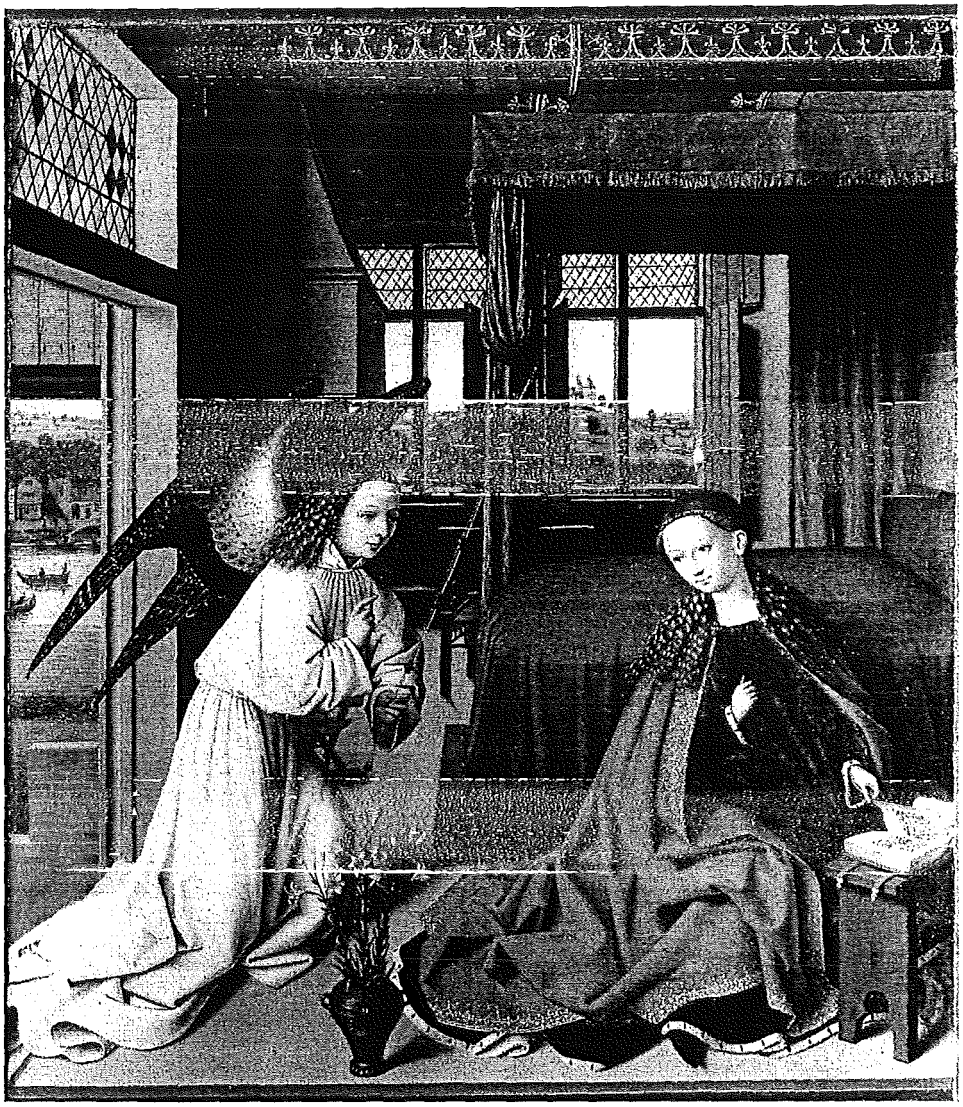

Fig. 4. - *Annunciation by Petrus Christus, dated 1452. SMPK Gemäldegalerie, Berlin.*

practices. In this case the vessels may have been used for private devotion, as symbolic containers for holy water or as holders of the Flowers of the Virgin. Rather like pipeclay figurines of the Virgin or other Saints so common on urban sites of the period, these vases could have been part of portable altar arrangements, either for moving about the home or for taking on pilgrimage. In contrast to stoneware, it is significant that these products do not appear in dining scenes of the altar-panel genre.

In the same vein, Netherlandish and North German panel-paintings serve to confirm the archaeological evidence for the growing status of stoneware in the late medieval household and its migration from the exclusively utilitarian to the social and symbolic spheres. Rhenish stoneware is the predominant ceramic utensil portrayed in dining scenes of the period.[36] Dieric Bouts' *Christ at Supper with Simon the Pharisee* (c.1464) and Jan Mostaert's *Holy Family at a Meal* of c.1495-1500 depict stoneware in the context of dining habits practised respectively by the rich mercantile and artisanal classes of northern Europe.[37] This pictorial record demonstrates most clearly the success of the stoneware industry in capturing part of the tableware market at the expense of competing media. Stonewares are depicted in combination with both more precious materials such as pewterware and glass in the group dining scene, and alongside less expensive products such as wooden trenchers in the case of the more modest *Holy Family* scene, which represents the private world of the artisan, in this case that of the carpenter, Joseph.[38] The various depictions of *The Marriage at Cana* painted at the beginning of the 16th century, such as the scene by the Master of Mary of Magdalene with its deliberate visual reference to actual members of

[36] Gaimster 1997, Chapter 4.3-6.

[37] Stromberg 1987, 33 for reference to the urban mercantile context of these scenes.

[38] Schneider 1979, 266.

the House of Burgundy or the version by Gerard David, provide a social context for the larger jugs and pitchers. In this case they are shown specifically in a court milieu transporting wine from the cellar to the dining area and decanting it into more precious metalware for drinking at the table. Here the utilitarian superiority of stoneware, which enabled it to penetrate into the households of court and patrician class, is emphasised.

Some late medieval stonewares from Germany may have performed a specifically sacral or liturgical role. The 15th-century Saxon stonewares with elaborate plastic surface ornament with typological features based on contemporary ecclesiastical metalwork fit well into this category.[39] Occasionally inventories of church plate provide documentary information on early post-medieval stonewares and their use as liturgical objects, in this case for the storage and pouring of communion wine. Examples include the Siegburg *Schnelle* tankard of the second half of the 16th century recorded in the 1876 inventory of the church of St Catherine in Hamburg.[40] For the late Middle Ages a devotional function has been assigned to a series of miniature Raeren costrels of the late 15th to early 16th-century. An example was deposited as a reliquary in a Norwegian graveyard during the 1470s.[41]

Netherlandish and German panel painting of the late 15th to early 16th century includes a number of Annunciation or Virgin and Child scenes which clearly depict Rhenish stoneware vessels of the period fulfilling an explicitly devotional or sacral role: mainly – as in the case of contemporary maiolicas – as containers for the Sacred Flowers associated with the Virgin. The *Annunciation* painted by the Bruges artist Petrus Christus in 1452 features a Raeren-type loop-handled beaker of the period holding white lilies which are symbolic of the purity of the Mother of Christ (Fig. 4).[42] A bottle from the same workshop is depicted holding the same flowers along with irises, a reference to Mary as Queen as Heaven, in Hans Memling's *Annunciation* of the late 15th century. Hans Holbein the Elder's *Virgin and Child Enthroned* of 1499 repeats the symbolism of the white lily; in this case held by an Raeren or Cologne-type drinking jug. It is possible that the selection of stoneware vessels to hold the Flowers of the Virgin in these paintings, to the exclusion of luxury maiolica or metalware, is quite deliberate as the plain and robust body of the ceramic emphasises two of the Virgin's principal attributes, purity and modesty.

A number of north German triptych panels of the mid- to late 15th century, in this case commissioned by corporate patrons, shows Rhenish stoneware vessels being used in the explicitly liturgical act of baptism. Hans Bornemann's altar scene of St Andrew baptising converts, painted for St Nicholas' Church in Lüneburg in c.1444-48/50, depicts the Saint pouring water from a Siegburg *Jacobakanne* jug. On a side panel of Bernt Notke's Scania Merchants Company (*Schonenfahrer*) altar-piece of c.1475 dedicated to St John, John the Baptist can be seen baptising Christ with a funnel-necked beaker of Siegburg type (Fig. 6). The Scanian Merchants Company was a group which traded between the north German Baltic ports and Scania in southern Sweden. The archaeological picture in the region suggests that they may have been involved in the Rhenish and Saxon stoneware trade to Scania and in the southern Baltic.[43] This vessel corresponds precisely to the stonewares which were circulating in the Baltic during the second half of the 15th century and which were almost certainly prominent on the tables of these merchants. The choice of a stoneware jug as opposed to a metalware container for the act of Baptism is again quite deliberate and emphasises the authenticity of the scene. The stoneware jug may also correspond to the social and occupational status of the patrons of the altar-piece.

Research strategies for iconographic sources in historical archaeology?

This paper is intended to do little more than provoke some much-needed discussion on the opportunities and problems of integrating the archaeological study of late medieval household artefacts – in this case ceramic finewares – with the contemporary iconographic record alluding to their function and social milieu. For this purpose I have selected a number of sources in order to illustrate the possibilities of this approach with two material case studies: the highly decorated tin-glazed earthenwares of North Italy and the South Netherlands and the rather more utilitarian stonewares of the Rhineland. Ubiquitous in the ground, both categories feature prominently in contemporary religious panel-paintings produced in

[39] Gaimster 1997, see section on Late Medieval Saxon Stoneware.

[40] Krueger 1979, 294, footnote 84.

[41] Reed 1992.

[42] Walcher von Molthein 1902, fig. p. 238.

[43] Gaimster 1977, Chapter 3.3; and in prep for full survey of the Hanseatic ceramic trade in the Baltic.

the Low Countries and North Germany between the early 15th and early 16th centuries. Despite the differences in perceived social value, both products appear in devotional scenes, the ceramic bodies possibly adding an extra visual dimension to the spiritual symbolism and authenticity of the composition.

Viewed critically the pictorial sources offer a rich seam of historical information in their own right. Although years of rescue excavation in northern European towns have now provided a quantitative basis for the transformed status of ceramic tableware across a wide spectrum of late medieval households, the contemporary pictorial record provides an invaluable qualitative control on functional and socio-behavioural interpretations. Almost uniquely the panel-paintings offer a glimpse of the objects in use prior to loss or discard, and reveal something of the ideological matrix in which they performed, insights for the most part denied to the excavator. The vast corpus of iconographic references available for this period will doubtless necessitate a systematic approach to the integration of physical and documentary sources. A first priority will be to develop methodologies in this field. The iconographic database established by the *Institut für Realienkunde* at Krems in Austria provides a worthy model for such work in northern Europe.[44] Such a project would form one of many challenges for a truly interdisciplinary and international historical archaeology in our region.

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[44] Kühnel 1992.

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La toponomastica come fonte documentaria per lo studio del Medioevo

Spesso nella ricerca archeologica si incontrano troppi siti senza nome oppure molti nomi di insediamenti incollocabili, a cui non corrispondono effettivamente dei resti sul terreno, causa la genericità delle fonti che li riportano o la difficoltà nel loro reperimento, dovuta alla scarsità delle testimonianze a disposizione o talvolta all'impossibilità di movimento nel territorio, ostacolata dalla vegetazione oppure, purtroppo, dalla sovrapposizione di un cantiere edilizio.

La lacuna è parzialmente colmabile col corretto esame della toponomastica, svolto su documenti d'archivio, fonti medievali e cartografia storica, per approdare alla verifica sul posto di sopravvivenze nella memoria di tradizioni locali e di eventuali resti archeologici.

Nel corso della comunicazione vengono prodotti alcuni esempi significativi relativi a Roma e alla Tuscia meridionale, la porzione laziale della regione storica compresa fra la catena appenninica, a N (odierno confine fra Emilia Romagna e Toscana), e il corso del fiume Tevere, dalle sorgenti alla foce.

Definire la toponomastica una fonte documentaria per lo studio del Medioevo non è affatto azzardato. Come ha già dimostrato il Serra nella prima metà del 1900, con gli importanti studi sulla continuità fra comunità rurali preromane e insediamenti altomedievali, e sull'organizzazione viaria nella parte occidentale della Pianura Padana nei secoli X-XV[1], e come ha più volte sostenuto il Coste[2], ogni toponimo costituisce un elemento importante delle pergamene e delle carte medievali, ricevendo dal loro contenuto indicazioni essenziali per poter essere circostanziato nello spazio e nel tempo (le due coordinate fondamentali, di cui tener conto ogni volta si impieghi il toponimo nella ricerca topografica) e contemporaneamente divenendo un valido strumento per integrare ed accrescere la comprensione delle informazioni da essi trasmesse.

Entrando nel merito di questa doppia relazione fra il toponimo e le sue fonti, i documenti medievali permettono di inquadrare la tipologia d'uso di ciascun nome, magari in relazione a edifici, stagni, torrenti, pianure, colline, montagne, vallate, ecc.. Talvolta offrono persino dati sufficienti per aiutare a capirne il significato e il perché della sua introduzione nel territorio. La circostanza non è così infrequente come si potrebbe pensare: nel 965 si ha menzione nel territorio a SE di Roma del Casale Barbiliano, *positum foris Porta Maiore miliarii ab urbe Roma plus minus quarto In fundo qui vocatur Quarto*[3]; qui appare evidente la connessione fra toponimo e miliario medievale. Il 5 settembre 989 il Capitolo di S. Pietro in Vaticano tratta il possesso di *medietatem de terra sementaricia cum introitu suo et cum omnibus ad eam pertinentem. Positam foris porta Beati Petri apostoli intro parietinas qui appellantur Centecellas, locum qui vocatur Stainello*, avente sul *tertio vel quarto latere parietinas antiquas*[4]; il costante riferimento a *parietinae antiquae*, cioé ad antiche rovine, spiega automaticamente il significato del toponimo Centecelle o Centocelle, distribuito in tutta la Campagna Romana a partire dal secolo X, in corrispondenza proprio di ruderi di vasti complessi residenziali (soprattutto ville imperiali, ma anche terme, cisterne e monumenti sepolcrali). Nell'aprile del 1047 il monastero romano dei SS.

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[1] G. SERRA, Dell'origine del nome Marengo (Alessandria) in rapporto con le vie marenche ossia "marittime" dell'Italia occidentale, in G. SERRA, *Lineamenti di una storia linguistica dell'Italia medioevale*, Napoli, 1954, vol. I, 135-235; G. SERRA, *Contributo toponomastico alla teoria della continuità nel Medioevo delle comunità rurali romane e preromane dell'Italia superiore*, Spoleto, 1991.

[2] J. COSTE, *Scritti di Topografia medievale. Problemi di metodo e ricerche sul Lazio*, Istituto Storico Italiano per il Medio Evo - Nuovi studi storici 30, Roma, 1996, 1-15.

[3] *Il Regesto Sublacense dell'undicesimo secolo*, a cura di L. ALLODI & G. LEVI, Roma, 1880, 64 (n° 25).

[4] L. SCHIAPARELLI, Le carte antiche dell'Archivio Capitolare di S. Pietro in Vaticano, *Archivio della Società Romana di storia patria* 24, 1901, 443 (n° V).

Cosma e Damiano in Mica Aurea loca ad un privato *criptam unam in integro sinino opere coopertam, cum introitu et exitu suo vel cum omnibus ad eam pertinentibus. Posita trans Tiberim ubi dicitur Cripte Colarie, inter affines, a primo latere criptam Gratiani filius Celii, a secundo latere viam publica, a tertio latere criptam Pauli lagunarii et a quarto latere viam publicam*[5]; dalla descrizione si comprende la natura della cripta, una cisterna (*sinino opere coopertam*), forse pertinente all'ultimo tratto dell'*Aqua Alsietina*, l'acquedotto che con le acque del Lago di Martignano alimentava il bacino della Naumachia di Augusto a Trastevere (Roma). La struttura faceva parte di un complesso più ampio di rovine, poiché non solo il toponimo compare al plurale, ma accanto alla "grotta" oggetto del contratto ne sono indicate delle altre, il che lascia intendere che il monastero possedeva un'intero fabbricato antico, composto da una parete rettilinea di fondo, a cui erano addossati una serie di ambienti costruiti e coperti, probabilmente facenti parte dei mercati (*horrea*) compresi fra l'antica Via Portuense e la suddetta Naumachia. Il 21 luglio 1173, infine, si ha una vendita tra privati di *unum petium vinee cum arboribus infra se et cum introitu et exitu suo et cum omnibus suis usibus et utilitatibus ac pertinentiis. Positum territorio castri Buccege in loco qui dicitur Larrone inter hos fines: a primo latere est aqua Arronis*[6]; anche in questo caso la spiegazione del toponimo Larrone è contenuta direttamente nelle righe successive del documento, essendo palese il riferimento al corso d'acqua, chiamato Arrone, presente ai confini del terreno.

Proprio la datazione, riportata in apertura dei singoli documenti, consente di definire il periodo a partire dal quale si sente parlare di un toponimo o di determinare la sua durata d'uso nel tempo, tenendo sempre conto di un margine di circa 50 anni, salvo eccezioni, da considerare a partire dalla prima attestazione, come periodo durante il quale sono avvenuti il concepimento e l'introduzione della denominazione.

Ai fini invece della maggiore comprensione di un documento il toponimo, quale parte integrante di esso, una volta stabilitane la tipologia di appartenenza (nome di un edificio, in buono stato o in rovina, di un elemento geografico, di un uomo, di una specie animale o vegetale) aiuta ad ubicare meglio nel territorio il contenuto della carta presa in esame[7], a ricostruirne il paesaggio e a sottolineare il verificarsi di fenomeni tipici del Medioevo, come il riuso di spazi e strutture antiche. Nel dicembre 1050, ad esempio, un contratto riporta la concessione di due vigne di 30 filari ciascuna, *cum versulariis suis et locum ad calcatorio ponendum [...[. Positae territorio Silve Candide, in predio insule vestre, in locum qui vocatur Solario*[8]; l'indicazione di un *calcatorio* (termine proprio dei luoghi in cui soprattutto marmi e blocchi calcarei lavorati, asportati da antiche rovine, venivano trasformati in calce), unita alla denominazione Solario (specifica delle terrazze o di ambienti coperti, al primo piano degli edifici medievali, e spesso associata ai ruderi delle ville romane) e all'indicazione *in predio Insule vestre*, cioé nel territorio di stretta pertinenza di Isola Farnese (Roma), permette di ubicare il contenuto del documento nell'area della città etrusca, e poi romana, di Veio, peraltro mai indagata per quanto riguarda la sopravvivenza o meno di un abitato nel Medioevo, nonostante i riferimenti inseriti nelle bolle papali, rilasciate ai vescovi della Diocesi di Silva Candida, lo lascino intendere chiaramente.

Ciascun toponimo, preso nella giusta considerazione, costituisce in assoluto la carta di identità del territorio. In esso, infatti, si possono riassumere tutte le principali caratteristiche di un luogo, siano esse positive o negative, determinate dai fattori più disparati (la fertilità, la sterilità di un terreno o la sua scarsa produttività per la presenza di sostanze, come il sale, in concentrazioni superiori alla norma, oppure a causa dell'ingombro di rovine di vario genere; la difficoltà di accesso ad un posto o di transito in una strada, la posizione di un edificio rispetto ad essa e altro ancora) e spesso colorite o spiegate localmente da leggende e tradizioni particolarmente suggestive, ben rappresentate da figure mitiche (giganti), epiche (paladini e cavalieri) o soprannaturali, operanti fra il

[5] P. FEDELE, Carte del monastero dei Ss. Cosma e Damiano in Mica Aurea, *Archivio della Società Romana di storia patria* 22, 1899, 90 (n° LI).

[6] L. SCHIAPARELLI, Le carte antiche dell'Archivio Capitolare di S. Pietro in Vaticano, *Archivio della Società Romana di storia patria* 25, 1902, 313 (n° LVI).

[7] Come ebbe già modo di sostenere il Coste (J. COSTE, *Scritti di Topografia medievale*, 9), "se l'abbazia di Farfa possedeva una volta cento rubbia in una data zona, queste cento rubbia esistono ancora oggi. Certo, oggi non saranno più di Farfa, probabilmente sono divise tra varie proprietà e forse, anziché piantarvi del grano, vi si piantano ora delle palazzine di cinque piani. Ma le cento rubbia non sono scomparse. Nel nostro mondo tutto ha una fine: gli uomini muoiono, le istituzioni decadono, le case crollano, le biblioteche vanno in fumo. Una sola cosa non scompare mai: la terra e per questo lo storico non può trovare un punto di riferimento più sicuro e più stabile che il confronto della realtà di cui parla con il terreno sul quale esse sono esistite, perché essa è l'unica cosa che perdura. Questo confronto è il compito specifico, arduo ma nobile, della topografia".

[8] FEDELE, *Carte del monastero*, 96 (n° LV).

mondo terreno e quello ultraterreno in modo benefico (santi e fate) o malefico (demoni, streghe e folletti).

La nascita e l'esistenza di un toponimo sono legate alla popolazione insediata in una località[9] e alla permanenza o meno degli elementi del paesaggio assunti come riferimento dai suoi anonimi ideatori. Qualunque denominazione, infatti, è soggetta a molte varianti, a seconda dei casi, parziali o definitive, che ne determinano modifiche nella forma linguistica (distorsioni dialettali oppure dovute ad un eccessivo uso di un termine, del quale si è via via perduto il significato), nella posizione (un nome si muove nel paesaggio seguendo l'oggetto a cui è legato, nei suoi ampliamenti, nelle sue riduzioni e frammentazioni), nel contenuto (trasformazioni connesse a variazioni fisiche del paesaggio) e nella durata (un nome rimane in uso fino a quando restano invariate le condizioni che lo hanno generato e persiste l'oggetto a cui è stato associato).

Il messaggio contenuto e tramandato da un toponimo non sempre è diretto e di facile comprensione ma, opportunamente valutato, può, come si è visto, aprirsi a diversi piani interpretativi. Dal canto suo il Medioevo, essendo scomparsa o venuta meno buona parte della toponomastica di epoca romana, ad esclusione di alcuni centri urbani a continuità di vita e di una buona percentuale di prediali, va considerato non solo come il veicolo dei nomi superstiti, ma anche come il periodo nel quale si colmano i vuoti formatisi, creando un gran numero di nuove denominazioni nei modi visti nelle righe precedenti e che in Italia rispondono pienamente alle nuove realtà territoriali. Procopio di Cesarea, già nella seconda metà del VI secolo, trattando gli avvenimenti della guerra greco-gotica (535-553), offre per tutta la penisola una serie di interessanti attestazioni toponomastiche, associate a leggende di vario genere e pienamente consolidate nelle forme che poi saranno tipiche del pieno Medioevo: per il 537 d. C., ad esempio, a Roma fra le porte Flaminia (ora del Popolo) e Pinciana, nella cinta muraria di Aureliano, il muraglione di sostegno degli antichi Horti Aciliorum, inglobato nelle fortificazioni e presto rovinato, a causa di un cedimento delle fondazioni, reca il nome Muro Rotto, giunto sino a noi nella versione leggermente distorta di Muro Torto, e su di esso, secondo l'autore, grava la protezione di S. Pietro contro gli assalti dei Goti invasori[10]; nello stesso anno l'anfiteatro Castrense, racchiuso nella medesima cinta poco lontano da Porta Maggiore, non è più ricordato come tale, ma con il nome di Vivarium, rimastogli per tutto il Medioevo. Procopio ne spiega l'origine, ignorando la vera funzione del complesso, in realtà facente parte del Palazzo Sessoriano di Costantino, e definendolo un luogo usato "per custodirvi in gabbia leoni e altre belve"[11]. Nel 545-546 d. C. viene ricordato in Puglia, fra Canne e il Monte Gargano, il Campo di Annibale (letteralmente il "trinceramento che fu di Annibale il Libico"), dove il generale cartaginese si era accampato nel 216 a. C., poco prima di infliggere ai Romani la tremenda sconfitta, e dove, a distanza di sette secoli e mezzo, re Totila pone la base per il proprio esercito[12]. E, infine, quasi contemporaneamente, a Spoleto l'anfiteatro romano, trasformato dai Goti in postazione fortificata, è definito da Procopio un "recinto di caccia", cioé un Vivario, "ch'era chiamato di solito Anfiteatro"[13]. Le stesse evoluzioni della toponomastica sono visibili in un grande numero di casi anche nel Liber Pontificalis, nelle bolle pontificie altomedievali, nell'insieme di fonti riunite sotto il titolo di *Mirabilia Romae* e in altre ancora[14].

La piena affermazione delle diverse forme di nomi nei secoli successivi, mantenutesi invariate per molto tempo, può indurre facilmente nell'errore di fissare la propria attenzione sul solo significato dei singoli toponimi, tralasciando, invece, le molte informazioni ricavabili dal porsi una serie di domande, prima fra tutte il perché di una denominazione, in un certo luogo piuttosto che in un altro. Intere classi di nomi quali Antico, Arca, Bagno e Barca, solo per citarne alcuni, ricavati dall'esame di carte e documenti relativi alla Tuscia meridionale, avrebbero poco senso, e forse neanche quello corretto, se spiegati solo nel loro significato stretto, senza neanche un confronto con le realtà locali e fenomeni quali: la definizione nel territorio di aree ricche di materiali da costruzione, estraibili da edifici in rovina e riutilizzabili in nuovi cantieri (da cui i toponimi medievali

[9] Esiste una relazione diretta tra densità di popolazione, dimorante in modo più o meno continuo in una certa zona, e numero di toponimi presenti in quella stessa superficie da essa occupata. Se ad esempio un terreno di 1 ettaro appartiene ad un solo proprietario, ha un solo nome; se però viene ripartito in quattro appezzamenti, propri di persone diverse, automaticamente aumentano a quattro anche i nomi. Allo stesso modo, se in un qualunque tratto di campagna si possono avere quattro o cinque toponimi diversi, quando questa superficie viene inglobata nella periferia di un certo abitato e urbanizzata, il loro numero si moltiplica in proporzione diretta all'aumento della viabilità e della relativa onomastica.

[10] PROC. CAES., *Bell. Goth.*, I, 23.

[11] PROC. CAES., *Bell. Goth.*, I, 23. Lo stesso toponimo Vivaro, con analoga spiegazione, viene spesso attribuito nei secoli VIII-XIII a molti edifici di spettacolo romani.

[12] PROC. CAES., *Bell. Goth.*, III, 22.

[13] PROC. CAES., *Bell. Goth.*, III, 23.

[14] A. GRAF, *Roma nella memoria e nelle immaginazioni del Medio Evo*, Torino, 1923, in particolare alle pp. 34-118.

Muro, Marmo, Pareti, Statua ecc.; se si tratta di fabbricati interi allora si ha pure Bagno, Caminetto, Casa, Cisterna, Palazzo e i loro derivati. Grotta vale anche per gli abitati rupestri, laddove il terreno offra le condizioni necessarie alla loro costituzione); oppure la fissazione di nuovi elementi confinari (nomi di alberi isolati, Colonna, Arca, Pietrafitta) e di punti di riferimento lungo tracciati stradali, in uso in epoca preromana e recuperati solo con la caduta dell' Impero (Cava, Osteria, Pietra, Mezzocammino, Pozzo); la creazione delle vie di pellegrinaggio, con le loro infrastrutture assistenziali o di semplice supporto (Borgo, Ospedale, Lazzaretto, Tempio, Commenda, Magione), e tutto il carico di tradizioni e leggende, variamente assegnate agli aspetti anomali e più appariscenti del paesaggio, siano essi naturali o prodotti dall'uomo (il Drago e le cave antiche, il mito di Orlando e dei Paladini di Carlo Magno, i ponti e le altre numerose opere del Diavolo e delle Streghe, i santi, posti variamente a guardia dei punti più pericolosi per i viandanti o a controllo di chiese, sorte su vecchi templi pagani); la diffusione nelle campagne del Cristianesimo, dall'organizzazione delle diocesi alla fondazione di chiese rurali e monasteri (Badia, Pieve, Carcere, Chiesaccia, Vescovo, Monaca); l'abbandono o il recupero di antichi abitati per nuovi insediamenti (Civita, Castello, Palombara); la riorganizzazione della rete idrica nelle campagne dopo la cessazione della cura da parte della magistratura romana delle acque (Forma, Capo d'Acqua, Condotto, Cunicchio e loro derivati e varianti); lo stabilirsi di nuclei di origine germanica o comunque non-latina (Longobardi, Goti, Ungari); per non parlare poi dell'incastellamento e delle logiche alla base della costruzione delle torri, siano esse di guardia o semaforiche (Castello, Rocca, Torre).

Tutto questo è la toponomastica, un utile strumento in grado di trasformare un'indagine topografica e archeologica da casuale in scientifica, supportata da una precisa metodologia di ricerca.

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One for all, all for one. The old english *Beowulf* and the ritual and cosmological Character of the Relationship between Lord and Warrior-follower in germanic Societies

Research on the structure and development of protohistoric Germanic societies has always shown a special interest in the issue of *Gefolgschaft*. It is customary to define *Gefolgschaft* as a formal and long-lasting relationship of reciprocity between a lord and his warrior-followers. Some scholars have tried to develop a model of the economy of this relationship.

Gefolgschaft is thought to be a phenomenon of special importance in the study of long term developments in the societal organization of Germanic societies. In general it is looked upon as a revolutionary kind of organization which marks the transition from tribe to state. The main objective of my lecture is to shed some new light on the issue of *Gefolgschaft*. To realise this goal I will not, as is customary, give an overview of all relevant extracts from the primary sources. However, one of the most important sources – the Old English *Beowulf* – will be dealt with in its entirety. *Beowulf* is looked upon from both a literary-historical and an anthropological perspective. A critical evaluation of the models developed by both historians and archaeologists in their description and analysis of the structure and development of Germanic societies will conclude my lecture.

In comparison to for example Tacitus' *Germania*, the study of which dominated the discussion on *Gefolgschaft*, the opportunities for research offered by the Old English epic *Beowulf* are to be emphasized. To be sure, the unknown author provides us with an image of a heathen past which is determined by Christian ideas on the historical development of human society. However, the poet's use of a Germanic language, his incorporation of stories taken from a native oral tradition and his familiarity with a societal structure which developed from the one typical of the heathen dark ages, enhance the authenticity of his description. Because the exchange of gifts figures largely in the poet's descriptions of the relationships between king or lord and warrior-follower, I thought it right to base my analysis of *Beowulf* on the anthropological study of gift-exchange.

In the lecture I will provide an overview of the anthropological discussion on exchange. I have restricted myself, however, to the research done by those anthropologists who can consider themselves to be the true heirs of Marcel Mauss because they have developed his most important notion of the commensurability of the participant in an exchange and the objects exchanged. I am referring to the French ethnologist Louis Dumont and his French and Dutch followers. The native conceptual universe plays an important role in their analysis. Each society is characterized by a unique system of ideas and values in which a society names and values all important relationships. Within this system of ideas and values, these relationships are brought together into a connected whole. Typically, non-modern societies do not only specify relationships among the living, but also between the living and supernatural beings like ancestors, ghosts and gods. In contrast to the modern barrier between the living and the dead which seems to be insurmountable, in non-modern societies the living and the dead seem to participate in one and the same system of exchange. Often the relationship between the living on the one hand, and the ancestors or other supernatural beings on the other, is of the utmost importance for the continuation of human life.

Each person, according to the Dumontian scholars, is brought into being, transformed into a mature human and, after death, made into an ancestor in this complex field of relationships between entities in the sublunary and the supernatural world. These successive transformations of the person can be considered as the joining together, development and breaking up of different 'constituents'. Because none of these successive transformations make up an automatic process of a natural kind, the exchange of gifts becomes important. The transformations mentioned are realised by the activation of different relations within the human world and between the human and the supernatural world and they are realized through the exchange of gifts. Such perspective shows how, in Mauss's vein, subject and object of exchange are commensurable and how the constituent parts of the human being are conceived of as valorized parts of

exchange objects. All constituents which are relevant for the human person circulate in extensive circuits of exchange in which all rituals, in which the transformation of the person is brought about, form one whole. 'Society as a whole', as the Dumontians call it, comes to the fore in this totality of exchanges.

The question poses itself whether historical and archaeological studies of relations of exchange inside and outside the *Gefolgschaft* comply with the Dumontian principles of research. The answer is negative. First, the research done on relations of *Gefolgschaft* and other patron-client relations only take the living into account. Usually the ensemble of relationships among the living is not embedded in an encompassing sociocosmic order. Second, the modern distinction between subject and object in an exchange is taken for granted. Individuals of a given social category exchange objects and these objects are valued not because they are synonymous with constituents of the person but because they are useful, scarce or costly. Third and last, life cycle rituals do not figure prominently. However, it is important to see these rituals as the essential temporal dimension of *Gefolgschaft*. In the remainder of my lecture I will develop – on the basis of *Beowulf* – a model which meets the aforementioned drawbacks. The model breaks with the dominant politico-economical perspective on *Gefolgschaft* and offers an interpretation which values the ritual and cosmological basis of this relationship instead. My presentation of the model in is preceded by a short discussion of two major problems which have to be addressed by every *Beowulf* scholar: its date and its religious purport.

Dating *Beowulf* faces us with a problem. Arguments have been given for dates which range from the late seventh to the first quarter of the eleventh century. Most probably, *Beowulf* dates from the period 675-825. Such an early date is of importance for my analysis because I pretend my *Beowulf* model to be of relevance for the historical and archaeological study of the Germanic societies of the late Roman and early medieval period.

Next I will dicuss whether a Christian conceptual universe is at the basis of *Beowulf*. This issue is of special importance for my analysis of the exchange of gifts in Beowulf for two reasons. First, a structuralist Dumontian analysis has to be aware of the relations of exchange between the world of the living and supernatural entities. The discussion of the religious incentive of *Beowulf* has shown that the author made use of biblical and patristic understandings of a pre-Mosaic age of natural law. Although God had not revealed himself, people were able to know God because they were able to see through Creation and to know his law because they had been created in God's image. These likes of Noah had to combat the devil but they were not able to directly communicatie with God. *Beowulf* therefore seems to offer limited opportunity to analyze patterns of exchange between man and God. However, as I will demonstrate at the end of my lecture, the main characters of *Beowulf* show a great concern with the ancestors and the creation of new ancestors.

Second, the discussion of the religious purport of *Beowulf* sheds light on the validity of christian typological or allegorical interpretations of the poem. The endorsement of these interpretations would implicate an analysis of the exchange of gifts in *Beowulf* not in secular terms of munificence and meanness but in religious terms of charity and avarice. I see, however no reason to adapt these latter terms.

After discussing date and religious purport a Dumontian model of the societal structure as described in *Bewoulf* is offered. The model brings the following elements together in one coherent whole:

- the most important social relations between various social categories;
- the constituents which are relevant for the constitution of the fully fledged noble person;
- the values which are prevalent in the relations in which noble people acquire the above-mentioned constituents;
- the social topography of the sublunary world;
- the life-cycle rituals of the king and his warrior-followers;
- the ceremonial exchanges which accompany the life-cycle rituals of the warrior-follower, the marriage and death rituals and the festive and ceremonial occasions during which the king shows his generosity.

The idea that the human person is a merger of various constituents is basic to the model. In Anglo-Saxon England, of which *Beowulf* is an exponent, these constituents can be labelled as: 'body', 'life', 'mind', 'image' (or 'worth') and Christian 'soul'. Life-cycle rituals aim at the bringing together, the development and breaking up of these constituents. These transformations are not a matter of course but depend on the activation of the relations within human society and between humans and God. They are implemented by the exchange of valuable goods like ornamented weapons, horses, golden rings and precious table wares. In the ensemble of relations of exchange Anglo-Saxon society as a whole comes into being; i.e. the model not shows only how young noble males become mature in relation to the lord or king, but also how the lord or king is transformed into an ancestor in relation to the various parts of his kingdom, i.e. in relation to his mature warrior-followers who rule part of his realm. The complementary ritual roles of the king, on the one hand, and the warrior-

followers, on the other, epitomize the principle stated in the title of my lecture: one for all, all for one.

To conclude my lecture I will deal with the implications of the research presented in this lecture for the archaeology of Germanic society. I will limit myself to an archaeological study which can be considered to be a good exemple of the archaeological research done on the early Germans in the wake of the New Archaeology: Hedeager's *Iron Age Societies*, published in 1992. Her book seems of special interest to *Beowulf* scholars because it deals with the region and period which are central to the concerns of the *Beowulf* poet. I make a stand against the progressive evolutionary perspective adopted by Hedeager. The first millenium societies of Denmark do not progress from tribe to state, as Hedeager claims they do. In fact the complex developments of this era can be conceptualized in terms of an oscillation between more or less hierarchical modalities of the model presented in my lecture.

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Inertia as a measure of inter-assemblage variability: some applications in the study of spatial differentiation within medieval towns

1 Introduction

In any settlement of more than the very smallest size, we are likely to observe that there is spatial differentiation. i.e. that the settlement is not spatially homogeneous. There may be areas where different activities are carried out – for example, living areas, industrial areas, religious areas. Even within one such category, we can expect to find variation: there may be large and small houses, perhaps constructed of different materials, different kinds of industrial activity, even different religious functions. Different settlements, or the same settlement at different periods, may show variation in the scale of patterning, from coarse-grained patterns of distinct zones of different functions to fine-grained patterns in which the different functions are closely intermingled. The scale itself could vary across a settlement, or through time; indeed, the nature and rate of such change would be an interesting area of study.

How is such spatial variation, and such patterning, to be studied? Three approaches come to mind immediately:

(i) an historical approach, such as Keene's study of medieval Winchester (Keene 1996),

(ii) a structure-based approach, based on standing buildings or records of buildings (Schofield 1995), using methods developed by architects and planners for studying the structure of modern towns,

(iii) a finds-based approach, based on excavated assemblages of chosen categories of finds, both artefacts and ecofacts.

As an archaeologist, I cannot comment on (i), except to say that I do not rule it out. The use of approach (ii) will depend on the availability of adequate data, e.g. if a settlement has been abandoned, overwhelmed by some disaster (*cf.* Pompeii), substantially preserved, or subjected to a thorough inventory of its buildings at some point in the past. All these circumstances are likely to give rise to, at best, a 'snapshot' of the settlement at a particular point in time, and are not likely to give a picture of chronological variation. The third approach can be divided into two, depending on whether we look at material which is likely to have been accidentally lost, or at material which is likely to have been deliberately discarded. The former (probably only a small minority of the total finds assemblage) can be expected to be found close to the location at which it was used, while the latter may have been moved a considerable distance, depending on the means of rubbish disposal. For example, disposal in domestic pits is likely to result in deposits which are individually homogeneous, but which show a marked, and possibly very local, pattern of variation between assemblages. On the other hand, disposal into more communal deposits, such as those behind the riverside revetments in London (e.g. Milne & Milne 1982), or large extra-mural rubbish deposits is likely to blur the distinction between individual deposits, and prevent the study of patterning at a fine scale. Thus changes in observed patterns of variability might be due to changes in patterns of use, but they might also be due to changes in patterns of disposal. The nature of excavations will also affect our ability to observe different scales of patterns; large-scale excavations may detect small-scale variation, but only within a limited area, while small-scale excavations across a wide area may detect large-scale variation, but may fail to detect any small-scale patterns that may exist (and may in unfortunate circumstances mis-identify them as examples of large-scale patterns).

Different classes of finds may be studied in the hope of detecting different sorts of evidence. The principal distinction, in both archaeological and statistical terms, is between *individual* and *bulk* finds. The former, often known as 'small' finds, are usually complete and recognisable objects, possibly of some intrinsic value, and may be more likely to have been lost than deliberately discarded (some categories, e.g. glass and metalwork, may have been mainly recycled, and thus appear relatively rarely in the archaeological record). The latter, which are usually far more numerous, derive from objects which lose much of their value when broken (e.g. pottery, tile), although they may have some residual use (e.g. hard-

core), or are the end-point of a process of use (e.g. discarded animal bones, though even here the possibility exists of further use as a raw material for industrial processes).

2 Theory

Despite these warnings, but always keeping them in mind, it is worth trying to develop a statistical theory that can examine and demonstrate inter-assemblage variability, and an archaeological framework within which the observed variability (or lack of it) can en interpreted.

2.1 Archaeological

Three broad types of reasons for variation between assemblages can be considered:
(i) *chronological*: the use-lives of artefact types tend to follow chronological patterns: types come into being, they flourish and they decline. The same can be said, for different reasons, for ecofacts: different species of animal may be eaten, and different species of plant flourish, at different times. The composition of assemblages will naturally follow these variations: this principle underlies the widespread technique of seriation.
(ii) *distributional*: when artefacts are distributed from a centre of production, their abundance is observed to fall off as one moves away from that centre. The nature and steepness of a 'fall-off curve' depends on the type of artefact (light or heavy? valuable or common?) and on the means of production and distribution. Whatever its nature, it will be reflected in differences between the compositions of assemblages at different locations in a region. For example, pottery which is common in one town may be a relative rarity in another only 10-20 miles (15-30 km) away. Distributional and chronological effects can sometimes be confounded, as for example when an innovation spreads out from a centre, and reaches its *floruit* later in peripheral regions than at the centre. Distributional differences are not, however, usually detected within a single settlement, but only between settlements.
(iii) *functional or social*: differences observed between assemblages within a settlement are more likely to relate to functional or social differences between the locations that they represent. Concentrations of specialised types of artefact may reflect the presence of industrial activity, while variations in proportions of artefact types thought to be of 'high' or of 'low' status may be thought to represent social differences. However, the absence of certain materials may mask differences. For example, the presence of 'high status' pottery may not indicate a 'high status' location; such locations may have been marked by the use of metal artefacts which, through re-use or recycling, have not entered the archaeological record.

The possibility that observed variation may be due to one or more of these sources has implications for the definition of 'types', or for the choice of variables. For example, if we are mainly interested in chronological variation, we will chose chronological types, such as pottery styles, while if we are mainly interested in distributional variation, we will choose 'types' that reflect that interest, such as pottery fabrics, which can indicate local sources of clays and fillers.

2.2 Statistical

We start from the definition of the statistical composition of an assemblage as the proportions of that assemblage that belong to the different 'types' into which it has been decided to divide it. This decision depends on our archaeological purposes, as discussed above. We must also note the overall size of an assemblage, as this will be needed as we develop the theory. We consider
(i) the case of individual finds, which are generally complete and can be counted, and
(ii) the case of bulk finds, which are usually fragmentary, and which there is no obvious way of counting.

(i) *'counted' objects*:
We first note that, in practice, no two assemblages are ever exactly the same. The question then arises as to whether an observed difference between them is so large that it cries out for interpretation, or whether it is so small that we can regard the assemblages as to all intents and purposes 'the same'.

One way of looking at this is through the concept of *statistical significance*: we ask the question "suppose that these two assemblages derived from the same parent population (e.g. all the artefacts in use at a certain place at a certain time), then what is the chance that the difference between the two assemblages would be as large as the difference we actually observe". If this chance is small, we take this to be evidence that they are not likely to have derived from the same population, and say that the difference between them is *statistically significant*. If, however, this chance is large, we say that there is no evidence that they did not come from the same population

(note the double negative), i.e. that the difference between them is statistically not significant. In the latter case, we would be on shaky ground if we tried to interpret the differences between the assemblages archaeologically. For two or more assemblages, where the data are expressed as counts of objects of different types in each assemblage, the statistical significance is usually assessed by means of the familiar chi-squared statistic (this can be found in almost all introductory text books on statistics; archaeologists may be more familiar with Shennan 1988, 65-76), although more modern approaches are available (Bishop *et al* 1975). It is important to note that the chi-squared statistic should be based on counts and not on percentages.

One drawback of the concept of statistical significance is that it is very dependent on the sizes of the assemblages. The same proportional difference between two assemblages may be judged statistically significant if the assemblages are large, yet statistically not significant if they are small. In other words, any differences in proportions may be statistically significant if the assemblages are large enough. This means that, in practice, an apparently trivial difference in proportions may be formally statistically significant – we say that it is however "not practically significant". Conversely, very small assemblages may appear to be very different, but this difference may fail to be statistically significant.

Since the size of the chi-squared statistic increases (other things being equal) with the size of the assemblages, it cannot be used in itself as a measure of the size of the difference between them. A more useful statistic for this purpose is the *inertia* of the assemblages, which is defined by the equation

inertia = chi-squared/total size of assemblages,

expressed more mathematically as

$$in(I) = \chi^2/n$$

(Greenacre 1984, 35).

This definition is not just a mathematical formality, it also has an appealing geometrical or intuitive visualisation, which is as follows. If the number of types is p, then the composition of each assemblage can be represented as a sequence of p numbers, which in turn can be represented as a point in a space of p - 1 dimensions (think of plotting three points in two dimensions, four points in a space of three dimensions, and so on). The average composition of all the assemblages is represented by an 'average' point, known as the *centroid*. Then, provided that 'distance' is suitably defined, the inertia of the assemblages is just the sum of the squared distances from each point to the centroid, weighted by the relative size of the assemblage represented at point. This can be written mathematically as

$$in(I) = \Sigma w_i d_i^2$$

(*ibid.*).

This demonstrates geometrically the relationship between inertia and the differences between the assemblages.

This theory is part of a statistical technique known as *correspondence analysis* (*ca*) It enables us to plot two-dimensional representations, not only of the differences between the assemblages, but also of the corresponding differences between the types. Because of the way in which distance is defined, both can be plotted on the same graph, so that differences between assemblages can be interpreted in terms of their relationships with the types, and *vice versa* (*ibid.*). We shall use this characteristic later when examining the differences between assemblages of different categories of finds.

(ii) *'fragmentary' objects*:

All the statistical theory given above only works if we can regard our data as counts, but what if all we have are fragments (e.g. of pottery)? The answer is that the theory, from chi-squared statistics to correspondence analysis, can still be applied, provided that:

(a) the fragments are recorded in a way that reflects their sizes as proportions of the original objects, and

(b) the recorded values are then subjected to a mathematical calculation known as the *pseudo-count transformation* or *pct*. This is basically a scaling factor, which adjusts the notional size of an assemblage to match that of a hypothetical assemblage of complete objects, and it must in principle be calculated separately for each assemblage.

The theory has been set out in a series of papers; for a detailed discussion and references see Orton (1993).

3 Case studies

In this section we shall look at examples of the applications of this approach to the study of three classes of archaeological objects: 'small' finds, pottery and animal bone. We shall look, not only at the sorts of results that may be obtained, but also at the conditions (e.g. scale of excavation, recording techniques) that are needed to provide sufficient data to yield such results.

3.1 'Small' finds

The data are taken from the archives of the campaign of excavations carried out in Winchester from

1961 to 1971 under the direction of Professor M. Biddle (Barclay *et al* 1990). More than 4000 artefacts of post-Roman date were catalogued according to (i) type of object, (ii) material of object, (iii) type of site, and (iv) date of the context in which the object was found. Correspondence analysis was used to show the relationships between pairs of these factors, for example between type of find and type of site, between material and type of site, and between type of find and type of context. More interesting three-way relationships (e.g. possible changes over time in the relationship between type of find and type of site) could not be studied directly with the software then available, but an attempt was made to examine them manually, by inspection of data tables in the light of the correspondence analysis results. It would be a valuable exercise to re-examine the data using more modern software, such as *pie-slice* (see below).

Type of find and type of site

Fig. 1 shows a correspondence analysis plot of types of finds by types of sites. The positions of some finds types with very high inertia lie off the plot itself, and are indicated by arrows: this is to prevent over-crowding in the centre of the plot. Looking first at the vertical axis, we see that there is a strong contrast between Urban domestic sites (upper part of the plot) and Minster, Palace and Castle (lower part). This suggests that the strongest difference is between types of finds found mainly on Urban domestic sites, and types found mainly on the other types of site. There is a group of finds types, all of relatively high inertia, which plot 'above' Urban domestic: shoes, tenter hooks, toggles, querns, textile tools, lighting equipement, hones, tools, mortars. These are all *associated* with Urban domestic sites, i.e. they occur there more commonly than they do on other types of sites.

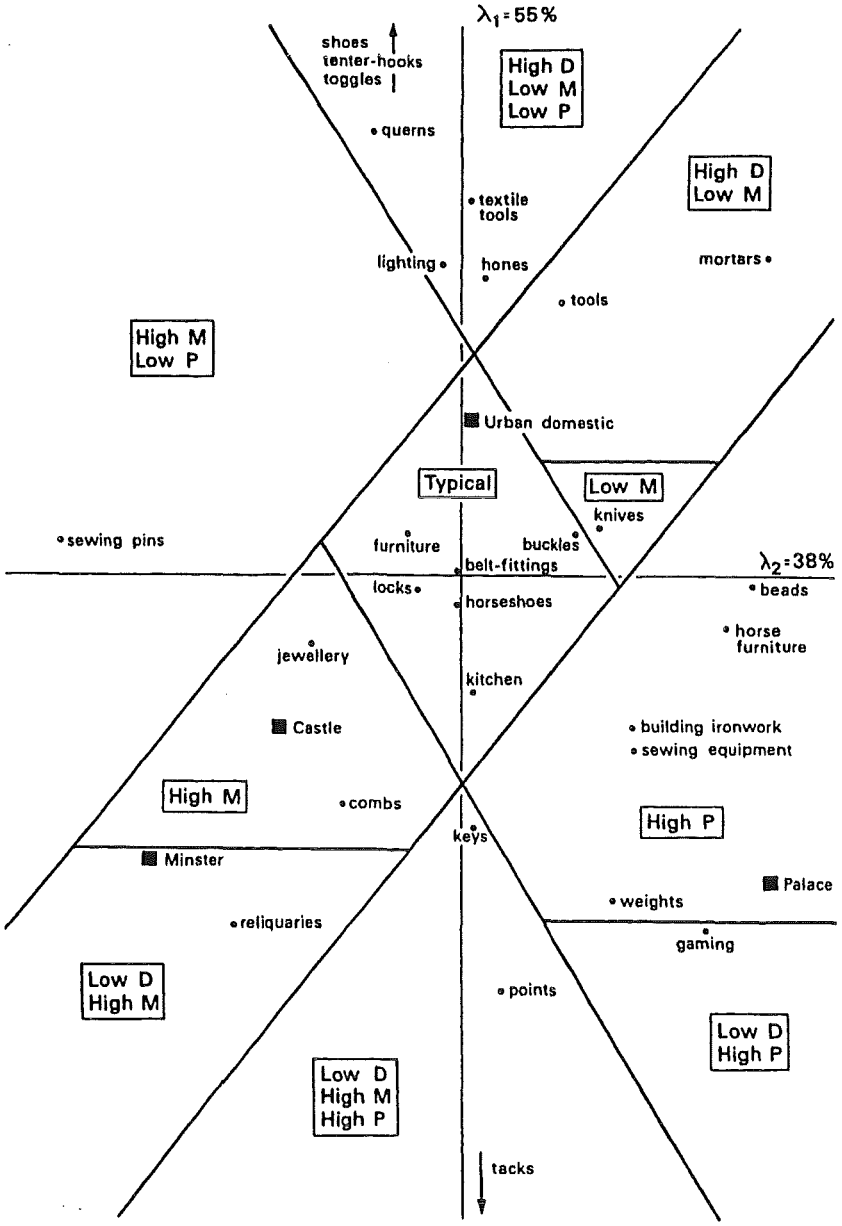

Fig. 1. - *Ca plot of numbers of finds from Winchester by find types and site groups (from Barclay et al 1990, fig. 6).*

Conversely, towards the bottom of the plot is a group of types which are associated with Minster and Palace, but not with Urban domestic: tacks, points, keys.

Along the horizontal axis, there is a contrast between Minster and Castle (to the left) and Palace (to the right), although for technical reasons the Castle sites are best omitted. Types associated with Minster are: reliquaries, combs, jewellery, sewing pins; with Palace are: weights gaming equipment, sewing equipment, building ironwork, horse furniture and beads.

In the very centre of the plot are a group of types, of low inertia, which are not associated with any particular type of site, i.e. they occur roughly equally on all types of site: furniture, locks, belt fittings, horseshoes, kitchen equipment and buckles.

Thus this particular urban assemblage is very varied (high inertia), with groups of types being associated with particular types of site, and a minority having no particular associations. Many of the associations are just what one would expect (e.g. reliquaries with Minster sites), some may be less obvious and could lead to interesting interpretations. A few are misleading: for example, the association of shoes with Urban domestic sites arises because leather shoes only survive in waterlogged deposits, and the excavated waterlogged deposits were mainly on domestic sites. It does not suggest that shoes were not worn at the Palace or Minster!

Type of find and date of context

Fig. 2 shows a correspondence analysis plot of types of finds by date of context. Here the main (vertical) contrast is between early dates (10-12th century) and the 'bottom' of the plot, and later dates (14th-17th century +) at the top of the plot. Looking more

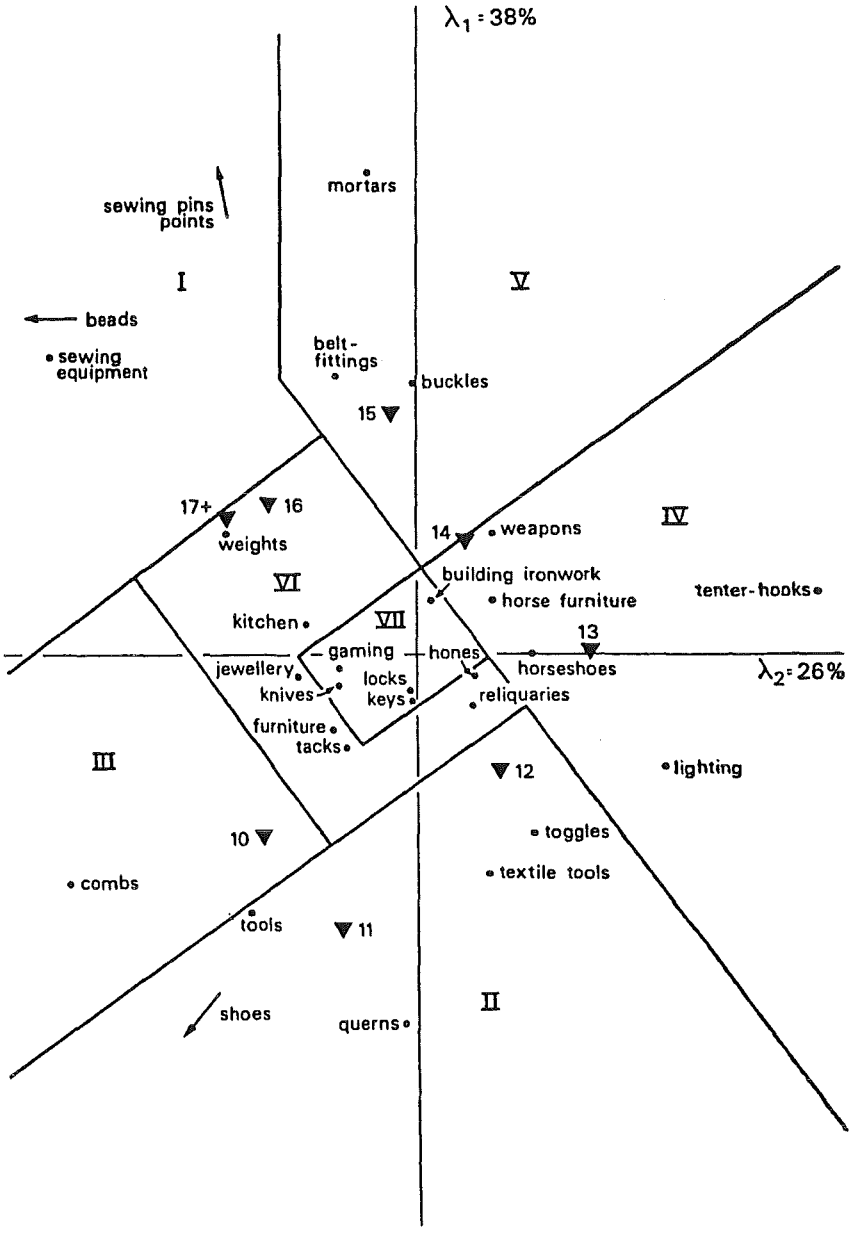

Fig. 2. - *Ca plot of numbers of finds from Winchester by find types and context dates (from Barclay et al 1990, fig. 7).*

closely, we can see that the points representing the centuries fall in a steady curve, from the 10th through to the 17th+: this indicates a regular chronological pattern, with types coming into, and falling out of, use (i.e., the types of finds *seriate*). A good example is the contrast between querns (early, bottom) and mortars (late, top) which share a common function. A large group of finds types, inside the curve, continue with little variation throughout the whole period.

Once again, there are some interesting possible interpretations, for example tenter hooks which are associated with the 12-14th centuries, as well as some misleading ones, such as the apparent association of shoes with the 10-11th centuries: it's the waterlogged deposits again.

3.2 Pottery

Pottery would seem to be an ideal subject for this sort of analysis: it is plentiful in medieval urban contexts, it has been extensively studied and can be divided into types in a variety of ways (e.g. by fabric, by form). The potential for relating the compositions of assemblages to their locations in a town was demonstrated by Redman (1979) at Qsar es-Seghir. He compared assemblages from 22 excavated areas in the town in terms of the proportions of 11 common form categories present in them. He used cluster analysis, selected a solution that grouped the excavated areas into four categories, and interpreted the areas by comparing the average proportions of each form in each cluster.

Cluster analysis was an obvious technique to use in the 1970s, but has the disadvantage that it creates clusters whether or not they exist within the dataset, and may give little information about the internal variability of the clusters. A less structured approach, such as correspondence analysis, which just demonstrates the relationships between the areas, between the types and between the areas and the types, would be preferable in the 1990s.

Analyses of this sort have been surprisingly rare in medieval archaeology since this pioneering paper. Possible reasons will be discussed at the end of the paper. A small example, again from medieval Winchester, gives a microcosm of the sorts of results that could be expected from this approach. Fig. 3 shows a correspondence analysis plot for broad pottery form types by selected 'final phases' from the Brook Street site at Winchester. The strongest pattern (which on this plot is the horizontal one) that of associations between house xii and cooking pots (on the right) and house ix/x and lamps and jugs (to the left); house xi is ambiguously located, while the bowl form occupies a very central position. i.e. it has no particular associations. A secondary pattern relates to the vertical axis: the assemblage from house ix/x has greater inertia than that from house xii (its phases are plotted further apart). We can see a chronological progression in house ix/x from 12th century (top) to 15th century (bottom), and none at all in house xii. This is linked to a change from lamps to jugs in the associated pottery, and seems to reflect a change of use in house ix/x. The stratigraphic evidence suggests a change from an area in which industrial processes took place, to a substantial stone-built house. Thus in this small part of the town we can see both small-scale spatial, and chronological/spatial patterns.

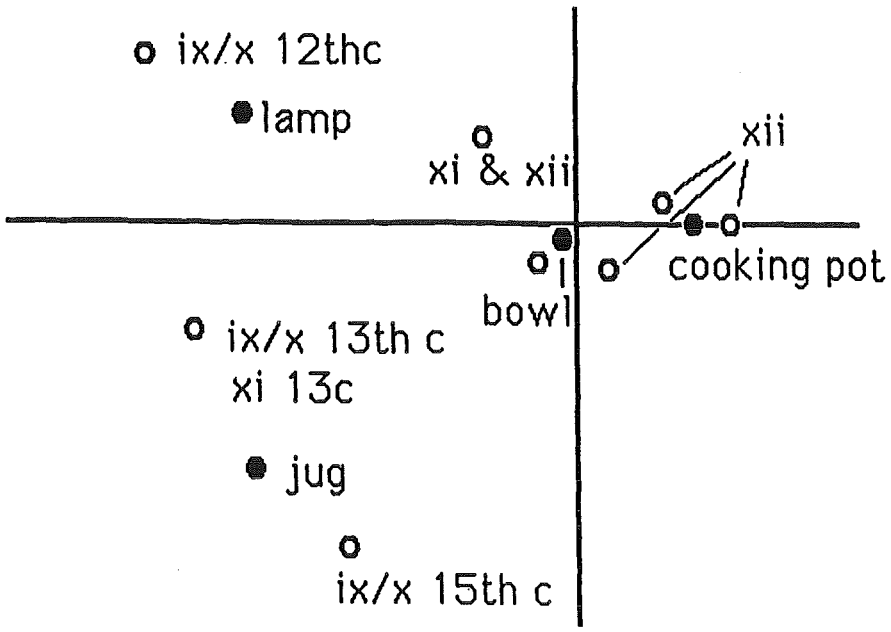

Fig. 3. - *Ca plot of form against final phase, Brook Street site, Winchester (from Orton and Tyers 1992, figure 5).*

3.3 Animal bone

This example arises from some experimental analyses of bone data from excavations in the Greater London area, taken from the archives of the (then) Greater London Environmental Archaeology Service. Only contexts with more than 200 bone records were chosen, giving about 23,000 bones from 50 Roman contexts, about 26,000 bones from 54 Saxon contexts and about 15,000 bones from 31 medieval and post-medieval contexts (12th to 18th centuries). A comparison of the Roman, Saxon and medieval/post-medieval assemblages has been published (Moreno-Garcia *et al* 1996), as well as a more detailed examination of some aspects of the Roman assemblages (Orton 1996). The statistical computer package *pie-slice* (Orton & Tyers 1992) was used throughout. Here we concentrate on the Saxon and later assemblages. The coding used for the sites, species and bone elements is given in table 1; details of the contexts, and references to the sites, are given in Moreno-Garcia *et al* (1996), table 1.

Two sorts of analyses were carried out: species by context and bone element by context. It was found that for all periods (including the Roman) the former pattern was stronger (had greater inertia) than the latter, although the difference between the two was least in the Saxon period.

Saxon: the chosen assemblages are from three areas: middle Saxon *Lundenwic* (*c* 650-850 AD), Barking Abbey (similar date, 15 km to the east), and Westminster Abbey Undercroft (11th century). Fig. 4 shows the correspondence analysis plot for contexts by bone elements after some initial editing (removal of rare species). The total inertia (variability between contexts) is relatively low, and quite a high proportion of it is due to recording difficulties (see table 2 below). The Jubilee and Maiden Lane sites show an apparent lack of mandibles and vertebrae; this is not a real absence, but arises because methods for quantifying these bone elements had not been devised when these sites were catalogued. York Buildings shows an apparent excess of phalanges, but this is the only one of these sites at which some deposits were seived, probably resulting in better recording of these small bone elements. The reason for the apparent lack of phalanges at Barking Abbey is not known. After allowing for these problems, the middle Saxon assemblages are remarkably similar, both within and between individual sites. The differences are still 'statistically significant', but this reflects the overall size of the assemblages rather than the differences between them. Westminster Abbey stands out as having far more diverse assemblages (greater internal inertia) than the middle Saxon sites; it is considerably later and should perhaps have been grouped with the medieval sites.

Table 1
Codes used for sites, species and bone elements in the animal bone case study

sites	
Middle Saxon	
BAI	Barking Abbey, Essex
JUB	Jubilee Hall, Covent Garden, London, WC2
MAI	Maiden Lane, Covent Garden, London, WC2
NAG	National Gallery Extension, London, WC2
NGA	National Gallery Basement, London, WC2
PEA	Peabody Site, Bedfordbury, London, WC2
YKB	18-20 York Buildings, London, WC2
Late Saxon/early Norman	
WST	Westminster Abbey Undercroft, London, SW1
Medieval and post-medieval	
BIG	Billingsgate Lorry Park, Lower Thames Street, London, EC3
BS	Royal George Wharf, Bankside, London, SE1
CH	Chaucer House, Tabard Street, London, SE1
SH	Seal House, 106-8 Upper Thames Street, London, EC4
SWA	Swan Lane, Upper Thames Street, London, EC4
species	
BOS	cattle, domestic
OVCA	sheep/goat
ORC	rabbit
SUS	pig, domestic
bone elements	
CAL	calcaneus
~CEV	cervical vertebra, axis, atlas and skull
FEM	femur
HUM	humerus
~INN	innominate and sacrum
MAN	mandible
~MTC	metacarpal, metatarsal and astragalus
PH	phalanges
RAD	radius
SCP	scapula
TIB	tibia
~TRV	thoracic and lumbar vertebra
ULN	ulna

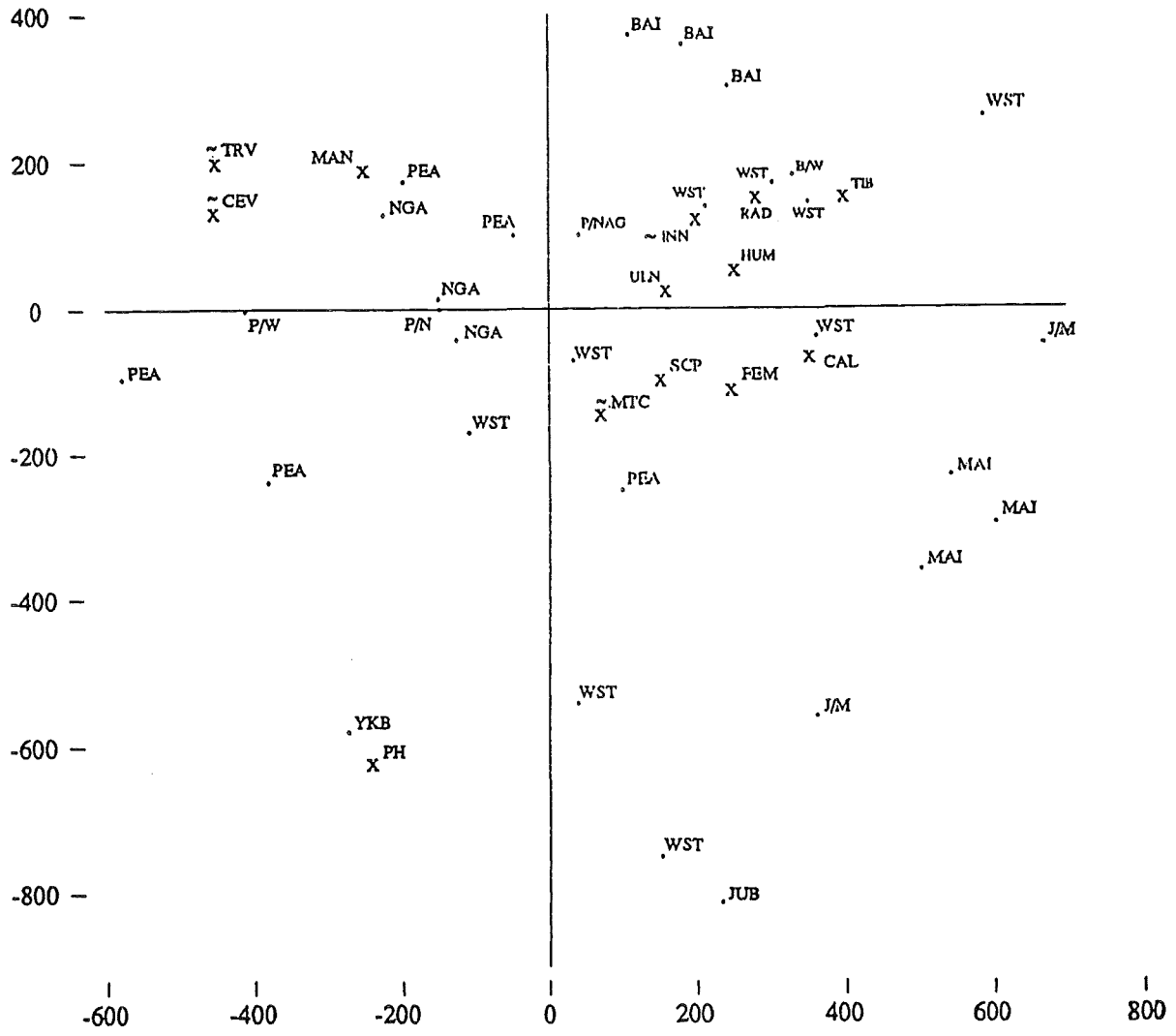

Fig. 4. - *Ca plot for the Saxon dataset from London, showing relationships between contexts and bone elements. For reasons of space, some site codes have been abbreviated to their initial letter (from Moreno-Garcia et al 1996, fig. 5).*

Medieval and post-medieval: relatively few assemblages of this date had been quantified in the appropriate way, and were large enough to be selected for analysis. The context by bone element pattern has almost twice the total inertia of the context by species pattern (see table 2), but is difficult to interpret, perhaps because of the long time period represented. Fig. 5 shows the correspondence analysis plot for contexts by species. Two pattterns seem to be present:

(i) a trend, probably chronological, of decreasing cattle and pig, and increasing sheep/goat, from left to right across the plot,

(ii) an isolated peak in rabbit in assemblages from Bankside dating to around AD 1600.

The shortage of large dated assemblages, with a good geographical spread, severely limits the possibilities for interpretation, as the medieval contexts all come from north of the river Thames, while the post-medieval one are all from south of the Thames. Thus it is not possible to disentangle chronological and spatial trends with any certainty.

Table 2
Total inertia of context by species tables and context by bone element tables, for Saxon and medieval/post-medieval assemblages

		inertia	'adjusted' inertia*
Saxon	context by species	0.115	0.145
Saxon	context by bone element	0.298	0.179
med.	context by species	0.208	
med.	context by bone element	0.380	

* in this column, the bone elements whose recording problems distort the comparison (vertebrae, mandibles and phalanges) have been omitted.

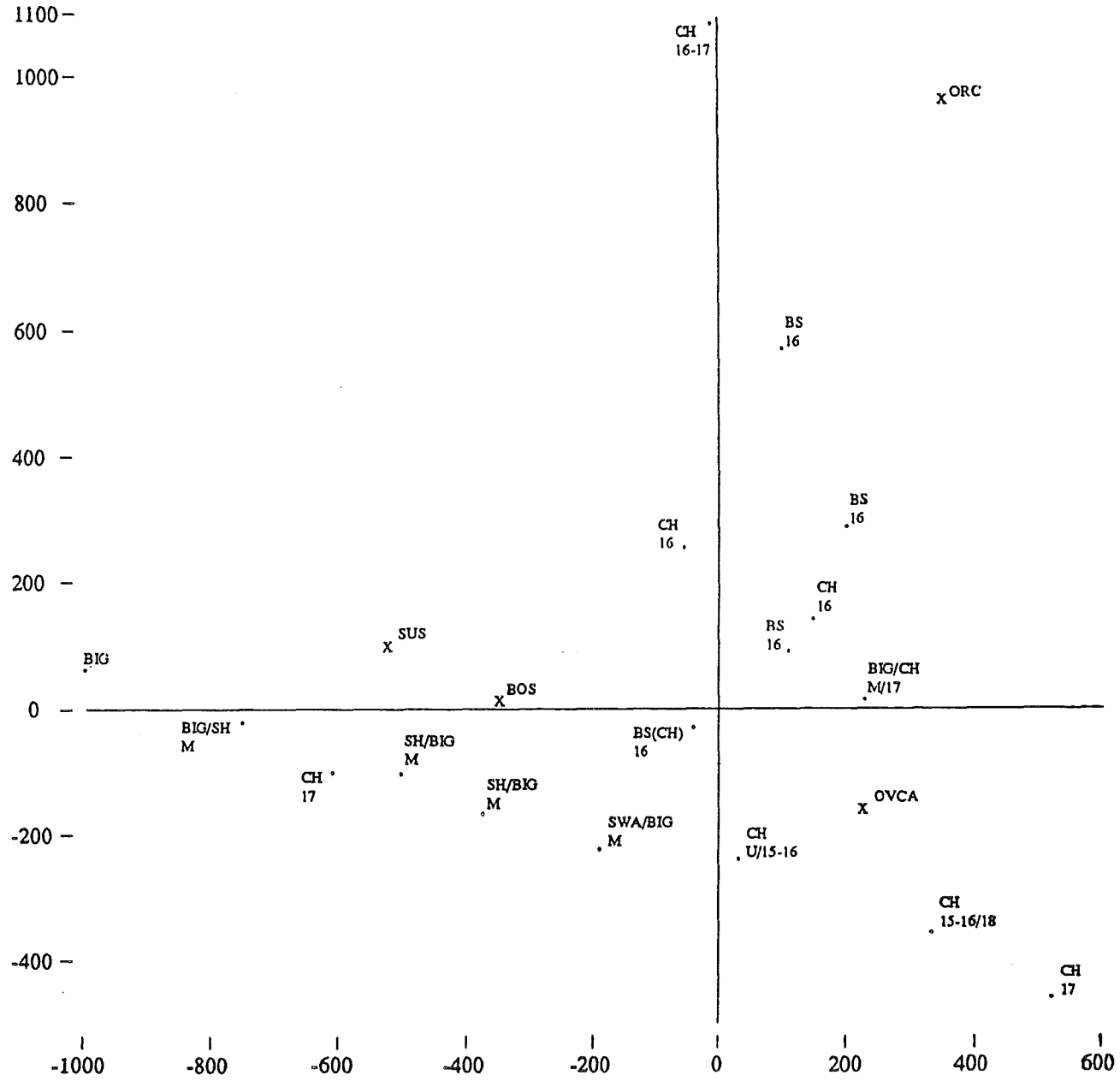

Fig. 5. - *Ca plot for the medieval and post-medieval dataset from London, showing relationships between contexts and species (from Moreno-Garcia et al 1996, fig. 8).*

Comparison: it is tempting to take a face value the much lower inertia of the dataset from middle Saxon *Lundenwic*, in comparison to that from medieval London, or indeed Roman *Londinium*. It shows a much lower level of variability between the middle Saxon sites than between the medieval ones; this could be taken to indicate a relative lack of spatial specialisation, and thus a marked difference in the urban structure. This may well be so, but the medieval assemblages do not give a firm basis for comparison, since they are widespread both in date and spatially, with different areas being represented at different dates. Series of contemporary assemblages from across London are needed before we can make serious comparisons.

4 Conclusions

The case studies demonstrate the potential of this approach to the study of spatial and chronological variability across an urban settlement, based on a wide range of archaeolgical materials. They also show the vast amount of preparatory work that must be undertaken before such a study can be put in place.

First, data must be assembled from several years' excavations, and definitions of 'types' (e.g. pottery fabrics and forms) must be consistent across the entire dataset. This requirement will be increasingly hard to meet as archaeological fieldwork becomes more and more fragmented, and more and more competing teams working in the same area. Whether

archaeological curators can impose the necessary level of terminological control over a variety of archaeological contractors, is an open question.

Next, the data must be quantified, and in an appropriate manner. This may well be seen as the sort of luxury that can be dispensed with in the interests of cutting costs and gaining contracts. They may well be little benefit in quantifying material when archaeology is looked at on a site-by-site basis; it is only the 'big picture' that makes it worth while. Once again, the question of the imposition of standards and controls must be fac.

Finally, programmes of research must be drawn up and inplemented. The opportunistic trawling of computer archives, such as described above for the animal bones, makes a useful demonstration, but is no substitute for a careful selection of sites and assemblages that are likely to shed light on serious urban questions. This requires both the ability to design such a study, and ready access to computer archives. The recent creation of the Archaeological Data Service in England may ease the second point. But there is a danger that, just at the time when the tools have become available to analyse large datasets in a useful way, the data themselves may have begun to drip away from between our fingers.

Acknowledgements

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David Harvey

Aspects of Early Rural Settlement in West Cornwall, UK. Some Indications from Later Records

1 Introduction

The investigation of issues concerning early rural settlement and landscape organisation in Europe is a task fraught with difficulty. The lack of contemporary documentation, together with the misinterpretation of the sources that there are has led to some misguided interpretations[1]. This study seeks to explore familiar themes of early medieval landscape organisation through using a range of often later sources that are interpreted with regard to theories of territoriality and evolving territorialisation. A detailed local study in Cornwall may then be placed in the context of wider developments in terms of settlement, society, economy and polity.

Cornwall contains a complex and particularly rich assemblage of historical and archaeological material which requires further analysis in order to make sense of its meaning. Although it may not be regarded as a nation state, Cornwall is an individual and separately identifiable region with a distinct, Celtic-speaking history which has not received the same attention as other 'Celtic' regions. Many investigations in other Celtic regions have been greatly aided by a rich assemblage of early documentary material[2], which has enabled a thorough and uniformly systematic assessment of early landscape organisation. Cornwall however does not have any comparable corpus to aid such a general reconstruction, though many workers such as Preston-Jones and Rose (1986, 137-38) stress the possibilities of early systems of landscape organisation in Cornwall that are comparable to other areas, and detailed recent works on specific areas of Cornish evidence tend to support such a contention.[3] The very early (ninth to early tenth century) domination of the area by an Anglo-Saxon hegemony goes some way to explain this lack of a pre-English systematic documentary source.

It is essential to recognise that the sites and zones that are of interest to archaeologists and historians should not be placed within a geographical vacuum. Early workers such as Vinogradoff (1905) and Jolliffe (1926, 1933) noted the importance of a territorial framework, but only more recently has the analysis of landscape organisation and the placing of archaeological sites into a territorial framework become a central focus.[4] A reconstructed framework of landscape organisation can provide a context within which to understand the products of early societies that are being uncovered by archaeologists and historians. In addition however, it is crucial to acknowledge that spatial structures should no longer be seen simply as an arena in which social life unfolds, but rather as a medium through which social relations are produced and reproduced. In this respect, exercises of landscape organisation and territorialisation are both key social practices and important cultural experiences.

It is not my intention to undermine the work of historians and archaeologists. Rather, I intend to pro-

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1 Of particular note here are the ethnic interpretations and accompanying 'waves of invasion' hypotheses that many workers held earlier this century.

2 In particular I am thinking of the large collection of ninth century charters referring to cases in a small region of eastern Brittany (Davies 1988), or the law codes of Ireland such as the *Crith Gablach* (Binchy 1941 and McLeod 1986). For a particularly good law code contextualisation of a largely morphological investigation of early Irish settlement forms, see Stout 1991. Useful law tracts also pertain to early Wales (see Jones 1976) and Scotland; (the *Senchus Fern'Alban* for instance is utilised by Lamont). Even later works that aggregate the surviving material of earlier times have been very useful for producing a systematic territorial analysis of a region. McErlean 1983 used the seventeenth century Calendar of Patent Rolls of James I for his investigation of townlands while the interpretation of early land organisation on the Isle of Man has greatly utilised the nineteenth century Atlas of quarterlands by James Woods (see Davies 1956).

3 Thomas 1994 for instance, charts the development of early Christian activity within a structured Cornish society of the middle of the first millennium, while Hooke 1994 clarifies and interprets the pre-Conquest charter material for Cornwall.

4 See for instance the works of Phythian-Adams 1978; Michelmore 1979; Hooke 1982, 1985; Winchester 1987; Driscoll 1991 and Hadley 1996.

mote the acknowledgement of the importance of spatial experience and order through concepts of territoriality. It is through notions of territory that the landscape is ordered and it is therefore within the context of territoriality that we may understand the organisation of that landscape. Following a short discussion of the notion of territoriality, section 2 refers to the use of this concept. Dodgshon's organisational perspective avoids the reification of period-based cultural 'traditions' by seeking to uncover an evolving relationship between society and space. A study of Cornwall that synthesises notions of landscape order and societal development is called for.

A wider exploration of territorial experiences and formations in other Celtic-speaking regions is explored in section 3 with the intention of uncovering ways in which we can perceive the early territorial development of Cornwall. Some methods of relating the theory and the reality in Cornwall are then discussed in section 4, stressing the importance of flexibility and clarity both in terms of the interpretation and the language used to communicate expressions of landscape organisation. Actual territorial patterns in west Cornwall are then reconstructed in section 5 through a broad range of source material. A detailed case study is considered in section 6, in which the territorial expression of a later medieval system of justice and local government is related to the proposed vestiges of a much earlier scheme of administration and exploitation.

2 Territoriality; landscape, society and context

In order to understand changes that have occurred within society one should look at the way society organises the landscape which it not only occupies, but of which it is an integral part. In this respect, as a product of successive societies, the landscape itself may be seen as a source for the study of previous societies. Processes of territorialisation are consequent upon particular relationships of society and space that are represented through the medium of landscape organisation. The indivisible nature of landscape and society means that an emerging territorial framework which results from such processes as territorialisation can be related to societal transformations. The identification and representation of purpose in terms of territorial organisation allows the intentions and designs of such mechanisms to be examined. The recognition and interpretation of a territorial 'culture' opens up debate on the experiences, meanings and expressions of territorial organisation. An investigation of the processes of territorialisation necessarily entails an analysis of social processes. In this respect, the human agency of territorialisation may be articulated through the expression 'territoriality'; a term at the very heart of the space/society relationship.

Territoriality can be defined as "the attempt by an individual or group to affect, influence or control people, phenomena, and relationships, by delimiting and asserting control over a geographic area" (Sack 1986, 19). Territoriality implies, by definition, a form of classification by area, a form of communication such as a marker sign or boundary, and an attempt at enforcing control or restraint over access to resources. Its logic rests on the advantages that stem from these interconnected relationships (Sack 1986, 21-22). Because territoriality is always socially constructed, an understanding of the spatial strategies that have been used to control space can potentially give a far deeper knowledge of the meanings, reasons and acts of will that occur in the society in which they operate.

Gold (1982, 53-54) argues that "the most important facet of territoriality is that it can create a stable and unobtrusive framework for the orderly conduct of everyday life". Therefore, a society with changing needs attaches changing importance and meanings to its territorial framework at various levels. Biddick (1990) for instance, saw the transition from feudalism to capitalism in Britain being mirrored by a change from using territorial management as a vehicle for enhanced status, to one which facilitated commercialism and the creation of money. Biddick (1990, 9) articulates this transition succinctly by commenting that "land left the sphere of personal relationships and became property". Although the perception of territory over this period can be seen to have been transformed, the underlying reasons for the existence of territories remained consistent, namely, the maintenance of control and influence over a geographical area.

"Whether powers were full or partial and held by greater or lesser rulers, they tended to be defined in relation to territory" (Davies 1990, 16). This concern for the control and articulation of power is a very important aspect of the territorial strategy. Working in a Scottish context, Driscoll (1991, 83) argues that power "flowed from the land. Consequently the basis for understanding state institutions is an understanding of how land was controlled and how agricultural production was managed. At this most fundamental level it is the patterns of landscape organisation that we must seek to understand, that is we must seek to produce a coherent image of the early medieval landscape with its attendant social practices and political institutions". Therefore, if land is seen as the ultimate source of wealth, then the territorial control and organisation of the land's resources can be seen as the key to power-broking in any society.

It is axiomatic therefore, that in order to understand the purpose and meaning behind strategies of territoriality we must look toward emerging systems of power and control within societies. Territoriality, however, is also an experience that is associated with cultural, social and economic relationships. "Territoriality, as a component of power, is not only a means of creating and maintaining order, but is a device to create and maintain much of the geographic context through which we experience the world and give it meaning" (Sack 1986, 219). In this sense, there is a need to focus on the experience, as well as the functions and use of territory.

Territory and territoriality are important aspects of the relationship between society and space. The development of territoriality and territorialisation however needs to be approached and interpreted in practice. In this respect, Dodgshon's (1987) thesis of developing territoriality provides a useful context in which to view the more specific territorial developments that are the focus of this study. Dodgshon's organisational perspective (1987, 130-165) suggests that as societies become more organised, institutions develop a more sophisticated sense of territoriality, with both increasing hierarchalisation and specialisation. The horizontal network of spatially defined subsystems, together with a vertically structured organisation of stratified groups allowed more complete control, and were better adapted to the administrative requirements of large and complex societies. In this way, older patterns of spatial order such as tribal divisions, were preserved in a different form, along the lines of newer principles of territorial order. Dodgshon's 'totalising' perspective challenges period-based approaches in order to explain the evolution of the relationship between society and space in terms of territorial development and unfolding systems of spatial organisation which are deeply embedded in social order and cultural expression. The nature of territoriality is as a stable framework for the formation, conduct and development of society which evolved at a number of rates and scales so as to reflect the transforming conditions of society.

An exploration of the developing sense of territoriality will aid an understanding of the evolution from tribal to kinship to feudal to class based systems. Feudalism for instance generated a distinct form of spatial order that utilised a complex system of lordship for purposes of regulation and exploitation in terms of both society and territory (Dodgshon 1990, 256). In this sense, the significance of developing territoriality and territorialisation is as a focus on the evolving patterns and processes of the social organisation and production of space. Issues regarding the transformation of the experience of time and space may therefore be addressed. Increasing territorial order and a more sophisticated notion of territoriality brought about alterations whereby communities of kin became communities of locality. Similarly, increasingly focused modes of organisation brought "respect for the discipline of the calendar rather than the seasons" (Loyn 1974, 13).

Continuity is an important theme when examining the prevailing patterns, forms and perceptions of institutions as an evolving whole. An investigation into territoriality means that actual settlements and site-specific phenomena, or even the physical boundaries, are less important in terms of continuity than the ideals and purposes of landscape division. Ideas of landscape organisation always rest on previous notions of organisation, so raising the importance of context and continuity.

In addition to the search for general evolutionary trends in territorial development, a focus on context also highlights the potential importance of localised factors in both time and space. Wider landscape developments and societal transitions vary both spatially and temporally, alluding to what Abels (1988, 116) describes as a flexible combination of "ideas, customs and innovations differing according to need and locale". Therefore, in order to achieve a deeper and wider understanding of the processes and patterns, we need to look at more detailed, local studies, while drawing parallels over both space and time.

It should be emphasised that investigations focusing on territoriality and territorial development necessarily draw attention to social context in a way that has been missed by many previous studies of pre-modern Britain. In west Cornwall for instance, Newcombe's (1968, 1970) statistical investigations of archaeological sites in west Penwith are a good example of an approach that lacks such a 'societal context'. His 'new geography' positivist approach, using an almost geometrical analysis of sites, failed to take into account the social production and division of space and thereby failed to provide any real explanation grounded within a contemporary social context. With these problems in mind, Phythian-Adams (1978, 39) indicated the importance of placing elements within a territorial context, "rather than socially undifferentiated regional maps of drift geology", demonstrating the need for detailed local studies "which seek to bring together all the evidence in specific topographical contexts".

The process of bringing together a wide range of evidence is particularly cogent for a study of emerging medieval territoriality. The lack of a single systematic and comprehensive source necessarily demands a rigorous search for a variety of source

material; both direct and indirect. A broad-based investigation will therefore be provided with a rich context within which to view landscape and societal developments. This study seeks to provide a synthesis of landscape and social evolution, based upon a number of indirect sources, which is comparable to what is known in other regions. In this sense, this investigation is concerned with the interpretation of clues and the relation of particular localised developments to wider processes and organisational theories.

The need for local studies, that people such as Phythian-Adams (1978, 1) allude to, should be underlined. It is through the synthesis of a wide range of material and the interpretation of signs that a detailed reconstruction of local territorial development can be achieved. Such developments in terms of landscape organisational strategies must be seen within their social context and related to societal transformations. This 'context-rich' local study can then be related to developing territorial experiences in other regions.

3 Contextual background; emerging administrative frameworks in Celtic-speaking regions

The extension of the power of the state through specialised hierarchies of administration and control can be seen to mirror the increasing importance of notions of territoriality in an increasingly delineated landscape of known territorial units. In attempting to comprehend the essence of early societies and the nature of their interaction with the environment, one has to consider the access, uses and manifestations of power. The existence of ancient 'pre-state' territorial recognition seems to be a common element throughout the British Isles, with later, more tightly defined administrative units taking on the form of previous territorial entities of various types. A short review of some of these supposed units in Celtic-speaking areas can act as a useful introduction for the work that I have done in Cornwall.

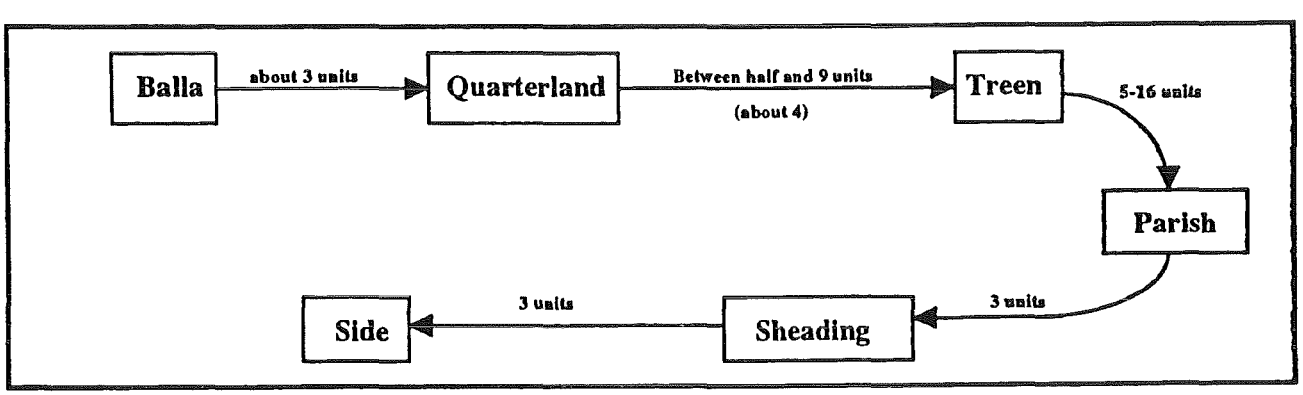
The Isle of Man for instance, possessed a complex and highly regulated landscape organisational system based around *quarters, treens, parishes* and *sheadings* (Davies 1956; Megaw 1978). Although there is some considerable variation in the actual numbers, these units appear to make up a complex and well understood hierarchy of specialised exploitational elements in the landscape, as shown in Fig. 1.

In Brittany, an archaic system of landscape organisation reveals itself in the later structures of the communes or *plebs* (Flatres 1977; Davies 1981, 1988). Ireland has a highly developed and surprisingly understudied early organisational system based around such units as the *catron,* the *gnive* and the *ballybetagh* (Hogan 1929; Graham 1970b), so that McErlean (1983) was able to draw up a structured ideal of hierarchical landscape organisational order for each of the provinces, as shown in Fig. 2.

From Wales come law documents setting out strict guidelines for systematic landscape division based around specialised territorial units (Lloyd 1911; Davies 1982, 1990). In an 'ideal' version of this territorial hierarchy, Jones (1976) used the medieval code known as the Book of Iowerth to display an 'all encompassing' model based very solidly upon an estate system.[5] The purpose and general style of these administrative territorial hierarchies seems to be constant, with a system embracing many functions in a variety of forms. We see flexibility and adaptability within a systematic model of territorial control.

In Scotland we find a number of hierarchical systems involving such units as the *davoch*, the *pennyland,* the *baillebetagh* and the *ploughgate.* Lamont (1957/8, 1966) investigated in great detail the administrative and economic units of the Scottish island of Islay and produced a very revealing account of control and resource exploitation through a highly developed system of tributes, dues and services,

Fig. 1. - *The territorial hierarchy in the Isle of Man.*



[5] See the Book of Iowerth scheme on figure 3.

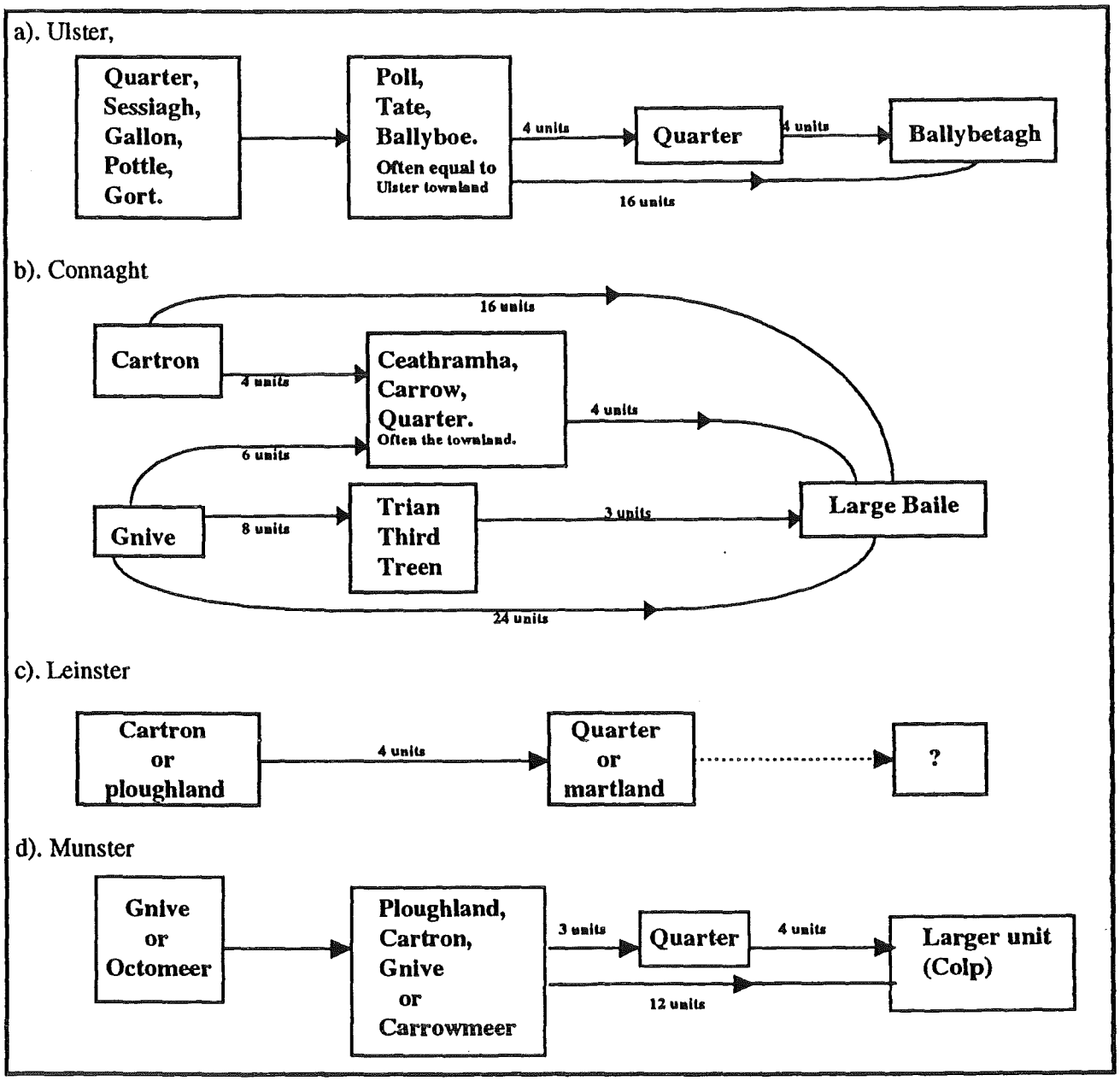


Fig. 2. - *The territorial hierarchy of Ireland (after McErlean 1983).*

based upon often strict codes of land division (see Fig. 4).

The important issue to comprehend is how the emerging systems of territorial control interpreted older notions of organisation. Though terms, languages and even territorial form differ somewhat throughout Scotland, the nature or 'style' of territorialisation may show many common elements. Units

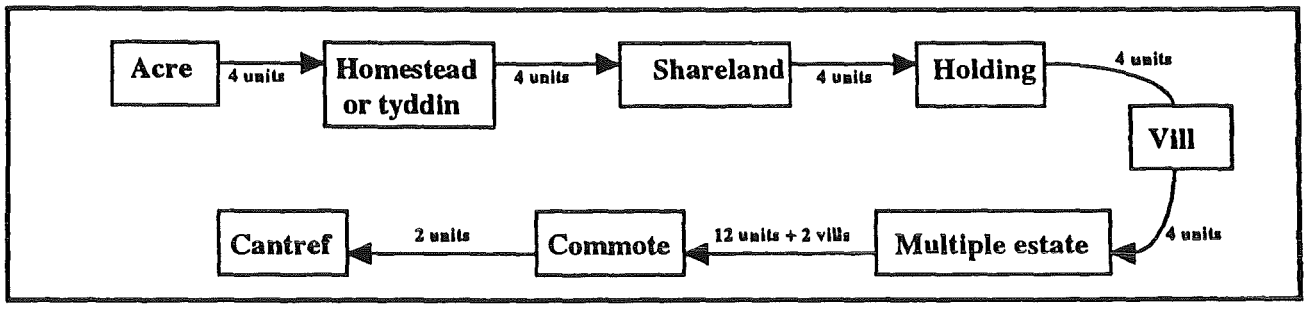


Fig. 3. - *The territorial hierarchy according to the Book of Iowerth. (after Jones 1976)*

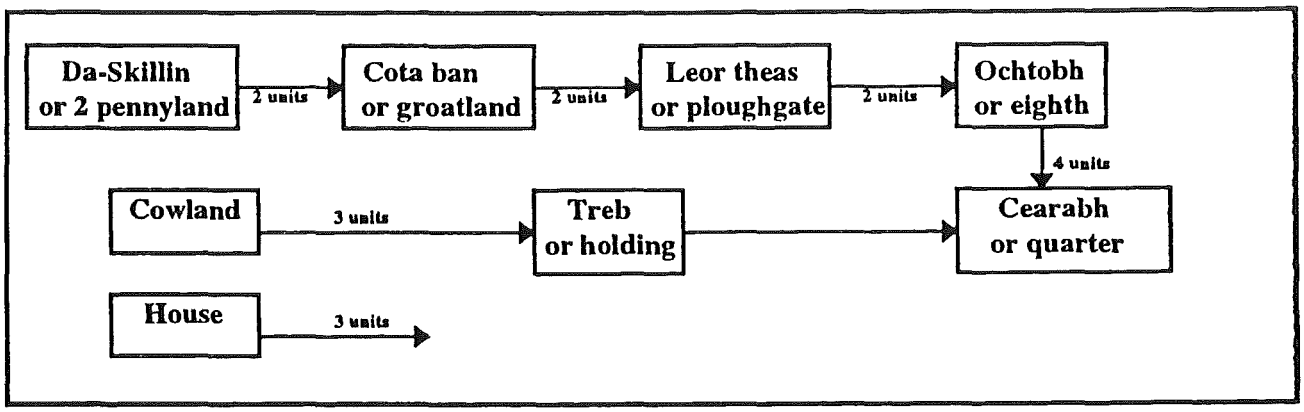


Fig. 4. - *The territorial hierarchy of Islay, (after Lamont 1957/8)*

of lower levels of economic production or tribute (such as the *baillebetagh* or *cowland*) are incorporated within a system of tax. The collection of dues through the mechanism of territorially organised *ouncelands* or *pennylands* for instance represents an increasingly sophisticated organisational structure. These developments in Scotland open up the question of administrative organisation in other Celtic-speaking regions.

4 Relating territorial frameworks to Cornwall

Without the law codes and other material that exists for such areas as Ireland for instance, Cornwall has no formal language or terminology for the legal and political environment of pre-English society. It is a mistake however to see Cornwall as a political vacuum in the period before Anglo-Saxon domination. Such notions as the *regione* and the *terra unius familiae* for instance, provide a suitable framework for analysis of early territorial entities and developing landscape organisation. Flexible notions of early landscape organisation that can be related to ideas of community, hierarchy and exploitation, but do not carry the legal and definitional 'baggage' of such terms as 'estate' can therefore be used to clarify the evidence that is known in west Cornwall. In this respect, common themes and ideas that are displayed in other areas can be related to what is known about Cornwall.

In order to make the most of what information exists for Cornwall, conceptual frameworks deduced in other areas can act as a guide to explore the territorial hierarchies and exploitational mechanisms of west Cornwall. Investigation along such themes as regular assessments and territorial dues for instance can be informed by a notion of what Cornwall 'should' be like. In this respect, the Cornish evidence is being interpreted within the context of what has been gleaned from other regions and supported by territorial theory.

In many respects, studies of early landscape organisation in western Britain confirm the notion that actual physical boundaries are less important than the function and territorial meaning conveyed by landscape division. Hence, the basic 'history' of Cornish territories can be informed by a need to approach developments of landscape and society through a territorial perspective. The experiences of other regions suggest that comparable developments may be found in Cornwall. Additionally, the basic description of the Cornish territorial framework, and the narration of its history, can be greatly enhanced by a more explicit investigation of evolving territoriality and processes of territorialisation. In this respect, territorial experience is viewed less in terms of the history and endurance of physical landscape divisions and more in terms of its reflection of the crucial relationship between society and space.

In Cornwall, the physical reconstruction of an early territorial framework may provide a context within which to view organisational models which are comparable to other regions. Preston-Jones and Rose (1986) for instance have suggested that a complex system of transhumance existed in early Cornwall and Herring (1996) sees this system as perhaps being organised on a hundredal basis around Bodmin Moor, though they bring little good evidence to bear on the subject. An intensive investigation of territorial organisation in west Cornwall can potentially distinguish a possible organisational model for a transhumance system comparable to those in Ireland or the Isle of Man.[6] In these areas, transhumance zones

[6] For emergent and early systems of transhumance in Ireland, see Graham 1953, 1970a, 1970b. For a review of the transhumance systems in the Isle of Man see Davies 1956 and especially Quine 1996.

were partially defined according to a wide-ranging and assessed territorial hierarchy of a sort that can be investigated in Cornwall.

Working within an Irish context, McErlean (1983, 328) noted the importance of the "regulation of land resources among a territorially-defined community". Davies (1990) supported this notion with reference to Welsh material and, even in Cornwall, Thomas (1994) has alluded to the importance of perceiving communal organisation within early territorial patterns. My investigations in Cornwall can seek to uncover the earliest patterns of what can be termed 'communal organisation' through the relation of reconstructed physical units to developing notions of landscape division and society.

The definition and delineation of a territorial framework necessarily requires some form of 'signifier' such as a recognised boundary,[7] as well as some attempt to enforce certain codes (Sack 1986). In this respect, certain actions that involve surveillance or supervisory mechanisms within a developing territorially defined arena can be seen to be important. The territorial development of government in England for instance clearly demonstrates the increasing role that territories played in the administering of daily justice, civil control and fiscal exaction. Territorialisation can therefore be portrayed as an ongoing attempt to instil influence or 'control' within a socially defined landscape and Cornwall provides a suitable 'testing ground' in which to view such developments.

Developing notions of surveillance and supervision were charted by Robinson and Scaglion (1987) in their study of justice and the developing police function, and it is in these terms that such functions can be investigated in Cornwall. At the local level in Cornwall, we see the tithing institution as a territorialised expression of community. This was a system of compulsory collective responsibility, through which a sort of joint bail was fixed for individuals, not after their arrest for a crime, but rather as a safeguard in anticipation of it.[8] This system constituted the backbone of Norman law-giving and can be seen as the mechanism through which central government held dominion over the population. Importantly, this system in Cornwall, unlike other parts of Britain, not only represented an income generating mechanism and form of judicial control, but became systematically territorialised.

The evolving wider hierarchies of administration and exploitation that have been identified in simple terms in many Celtic-speaking regions and by Loyn (1984), Jolliffe (1937) and Warner (1988) among others in England, can act as a guide to the way the emerging Cornish network of territorial administration can be viewed. In this sense, a better understanding and explanation of the tithing network for instance can be produced than has been hitherto established.[9]

The place of such territorial devices as the tithing within a wider evolving hierarchy of government and administration can be investigated. The early territorial administrative structure of Cornwall can be related to those of other areas such as Scotland, Ireland, Brittany and the Isle of Man in order to extend our comprehension. In this respect, the importance of such things as dues and assessments can be clearly seen. Reference to well ordered partially standardised patterns of assessment on the ground therefore, may reflect a systematic and regularised ideal of territorial assessment in theory. The bare historical record of early Cornish territories requires deeper analysis within the context of theories of developing territoriality and synthesis with notions alluded to in other areas.

The origins and nature of any regular assessments in Cornwall need to be addressed, not in terms of finding a perfectly formed and uniform system of assessment that may never have existed, but in terms of finding the vestiges of an assessment system that is comparable to ones found either in the law books or on the ground in other areas. The general history of territorial institutions in Cornwall requires further analysis with respect to themes of hierarchalisation and specialisation. In this sense, a focus upon function as opposed to 'form' *per se* is a crucial element in the analysis of relationships that are found in the processes of territorialisation in west Cornwall.

Preston-Jones and Rose (1986, 138) note that the emergence of large estates made up of *trefs* or local farm units in ninth century Wales agrees with "the little which is known for Cornwall". This raises the question of whether we can perceive anything in Cornwall which is comparable or analogous in function to these multi-vill units. We should try to per-

[7] This 'boundary' however, need not be in the form of a fixed physical 'barrier' or even a solid 'line on a map'.

[8] For a more legally-based definition of the tithing see Critchley 1967, 2-3, or Pollock & Maitland 1968, Vol. I, 568-71. The tithing system of Cornwall is often overlooked in studies, but has been analysed quite thoroughly by Pool 1959, 1981, whose latter paper should be considered as the basic reference text on the subject.

[9] The existing contradictory understanding of the tithing as being in many ways the 'manor' under another name, (Pool 1959, 1981) and yet also being equated with the vill (Pool 1981, 279) needs further analysis.

ceive the sorts of patterns which would have been part of such a postulated system, while acknowledging the problematic nature of this 'multiple estates' approach.[10] In this respect we should seek a method of conceptualising such early patterns, from the premise that territorial developments are linked to social expressions, through demands for service, income and power.

It is important to recognise that not all societies were developing at the same time and in the same way. An investigation of territorialisation and territorial relationships, however, can provide an important opening into revealing some aspects of deeper developments of societal and landscape meaning and representation. It must be emphasised that by their very definition, territories are socially generated. They represent expressions of community, government and exploitation rather than being inanimate physical features such as hills or rivers. Territories therefore are intrinsic to a 'peopled' landscape. Since there is no single or simple 'answer' and no all-encompassing and homogenous system, the interpretation of these patterns, associations and designs into a coherent territorial framework should perhaps avoid the use of such loaded terms as the 'estate' for example, and instead concentrate on allowing for multiple meanings and paths of development. It is for this reason that such terms as *regione* have been used.

An investigation into the territorialisation of a region such as west Cornwall obviously has repercussions for studying landscape and landscape changes. This investigation attempts to fill the structured political vacuum that is implicit in many studies of Cornwall before Saxon hegemony. Polity and landscape organisation were not Norman or even Saxon inventions and so we should try to perceive the origins or antecedents for the later patterns and practices that seem unique or at least somehow different in Cornwall.

The examination of changing modes of resource allocation and territorial development, can bring insight into the economic arrangements of early Cornwall. Investigation of such early territorial schemes may provide a more meaningful framework within which to view the findings of archaeologists, while further emphasis on territoriality for instance, may bring better understanding of early systems of grazing management. In terms of administration, the expansion of 'government' through surveillance and control mechanisms such as the tithing system, can be seen through territorial studies. In this sense, the development of territorial ideas mirrored the establishment of more complex systems of tribute-type exploitative practices, organised forms of justice and accountable mechanisms of government.

The transition of self-identity from a familial notion based upon such concepts as 'tribe' and the development of a notion of identity based upon 'place', is apparent in areas such as Ireland and Wales through focusing upon territoriality, and consideration of Cornish material may bring some important related points of view. Cornish features should be viewed within the context of wider evolving territorial patterns. Linkages and relationships can be made with other areas and other times. It is important to note that deficiency in source material does not necessarily mean a deficiency in territorial structure. In relation to Cornwall, the investigation of early systems of landscape organisation can look beyond the lack of direct and complete forms of evidence to use the indirect material, signs, analogous comparisons and the many strands of partial evidence.

5 The tithing framework of west Cornwall and the vestiges of early landscape organisation

Sources from the thirteenth and fourteenth centuries (see edited works by Hall 1978; Stenton 1952; Midgley 1945 and also Pool 1981) show that the territorial framework of tithings was being utilised for the purpose of a centrally organised law and order system; a mechanism whereby the authority of the state trickled down to the lives of people in every corner of the land. This uniform and systematic territorial structure, with perhaps much older origins, reflects the increasing importance placed on controlling the landscape through a complex and tightly regulated territorial hierarchy. Every person not of noble status would have known which tithing they were in, to whom they were responsible, and for whom they had responsibility. This close level of control and supervision was enhanced by putting these relationships on a territorial footing, the framework of which was then utilised for the management of a taxation system. Each household paid a certain proportion of money known as smoke silver, the assessment of which was based around the territorial tithing framework (Pool 1981). Figure 5 shows a map of the supposed tithing districts in the two hundreds of Penwith and Kirrier in west Cornwall. This map was determined from using a wide variety of evidence based upon tithing extents, court documents and manorial relationships,[11] and shows the name, centre and territorial associations of every tithing.

[10] See for instance Hadley 1996.

[11] This work was carried out as part of a doctoral thesis. For more specific and detailed information, see Harvey 1996. In

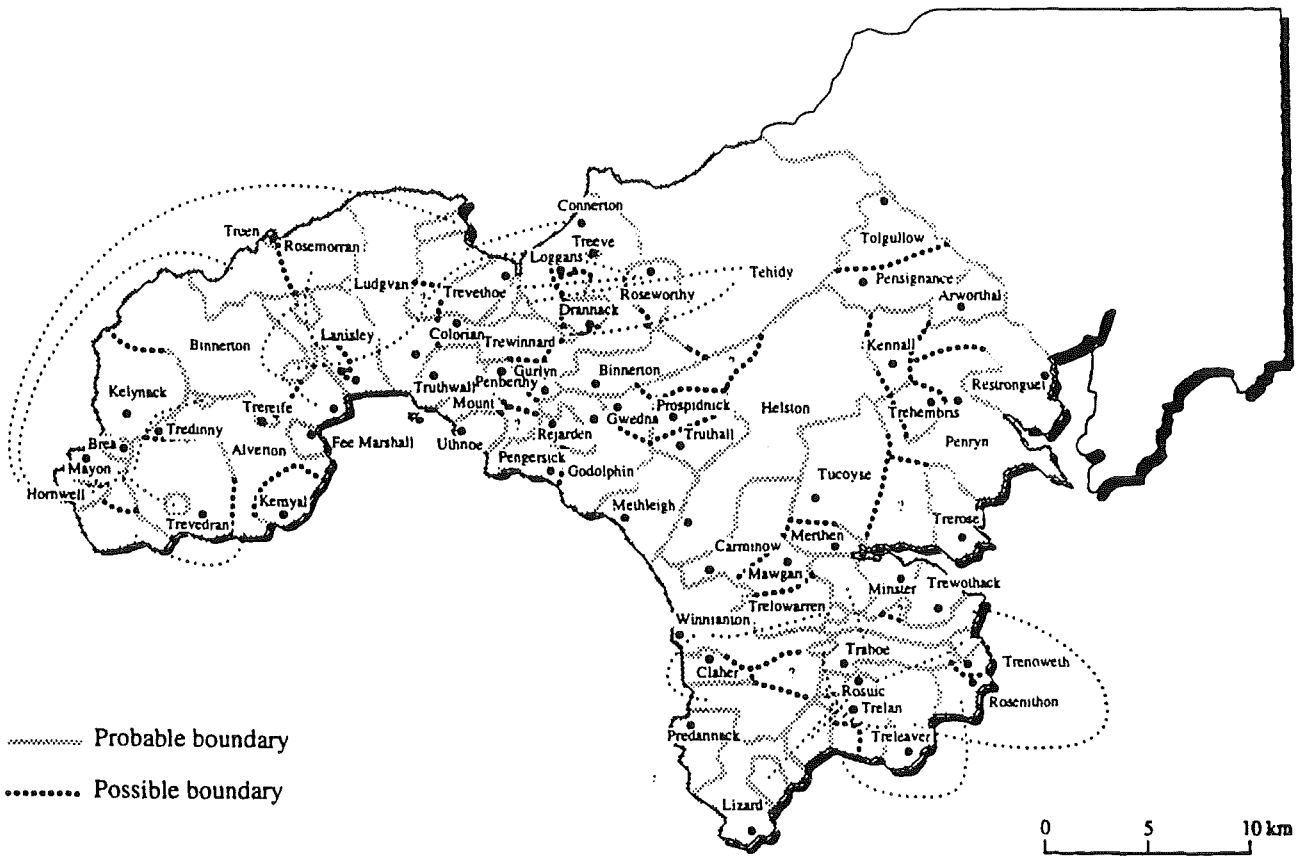


Fig. 5. - *Basic tithing pattern (Penwith based largely on Pool 1959).*

In order to understand the complex inter-relationships between land and society which are expressed by such a territorial pattern, it is necessary to explore the evolving territorial relationships and examine some of the assessment data that survive. The *Extenta Acrarum* documents of 1284 and 1345 record the assessment of each tithing in terms of Cornish acres.[12] The interpretation and understanding of the Cornish acre units are at present unsatisfactory, though in origin can be traced to at least the period of the Domesday Survey (Padel *pers. comm.*). The use of the Cornish acre in the context of tithing assessment is interesting and suggests that the territorial units themselves may have at one time represented much more than groupings of people for judicial organisation and control. The very common repetition of the three Cornish acre unit (or multiples thereof), tends to indicate some sort of systematic and uniform reckoning of territorial units and possibly points toward a more ancient system of landscape organisation that is previously unrecognised in research literature. The results of this analysis are displayed graphically in figure 6, which emphasises the non-random pattern of Cornish acre assessments.

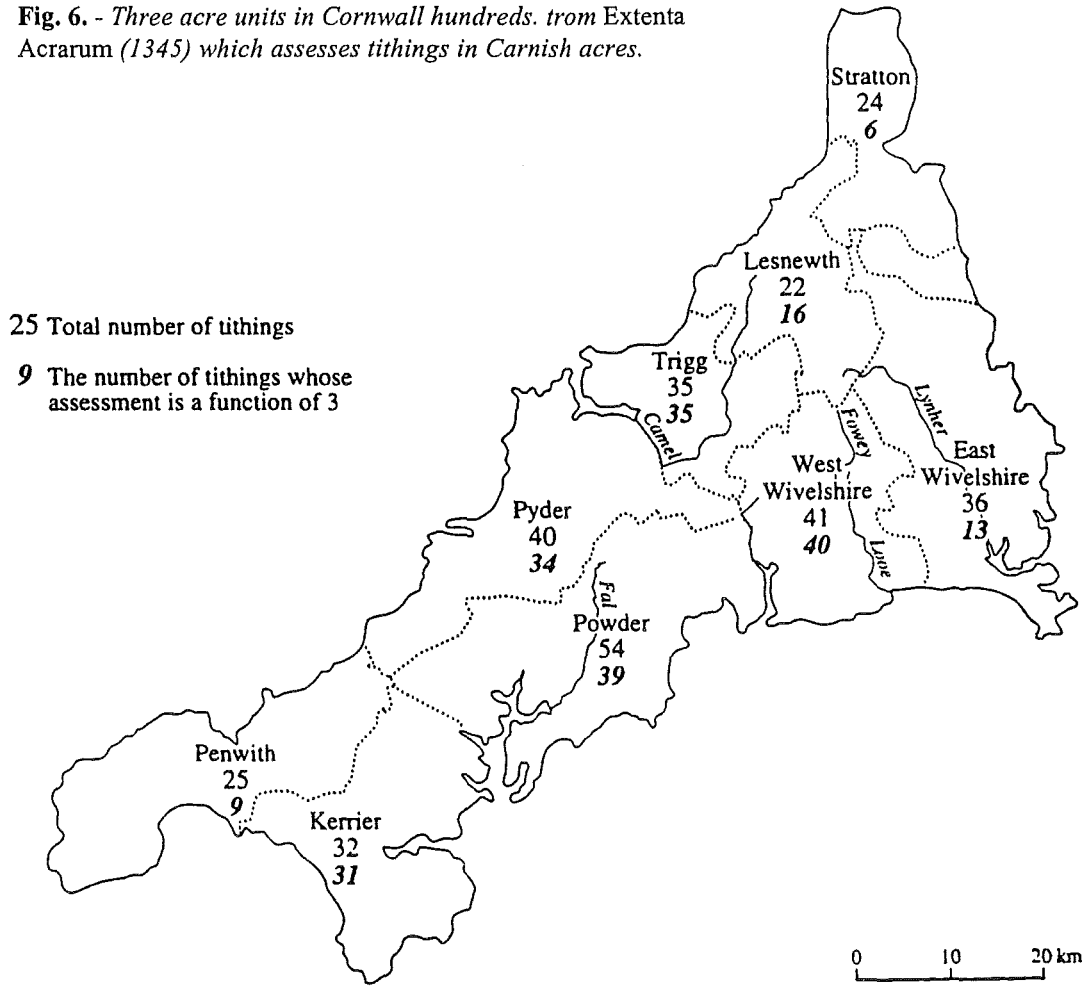
The fact that Penwith does not demonstrate this overwhelming prevalence of the number three, is probably due to its being the only Cornish hundredal jurisdiction in private hands.[13] The Lords of Connerton, who held the hundred would have been eager to maximise any dues to them and so would have boosted the acreage assessments for their hundred. Importantly, it seems that whatever the significance the three Cornish acre unit may have once held, by the time Penwith's figures were artificially boosted, the significance was forgotten, implying possibly very ancient origins for the assessment structure.

many respects, the lines represent recognition of territorial significance rather than strictly defined and accurate 'boundaries'.

[12] Neither of the two versions exist in their original state. Although the original purpose of the records and the context of their production is not completely understood, some kind of survey is apparent, with both versions providing lists of tithing names and assessments in Cornish acres. Their basic record is transcribed by Pool 1981. The most complete published discussion of the meaning of the Cornish acre is to be found in Hull 1971, liv-lxii.

[13] The hundred of Penwith was granted by William II outside of royal authority in about 1090. The private hundredal jurisdiction was comprehensively confirmed by a charter to the Arundell family of Connerton of the period 1227x43. See Hall 1978, 171, and Pool 1959, 165-171.

Fig. 6. - *Three acre units in Cornwall hundreds. trom* Extenta Acrarum *(1345) which assesses tithings in Carnish acres.*



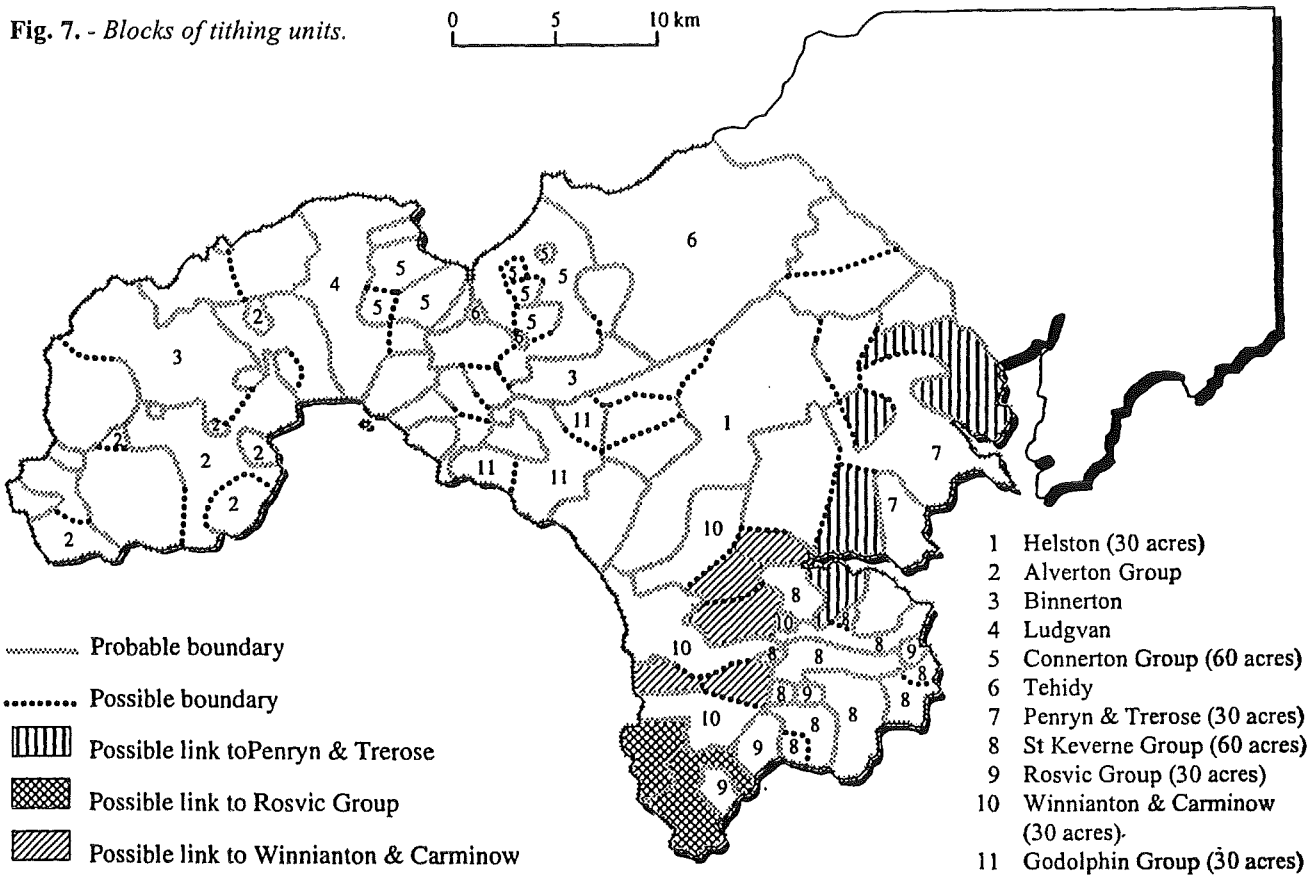
Interestingly, the only other hundreds where the three Cornish acre unit seems to be less significant are the two easternmost hundreds, and even here the three Cornish acre unit is still relatively significant. These two hundreds received Anglo-Saxon influence much earlier than the west; perhaps by about A.D. 825. The six earliest charters that refer to land in Cornwall, including all the pre-tenth century examples, are associated with land either in Stratton hundred or the far south east (Finberg 1953, items 16 and 72-77).[14] Although large scale population displacement and complete landscape re-organisation seems very improbable, the very early English interest and involvement in this part of Cornwall provides an explanation for the apparent exception of this most eastern zone. This is certainly so in terms of place name distribution in the area, and may provide a context within which to view the apparently anomalous assessments of later years (Preston-Jones & Rose 1986, 142; Wakelin 1975, 59-60). Because the three Cornish acre unit does not appear to be significant in these early Anglicised areas, it implies that the significance of the three Cornish acre unit should be sought in the pre-Saxon period.

Further analysis of the assessments together with investigation of manorial and other linkages reveal a sort of 'unity' amongst certain groups of tithings. Some of the proposed 'blocks' of tithings are shown in figure 7, which illustrates the disparate and often fragmented nature of these land units. Eleven of such blocks are shown (some with their assessments according to the *Extenta Acrarum* of 1345), and some suggestions of links with other tithings are also put forward. In this respect, the three Cornish acre unit seems to have been a basic unit within a hierarchical territorial framework, maintained for the purpose of exploitation and control at a very early period. The system can perhaps be seen as a territorial scheme for the full economic exploitation of the landscape through integrated estate management of specialised elements.[15] While acknowledging the probable local

[14] Indeed, a charter of king Ine (AD 705x712) records the granting of 20 hides at *linig*, which has been interpreted as the land between the Lynher and Tamer rivers (see Finberg 1953, item 73).

[15] The topic of reconstructing integrated estate units from early periods is a much discussed and debated area of work. See for example Jones 1976, 15-40, or Blair 1991, chap. 1. For a more up to date view on such supposed early schemes, see Hadley 1996.

Fig. 7. - *Blocks of tithing units.*



fluctuations, transitions and changes that would have occurred over the several centuries under investigation, essential elements of stability, persistence and cohesion can be seen to endure. Transhumance practices and other economic activities are reflected in place name elements such as *havos, hendre* and *laity*.[16] It is combinations of such specialised units within a developing estate system that would have provided a surplus for an elite class.

6 The vestiges of early land organisation in the Meneage area of west Cornwall

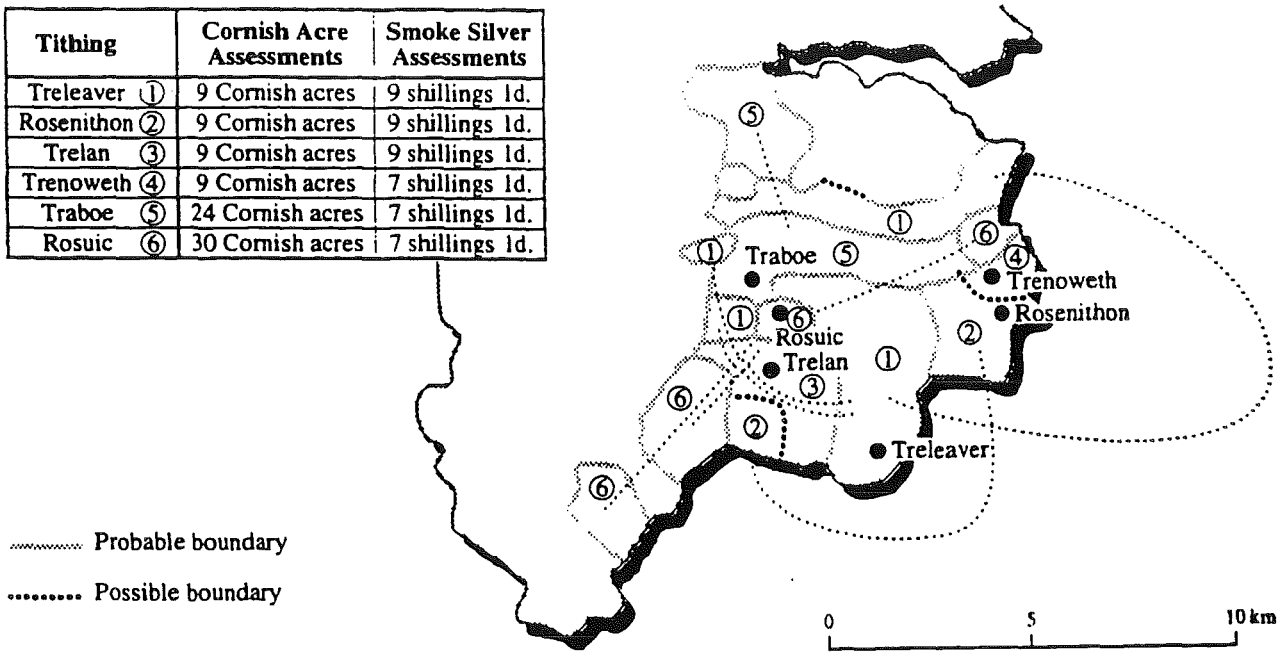
At this point it is perhaps useful to look at a particular area in more detail and to draw out some of the themes that have been discussed and to demonstrate the application of using a wide range of heterogeneous sources to understand early organisation of landscape elements. The area around the present day village and parish of St. Keverne in the far south of Cornwall (otherwise known as 'the Meneage') provides us both with a number of questions and potential sources for such a purpose. Figure 8 reveals the complexity of the tithing framework in this area as well as highlighting the systematic nature of this framework's assessments, both in the fourteenth and seventeenth centuries. Six tithings with their centres marked and territorial connections indicated, are displayed. The tithings of Rosenithon, Treleaver, Trelan and Trenoweth are all assessed at 9 Cornish acres, and the first three are also liable for 9 shillings and 1 pence (9/1) smoke silver. Trenoweth, Traboe and probably Rosuic[17] are each liable for 7/1. The fact that Traboe is assessed at 24 Cornish acres and Rosuic at 30, greatly complicates the relationship between Cornish acres and smoke silver. It appears that the actual area of Rosuic was mostly outside the parish, and largely composed of moorland, which may well have had few smoke silver-paying tenements. Traboe appears to occupy similar land of a similar size to Treleaver, while Rosenithon, Trenoweth and Trelan all seem to occupy relatively smaller pieces of land. The assessments certainly appear to be dependent

[16] An early work on such significance of place name elements in Cornwall was conducted by Pounds 1942. More recent comments have been made by Padel 1985 and Preston-Jones & Rose 1986, 141-145.

[17] This depends upon whether 'Lucies' can be equated with this tithing; Pool 1981 thinks so.

Fig. 8. - *The tithing framework in the St Keverne area.*

Tithing	Cornish Acre Assessments	Smoke Silver Assessments
Treleaver ①	9 Cornish acres	9 shillings 1d.
Rosenithon ②	9 Cornish acres	9 shillings 1d.
Trelan ③	9 Cornish acres	9 shillings 1d.
Trenoweth ④	9 Cornish acres	7 shillings 1d.
Traboe ⑤	24 Cornish acres	7 shillings 1d.
Rosuic ⑥	30 Cornish acres	7 shillings 1d.



upon some status or function beyond that of simple land area and number of tenements. The fact that these tithings which are positioned so close to each other, are all assessed in the same way seems to indicate that they are related in some way; perhaps as component parts of a larger entity.

In order to try and understand the significance of these arrangements, a number of other sources can be brought in to play. In terms of parochial organisation, the name 'Meneage' or 'monkish land' appears to have been affixed to the ecclesiastical establishments of this area, suggesting a degree of early territorial cohesion that had recognition in the nomenclature of later territorial organisation. The 'administrative' centre of this territorial unit was undoubtedly the important early centre of Lesneage (literally 'the court of the Meneage'). King Edgar's grant of land at Lesneage and Pennare to Wulfnoth Rumuncant in AD 967 concerns a defined portion of land in the heart of St. Keverne parish.[18] Along with the other pre-Conquest charters primarily concerning Traboe,[19] and the grant of some land 'in the Meneage' to St. Michael's Mount in the immediate post Norman Conquest period,[20] the break up of a large early estate seems to be indicated. In this respect the 'Meneage' appears to be some sort of early land unit that became fragmented due to land holding interests but importantly, it was also a land unit that held some sort of spiritual significance.

The investigation of the nature of this 'spiritual significance' leads us to the door of the early monastic centre of Lannachebran (indicated on figure 9). Documentary evidence for the early existence of this establishment is found in the form of a tenth century list of saint's names[21] while Domesday Book lists St. Keverne as the only land holding religious establishment in Kirrier.[22] Olson (1989) sees the monastery of Lannachebran as an important land-holding monastic centre of the pre-English period, and one which was very much related to the early regional territory of the Meneage.

When looking at this area therefore, the vestiges of an early territorial entity are reproduced in later territorial frameworks, with assessments showing a remarkable consistency. As well as illustrating the common 3 Cornish acre phenomenon, the acreage figures for the six St. Keverne tithings add up to 90 Cornish acres, and if Rosuic is ignored,[23] then the St.

[18] Exeter Dean and Chapter, 2521 (*saec. xi2*), Sawyer 755, Finberg 1953, item 84; Hooke 1994a, item 4, 37-40.

[19] See Hooke 1994, items 6 and 10; Finberg 1953, items 90 and 99.

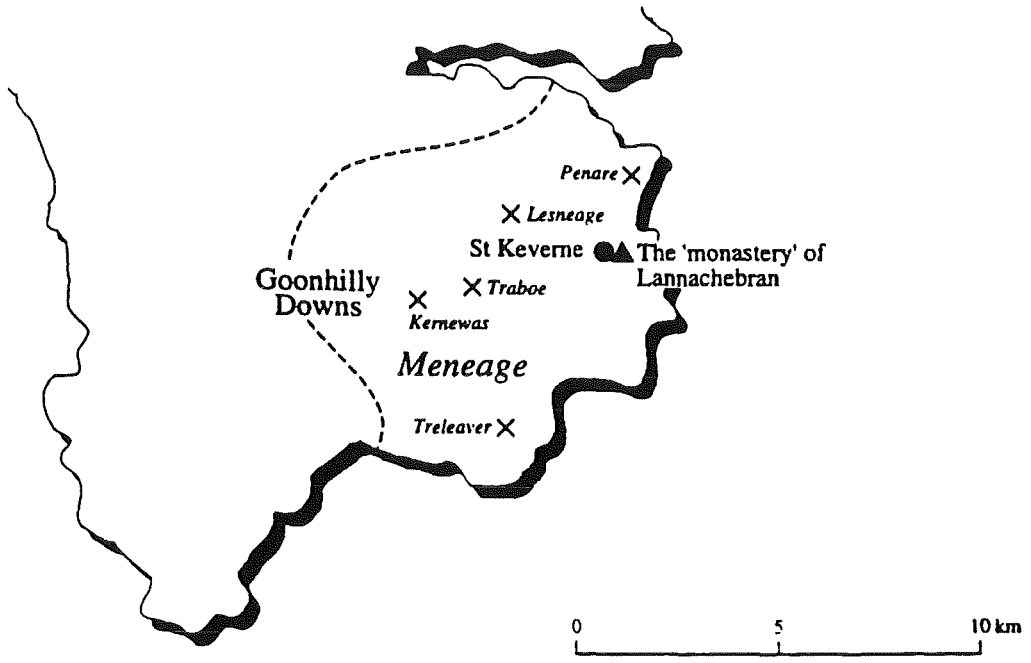
[20] This is noted in the *Cartulary of St. Michael's Mount.* Item 1, p. 1 of Hull's (1962) transcription, dated c.1070.

[21] *Biblioteca Apostolica Vaticana* MS "*Reginensis Latinus* 191".

[22] See Thorn & Thorn 1979, item 4/23.

[23] The territorial tithing of Rosuic appears to mostly contain land in the Ruan/Grade area of the Lizard peninsula and territorially at least seems to have little to do with St. Keverne parish.

Fig. 9. - *The Meneage in the early medieval period.*



Keverne parish total is 60 Cornish acres. Whether these assessments represent some sort of administrative 'label' or are more concerned with 'estate' organisation is not known. The idea of assessment certainly indicates some form of exploitation, and the label 'acres' does suggest an agrarian/economic relationship. The Meneage appears to have been a large unit recognised before the Conquest which was broken up due to land holding pressures of the tenth and eleventh centuries, but this does not necessarily indicate that it once functioned as a single integrated 'estate'. There is a strong possibility however, that the Meneage was expressed as a whole number of Cornish acres and in terms of a definite group of '3 Cornish acre units'. Therefore some administrative and tribute collecting competence is indicated.

In order to make more sense out of the meaning of this early land unit, it is perhaps profitable to look towards the area of place name studies. Hooke (1994) sees such early units of exploitation as including several agricultural components stretching from the high moorlands to the sea. In this context, an investigation of certain place name elements may allow a deeper understanding of the nature of internal organisation within this large territorial unit. The interpretation of the place name 'Lesneage' as 'the court of the monkish land' indicates the existence of an administrative hierarchy within such units, while other place names imply other functions and relationships associated with such an internal hierarchy of administration and exploitation. Preston-Jones and Rose (1986, 144) for instance saw the relationship between the place name elements *hendre* (old/winter settlement) and *havos* ('shieling' or summer settlement) as demonstrating the operation of a system of transhumance.

The Meneage region has good access to areas of moorland and a place on the edge of the Goonhilly Downs named Kernewas, or 'autumn settlement' (located in figure 9), implies that a system of transhumance may have once operated. Kernewas is included within the tithing extent of Treleaver,[24] but when mapped, appears as a detached portion, away from the rest of Treleaver tithing. This settlement is very close to that of Rosuic, and so may be related to some extent to the early operations of that estate. A link between Kernewas and Traboe however is better supported, with this area of moorland apparently included within the charter bounds of Traboe in AD 977 (Hooke 1994). Henderson (1931, 63-64) also notes the existence of a thirteenth century charter[25] in which the moor above *Kinihavot* was granted by Robert Breto, Lord of Trelan. Therefore, this important element within an early system of transhumance appears to be connected by varying degrees to at least three or four different tithing units as they emerged in the later medieval period.[26] Some sort of agrarian/economic coherence within the proposed Meneage

[24] '2 tenements at Kenewas' noted in Henderson MSS, HB/8/76.

[25] PRO, A. 8999, *circa* 1250.

[26] These being Treleaver, Traboe, Trelan and possibly Rosuic.

region is thus implied, with the Goonhilly Downs representing an important element within an integrated agricultural system.

The existence of a transhumance-based mode of pastoral farming requires an organised division of landscape that is recognised at all levels of society. The acknowledged hierarchical basis of Cornish acre, three Cornish acre unit and groups thereof, may provide a context within which such an agricultural system may operate. The hundred-wide assessment confers the unit 'Cornish acre' onto units of landscape and recognises the existence of a 3 acre entity as that requiring acknowledgement of a certain level of status, as well as reflecting the increasing power of state mechanisms. Dodgshon argues (1987, 162) that the increasing territorialisation of tribal groups and the development of state mechanisms, was all part of the assertion of "a new kind of lordship, namely feudal lordship". The tribal territories therefore took on a new meaning as part of the hierarchy of administrative and lordship units that is found in the pre-Norman feudal system.

In Cornwall, the evidence is both scarce and of low resolution, so that the highly detailed reconstruction that is possible in some Celtic-speaking areas is impossible here, especially when alluding to pre-Conquest processes. However, the evidence that does exist suggests that similar processes were taking place as those that are found in other regions, and certainly does not indicate a totally different system.

In Cornwall is revealed an early territorial framework, with previously unrecognised three Cornish acre units and larger groups of acres, possibly with specialised functions, producing a hierarchy of landscape organisation. At one level, the agricultural economy operated through systems of transhumance organised through recognised territorial limits, while at another level, dues were collected and administrative control was maintained. An English administrative agency utilised the landscape organisational scheme in order to suit their own needs of judicial control and income generation, and it was this scheme of early economic exploitation through integrated estate management that formed the basis of the later emergent manorial system.[27] It is important however to heed the cautions that Hadley (1996, 11-12) recognises, based around the underlying assumption that there was a point at which the landscape was uniformly divided into neatly segmented territories.[28] As Hadley (1996, 12) notes, 'Property rights and territorial organisation were seldom simple in the early medieval period'.

7 Conclusion

The early territorial pattern in Cornwall mirrors some important aspects of early societal systems and the evolution of these territories mirrors the evolution of the distinct Cornish society that defined them. As society in Cornwall became more complex and as the need to control increased, especially when power was being wielded from a distant central agency, organisational strategies had to become more sophisticated. Therefore spatial control mechanisms involving the use of systematic territorialisation were used. The development of territorial organisation must be seen within the context of a continuing purpose of the territorial strategy; namely that of the exploitation and control of resources and population.

It is only through looking at the ways in which societies use territorial strategies that we can understand both the nature of those societies and the form of the landscape which later societies (including our own) inherited. Other material in the landscape should be viewed within the context of this territorial organisation to enable us to understand their meaning. Further work is needed however if the full significance of the territorialisation of early west Cornwall is to be appreciated. What was the nature of the ancient forms of landscape organisation and how were they recognised territorially? How well does the rest of Cornwall fit the proposed scheme and what sort of comparisons can be made with other regions? How were the territorial devices actually perceived by English power-brokers and what form did their exploitation of the landscape take? These questions have, to date, only been partially addressed and this investigation can be seen as a useful 'starting block' for a whole range of further explorations.

[27] In Wales, Melville Richards 1969 attempted to place the various terms and units he found into some sort of coherent administrative whole, though is still tentative when interpreting the administrative relationships of some forms. This work may be seen as a step in that direction. Work on the semantics of such names as the *tref* settlements for instance needs to be extended.

[28] Our understanding of the word 'estate' for instance should be qualified.

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All mixed up but somewhere to go? Confronting residuality in bioarchaeology

Introduction

Ancient contamination by mixing of deposits, variously referred to as 'reworking', 'redeposition' or 'residuality' in archaeological literature, is a topic which, until comparatively recently, has been afforded insufficient attention by environmental archaeologists (and others). Even those studying highly resistant remains, such as bones and charred grains, which seem inherently more likely to be redeposited and so become residual, have paid little more than lip-service to its existence, with most references to its possible presence being either apocryphal or based on non-quantitative criteria. Nonetheless, the concept of residuality is nowadays an increasingly accepted problem and is something that palaeoecologists are just beginning to take seriously.

Residuality is potentially a problem on most archaeological sites, particularly so on deeply stratified urban ones. Yet many reports dealing with biological remains fail to even mention whether the issues involved were even considered, leaving one with the basic, (but questionable, since unquestioned) assumption that, for example, the charred grain or vertebrate assemblages from a site effectively contain little or no residual material. The consequences of such an assumption for material from deeply stratified urban deposits, for example those encountered in York, are perhaps too dreadful to contemplate. Indeed, the whole rationale for demanding controlled excavation conditions in the last 25 or so years, whether funded by government or private developers, is that we require coherent finds assemblages accompanied by clear contextual data. Without a fuller understanding of the processes of redeposition, we are unlikely to unlock all of the information embodied in the sets of data carefully recovered in the field over that time. Our case for continuing to demand those resources, when closely examined, and for some kinds of deposits at least, may begin to fall apart at the seams.

It is very important, at the outset, to distinguish redeposition/residuality in the generally accepted temporal sense, evidenced by material dated to an earlier period becoming embodied in later strata, from the lateral transference of essentially contemporaneous material, normally through the importation of raw materials or waste disposal (essentially the distinction embodied in Roskams' (1992, 28) Type C/D and Type B relationships). Such transportation may greatly enhance interpretation by giving information about the resource catchment of the site or by leading to the preservation of material which would have decayed had it remained *in situ*. The turf detected at various sites in York and Carlisle (Allison *et al.* 1991; Kenward & Hall 1995, 611; Kenward *et al.* 1992) and the peat found at other sites (Hall *et al.* 1980; Hall & Kenward 1990) are examples of the first phenomenon (even though the peats pre-dated their archaeological context greatly, they were essentially a contemporaneous resource). Even more important are the cases where waste disposal has led to preservation: the fills of the Roman ditches at Ribchester (Large *et al.* 1994), the fills of wells at Skeldergate and The Bedern, York (Hall *et al.* 1980; Kenward *et al.* 1986) and the extensive dumps at Tanner Row, York (Hall & Kenward 1990) and the various waterfront sites, such as those in Lincoln (Carrott *et al.* 1995; Dobney *et al.* 1996) and Hull (Ayers 1979) are excellent examples of the way valuable information about conditions and events nearby can be obtained.

The localised preservation of occupation debris in dumped material has been argued to be inherently more likely than *in situ* preservation by Hamilton (1956, 97), in his definition of areas of minimal and maximum growth. The operation of this principle is well illustrated by the sites mentioned above and by the detection of insect assemblages believed to have originated in dumped floor material in some of the Anglo-Scandinavian pits at 16-22 Coppergate, York (Kenward & Hall 1995). In this case it was fortunate that there were perfectly preserved floors nearby; had these been destroyed or been too well drained for organic preservation, the pit-fills would have provided the only remaining evidence of conditions and activities inside the houses. This is in fact the case for

some other sites, for example one at The Brooks, Winchester (Carrott *et al.* 1996).

Residuality in the conventional sense of the incidental transfer of material from earlier to significantly later deposits is another matter entirely, and is perhaps one of the biggest challenges now facing archaeologists. It may have taken place on any scale, from trampling and dust-blow to bulk excavation and dumping of deep deposits of much earlier date. On the smaller scale, Kenward and Large (1995), observing that the woodworm beetle *Anobium punctatum* was present in a large proportion of Anglo-Scandinavian pitfill deposits at Coppergate despite having a very short flight period, wondered whether this beetle, which is recognisable from minute fragments, was so frequent because there had been constant small-scale redeposition. If this were the case, for how many other species of invertebrates (and plants) might it be true? What of small robust remains such as charred grains? Most grains may well be secondarily deposited at sites where they are thinly distributed; only AMS dating could help here. Bulk redeposition may have occurred at the same site, but would generally be hard to detect by viewing just the biological remains.

However, in one specific case, at 16-22 Coppergate the evidence is rather more clear (Kenward & Hall 1995, 767). A single deposit of Phase 4b date contained large numbers of honeybees. Bees were present in small numbers only in most other layers at the site, except for quite large numbers in one Phase 5b layer. As these deposits were close to each other, and in an area where there was great disturbance in Phase 5b during the digging of 'cellars' to the timber buildings, it seems quite possible that the later bees were derived from the earlier deposit. This is, as yet, unproven (again AMS dating might help, although the time interval between the phases is quite small, a matter of decades), but worrying. It is possible that further excavation of early medieval towns will show bees to be frequently present (another huge concentration of them was found in late 12th/early13th century deposits in Oslo, Kenward 1988), but the suspicion of residuality at Coppergate still remains.

The problems of residuality are certainly no less for large, robust remains such as bones and the shells of marine molluscs. The almost ubiquitous occurrence of oyster valves and their fragments in deposits at many sites (Coppergate again provides an example) points to large-scale residuality, fragmentation offering the only guide to the phenomenon. For bones, more progress has been made in addressing the problem of redeposition. The following case study outlines a recent attempt to address the problem of residuality in numerous large urban vertebrate assemblages from the city of Lincoln, Lincolnshire (Dobney *et al.* 1996). It provides a stark warning to those working on deeply stratified urban assemblages who assume that characteristics associated with residuality (in this case for pottery and animal bone), will always tell the same story.

The vertebrate and pottery assemblages from the city of Lincoln

During preliminary recording of the bones from numerous sites in Lincoln, variations of preservation, colour, fragmentation, and other characteristics were noted, both within and between different contexts. As a general rule, variations of these characters within vertebrate assemblages are usually assumed to indicate the presence of earlier, re-worked, material. These are however, merely assumptions based on common sense and not on empirical data and thus may, in the light of more detailed research, prove wholly unfounded. Does it really follow that an assemblage containing varying proportions of very battered and rounded material, in conjunction with material which has very angular broken surfaces and a preponderance of dense cortical bone, has more than one origin? The question is whether this represents mixing of material of different dates, or contemporaneous differences in utilisation and disposal practices (and hence in routes to the deposit).

It numerous cases at Lincoln it was clear, when comparing standard stratigraphic pottery data with the general characteristics outlined above which were recorded for bone from the same deposits, that the two provided conflicting evidence. Supposedly well-dated deposits often contained vertebrate assemblages which, on the basis of characteristics of preservation, broken surfaces and even colour, possibly indicated bone of mixed origin. In contrast, less firmly dated contexts often contained animal bone which was, to all intents and purposes, of uniform appearance, and which could therefore be interpreted as having originated from one source and as a single event or process. A more standardisable method was therefore needed in order to compare the pottery and bone data directly.

Construction of simple pottery and bone indices

The initial aim in confronting the problem of residuality was to provide a definitive chronological framework within which to carry out the standard analysis of the animal bones. This is primarily because dating of any biological assemblages from

Table 1
Combinations of the three attributes used to establish the bone index.

Preservation	Colour	Angularity	Bone Index	No. of contexts
fair	not variable	variable	mixed	16
fair	variable	variable	mixed	30
good	not variable	variable	mixed	2
good	variable	variable	mixed	2
poor	variable	battered	mixed	13
poor	variable	rounded	mixed	3
poor	not variable	variable	mixed	2
variable	variable	battered	mixed	5
variable	not variable	spikey	mixed	3
variable	variable	spikey	mixed	7
variable	not variable	variable	mixed	5
variable	variable	variable	mixed	37
fair	not variable	battered	uncertain	59
fair	variable	battered	uncertain	39
fair	variable	spikey	uncertain	35
poor	not variable	battered	uncertain	20
poor	not variable	battered	uncertain	4
fair	not variable	spikey	useful	76
good	not variable	spikey	useful	69
good	variable	spikey	useful	37

deposits must rely in the main on their association with other cultural artefacts. However, the basic premise of this association is flawed by the undeniable fact that different finds assemblages are incorporated into deposits by completely different routes and perhaps at widely different times. If we cannot recognise the phenomenon, then much of our interpretation of biological data is undermined. This can be illustrated again by use of the Lincoln vertebrate data where there are apparent increases in the size of cattle in the 3rd century AD and of sheep in the early 16th century. In this case we must be sure that this interpretation is based on a chronological framework which categorically excludes the possibility of the bones of these large individuals actually being the remains of earlier reworked ones.

As a result of these concerns, the staff of the City of Lincoln Archaeology Unit (CLAU) constructed a pottery residuality index which was designed to classify deposits very simply, on a hierarchical basis, using scales for two parameters. The first classified each context or context group on a three-point scale for their presumed likelihood of containing primary material. Thus pits and dumps would score well (i.e. 1, little residuality likely) whilst demolition debris and robber trenches scored poorly (i.e. 3, much residuality probable). The second scale was based on the proportions of medieval to Roman pottery for each context or context group. A score of '0' was recorded where no pottery was present, '1' when less than 10% was residual, '2' where these numbers were unknown or where there were less than 20 sherds, and '3' where more than 10% of the sherds were obviously residual. A residuality index was created for each context or context group using the following algorithm:

1) If a context (or group of related contexts) scored '1' for both parameters it was assumed to be a deposit with minimal residuality and therefore fell into the 'useful' category.
2) If a context (or related context group) scored '2' for both parameters then it was assumed to be of 'uncertain', status.
3) If a context (or related context group) scored '3' it was assumed to be a 'mixed' deposit.

On the basis of this information, bone assemblages classified as either 'useful' or 'uncertain' by the pottery and stratigraphic index were considered to be tightly dated groups containing little residual material. Those described as 'mixed' were judged to be of little value and, as such, excluded from further detailed recording and analysis (although most were provisionally recorded during the assessment phase). Bones from 'useful' and 'uncertain' deposits therefore form the basis of the Lincoln analysis (Dobney *et al.* 1996).

An equivalent bone index was also needed in order to test whether information from the two sets of data were in any way compatible. The assessment protocol had, however, not originally been devised to record residuality and, as a result, the information used to address this aspect is less than ideal. As previously mentioned, data concerning the state of preservation, colour, the angularity of the broken surfaces, the presence of dog gnawing and fragmentation had all been recorded during assessment of the material.

The bone index is based on three basic parameters: preservation (recorded as 'variable', 'poor', 'fair', 'good', 'excellent'), angularity (here defined as the appearance of the broken surfaces and recorded as 'variable', 'spiky', 'rounded' or 'battered') and colour (recorded for these purposes as either 'variable' or 'not-variable'). Preservation and angularity were considered to be more reliable indicators than colour and, as a result, the scores assigned to each group were weighted towards preservation and angularity. Table 1 shows the various combinations of categories used for constructing the bone index and the total number of contexts falling into each category. For reasons of direct comparability, the bone index 'score' is based on the simple three tier system used for the pottery index, i.e. deposits were considered to contain material which was either 'mixed', 'uncertain' or 'useful'.

This classification, although simplified and undoubtedly flawed in a number of its basic assumptions, at least provides a basis for semi-quantitative estimates of residuality through integration of data for stratigraphy, pottery and bone.

Results

Of a total of 848 contexts available from the CLAU database, 366 contained animal bone assemblages for which residuality data were available for both bones and pottery. Results from the indices were compared (Table 2 and Fig. 1) on the basis of index concordance (i.e groups of bones which scored the same for each index were said to be 'matching' and those that did not were scored as 'conflicting'). What is abundantly clear from these results is that very little agreement was reached in the case of the 'useful' and 'uncertain' groups, and the highest proportion of 'matching' scores were from those groups classified as 'mixed' for both indices.

This simple exercise shows some quite unexpected results: there is almost no correspondence of pottery and bone indices at any level, and that although there was a 30-60% match of 'mixed' assemblages, this proportion is still very low, not far from random. Interpretation of these data is somewhat problematic. They either point to the many failings of the criteria used to construct the bone index, or may be highlighting the fact that the taphonomic pathways of bone and pottery are very different.

These results are not wholly surprising, since the ways in which pottery and bones can become incorporated into a particular deposit are many and varied. The very different uses and activities these types of material represent in an urban society argue against there being more than a tenuous link between the two, in terms of their disposal pathways. Recognising this fact is obviously an important step, but the problem of dating bone assemblages still remains. Unlike pottery and other small finds assemblages, there are very rarely any circumstances in which bones (or for that matter any other biological remains) from archaeological deposits can be dated purely on their intrinsic characteristics. Instead they have to be dated by direct association with other datable evidence, or absolutely dated using sophisticated and costly techniques such as radiocarbon assay. Herein lies the very root of the problem of studying biological remains, namely that the presence of tightly dated and residual material can only be recognised at second hand or by very expensive techniques. Where other bone-related criteria appear to provide a conflicting view (as illustrated by the Lincoln case study), the problem of actually dating the material is heightened.

It is clear that the study of the Lincoln animal bones has not resolved the problems of residuality, but it has served to highlight the fact that a potentially serious problem exists in the way dating frameworks are used in the study of biological remains. This problem can only be resolved by more detailed recording of all biological *and* artefactual assemblages.

The problem

Residuality needs to be detected, quantified and compensated for so that useful interpretation of assemblages of biological remains can be made. However, this is by no mean straightforward. This is particularly true for deeply stratified urban sites where many deposits are secondary and, depending on the nature of the deposits, there will always be a greater or smaller level of 'background noise'. In order to truly tackle the problem, we need a more detailed and fundamental understanding of site formation processes and a broader awareness of the range of methods of finds analyses and the theoretical principals they embody. Too many lines of evidence are focused towards discrete finds assemblages and little integration or synthesis of the detailed findings is ever made.

Table 2
Numbers and proportions of contexts showing 'matching'or 'conflicting' pottery and bone indeces

	Matching	% Matching	Conflicting	% Conflicting	Total
Mixed	56	58%	41	42%	97
Uncertain	23	17%	109	83%	132
Uuseful	16	12%	121	88%	137
Total	95	26%	271	74%	366

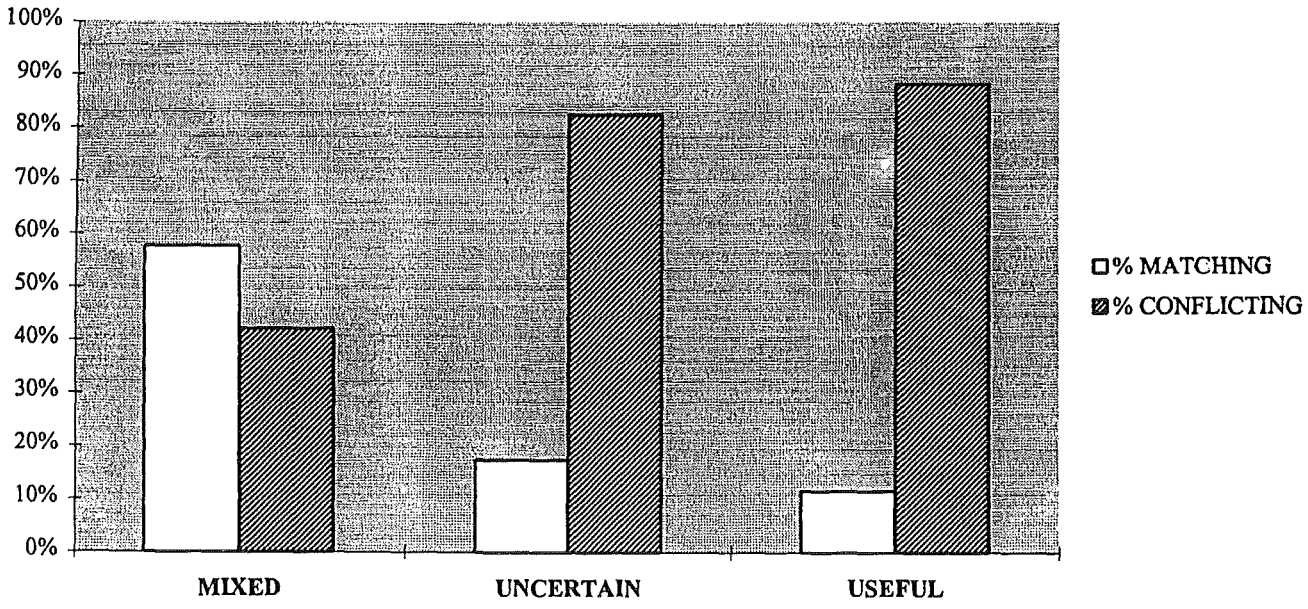
Real problems are encountered with the concept and definition of 'deposit class' i.e. defining the 'status' of a layer in terms of its physical characteristics rather than as a relationship between a designated find and its associated stratigraphic unit.

Scientific studies of the methods used in the quantification of finds groups are few and far between and usually associated with a single artefact type rather than the whole assemblage, as was the case with the Lincoln vertebrate study outlined above. These studies are usually a product of an individual's personal initiative and not an implicit part of the overall formal post-excavation strategy. Methods employed are rarely explicitly discussed, statistically investigated or compared with those from other finds groups or biological assemblages.

Finds-based studies on residuality are more advanced in pottery and coin studies than they are for the various groups of biological remains and a number of ways of calculating likely residuality, based on the characteristics of the finds assemblage, have been employed. These include:

- using simple size of pottery group to define the character of associated strata (Carver 1979)
- the use of seriation diagrams to elucidate site formation processes either incorporating the size of the pottery group (Carver 1980) or set against soil volumes (Evans & Millett 1992)
- employing indicators of wear on artefact groups, i.e for pottery using average sherd weight (Bradley & Fulford 1980) or rim or base percentages to quantify fragmentation and crudely measure the brokenness of vessels (Mathieson 1994), using informally defined wear indices for coin preservation or by using fragmentation indices or colour variation for bone. However, problems lie not only in the technicalities of pottery quantification but also in the failure to distinguish between the many factors causing such degradation of ceramics (and bone) when interpreting the data (Hurst and Roskams 1984, 26).
- using average artefact date which can be set beside the latest date for the associated deposit to measure degrees of residuality (Evans & Millett 1992).

Fig. 1. - *Comparison of the frequency of 'matching' or 'conflicting' residuality indices for pottery and bone from all periods and areas of the city.*



All approaches lack a clear link to the character of the deposits from which the material derives and largely ignore the often wholly different mechanisms which predetermine in what manner various finds assemblages become incorporated into deposits. Without such integration, interpretation of artefact patterning will always be fraught with problems. For example, the fact that one pottery assemblage contains much smaller pieces than another may result from one having been re-deposited more times than the other. It may equally mean that the first group were deliberately smashed and deposited in a new structural element and that the latter may have been redeposited numerous times. Similarly, variation in the fragmentation indices of animal bones from the same deposits may equally reflect differences in contemporaneous butchery methods or craft/industrial utilisation as the presence of an earlier residual component.

Similarly knowing that the 'average' artefact date for a deposit is much earlier than its latest date, does not, in itself, indicate directly how or why re-deposition occurred. In every case, one must set the results of one study against that of other artefact studies, and against site context information in order to attempt to decide between conflicting interpretations.

Addressing the problem at a research level

In order to meet the very real challenge that exists in trying to glean important archaeological information from deposits containing residual material, several approaches are required. In the first instance the research questions should be limited in their scope; does mixing of certain materials only occur in certain types of deposits? What is the required level of resolution? How well is a deposit dated and how? It is extremely important that any future studies of this kind should define more closely the criteria used to assess where residuality occurs. Parity of recording should exist for pottery, bones and other materials (i.e. using preservation, angularity of new breaks, degree of fragmentation and wear) and resources should be set aside so that a good series of carefully selected radiocarbon dates can be taken.

At a basic archive level, there is a need to classify context and/or deposit types into functionally defined categories. These will only be useful if categories relate to the types of formation processes they reflect. This is a complex taxonomic problem but must be the starting point for this kind of study. Once this is achieved, integration of residuality 'indicators' from finds group studies should be set against deposit type information.

As already discussed, since there is no inherent way of dating biological remains by morphological characteristics (unlike other cultural artefacts such as pottery, coins metalwork, etc.), it would be extremely useful to undertake a series of multiple AMS dates on material from the various biological assemblages (both between and, more importantly, within selected deposits) in order to verify other criteria used for assessing the presence of residual material. For example, do the proportions of rounded and battered bones, or the presence of discoloured and poorly preserved invertebrate remains in an assemblage with generally good preservation in an apparently well-sealed pit-fill represent older re-worked material or contemporaneous, but very different human activities?

Submitting samples for AMS dating is still considered somewhat of a luxury, rather than a standard tool and, in order to elucidate the problem fully, multiple sampling must be undertaken. Although, at present, the cost of numerous dates is potentially prohibitive, pilot studies could be implemented at this stage, attempting to quantify the scale and nature of the problems involved, leading us towards coherent solutions. Thereafter, depending on results from such initial exercises, we may be able to design appropriate protocols to deal with material in the context of a particular set of research questions. Failing this, if solutions can only be provided on a more individual, project-by-project basis, it may be that all post-excavation programmes should routinely set aside explicit post-excavation funds for this purpose. Indeed, one might even hope that creating a large market for multiple dates would mean that the price and turnaround time of such samples might be significantly reduced!

Conclusions

It must be emphasised that many deposits clearly do not contain a significant residual component (deferring arguments as to what is significant!). However, nothing will be achieved by failing to accept the likely residuality of at least a proportion of the remains in many deposits. There is no doubt that the problem of residual material is an extremely important issue within archaeological interpretation, threatening to undermine much analytical and interpretative effort unless vigorously addressed. It can be seen as a major hindrance, so that deposits for which residuality can be tentatively identified are excluded from further consideration (which for many sites would involve ignoring large amounts of potentially valuable data). However, a more positive approach is

to search for ways of extracting the valuable information embodied in residuality data. Perhaps the most important lesson to be drawn is the need for fuller integration of the results of studies of datable artefacts, of stratigraphy, of lithology and of biological remains in estimating the likelihood of residuality. This kind of systematic approach by the various specialisms, disciplines and scientific techniques available to us, could provide much useful and in some cases unique information to archaeology.

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Radiocarbon dating and Medieval Europe

1 Introduction

Although there have been instances in which radiocarbon has been used as a dating tool in Medieval archaeology and the history of the arts, the systematic use of radiocarbon to help resolve chronological problems in historical periods is new. The reasons for this late interest are manifold. The scientific reservedness towards using the ^{14}C dating technique on Medieval samples was rather essential. The method was not precise enough and the loss of material due to sampling was too substantial to use the method on precious objects like statues and textiles.

The imprecision of radiocarbon dating mainly derives from the relatively important standard deviation on the measurement, especially after calibration, as will be explained later. If one compares the ^{14}C results with historical records, the dating method seems irrelevant. Even dates from high-precision laboratories will in most cases leave the archaeologist with an uncertainty of at least one century. In many cases this drawback can be circumvented if questions are asked differently, as will be discussed further. The aim and importance of radiocarbon dating concerning these historical periods will not be in the first place to provide an object with an absolute date, but to relate artefacts to events described in texts, chronicles or even legends.

The problem of sample size has been overcome thanks to the development of AMS (Accelerated Mass Spectrometry) which reduced the amount of material needed for a radiocarbon analysis with a factor of about 1000, from gram-size samples to milligram-size samples. This made it possible to date a lot of short lived materials (e.g.: seeds, textile fibres, nutshells) that are in most cases chronologically much better related to the historical event the archaeologist wants to date than the long lived materials, (e.g.: wood, charcoal).

On the basis of some examples I will try to explain the possibilities and limitations of the method. The aim is not to provide an exhaustive list, but rather to extend an invitation to creativity towards the archaeologists who should themselves try to find the most suitable sample that will resolve their dating problems.

2 The principles of radiocarbon dating and calibration[1]

The radioactive isotope of carbon (^{14}C) is formed continuously in the atmosphere. It combines with oxygen to form $^{14}CO_2$ and mixes with the non radioactive CO_2 (99% $^{12}CO_2$ and 1% $^{13}CO_2$) of the atmosphere. Due to photosynthesis and dissolution in (ocean)water it enters the carbon cycle of the biosphere (the food chain). A supposed dynamic equilibrium between formation and decay causes a constant concentration of ^{14}C in the atmosphere and therefore a constant ^{14}C level in living organisms. When organic material leaves the carbon cycle, as when a plant or animal dies, there is no longer an exchange of carbon and due to the radioactive decay the amount of ^{14}C will decrease so that its concentration will halve every 5730 years. The conventional radiocarbon age, expressed as BP (Before Present) will be obtained by comparing the concentration of the residual ^{14}C with a modern standard. Most laboratories report the measured radiocarbon age provided with a standard deviation (s) based on the counting statistics. Assuming a Gaussian distribution of the results this means that there is a 68.3% probability that the true radiocarbon age falls within the $\pm 1\sigma$ range and a 95.4% probability that it falls within the $\pm 2\sigma$ range. Most laboratories do not include laboratory or sample errors in the quoted results.

Unfortunately the production rate of ^{14}C has not been constant over time, introducing a discrepancy between the radiocarbon and the real time scale. Two

[1] In this paragraph only a brief introduction to radiocarbon will be given. Comprehensive information is commonly available: Mook & Waterbolk 1985; Gillespie 1986; Bowman 1990; Van Strydonck 1995.

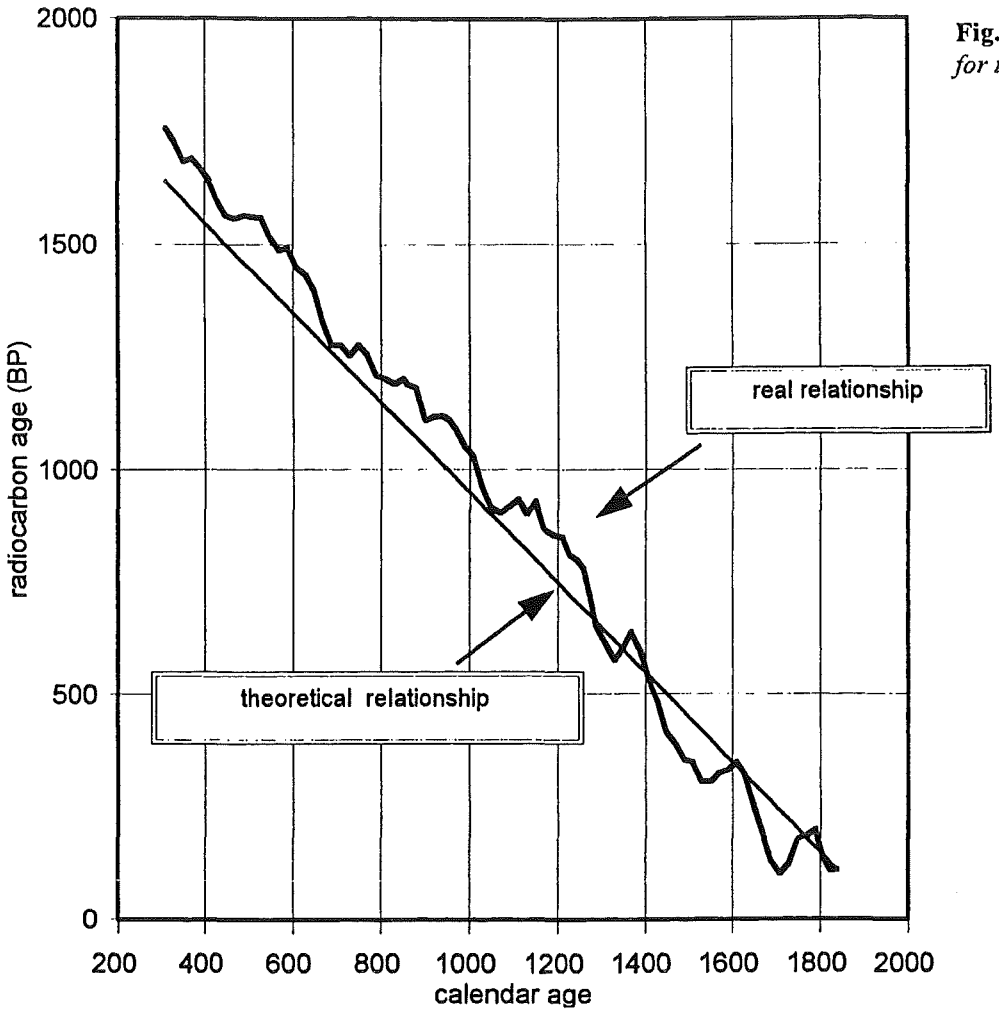


Fig. 1. - *The calibration curve for the Middle-Ages.*

trends dominate this difference. First of all there is a long-term trend, a quasi sine wave with a period of several thousands of years. This trend is not so disadvantageous in the context of Medieval archaeology since it provokes only a "harmonica-effect" on the time scale that can be compensated quite easily. A much more dramatic influence is caused by the so-called "wiggles". These disturbances are of a short duration, not more than a few decades, but can have an amplitude of a century or more on the radiocarbon time scale. These "wiggles" (Fig. 3b) form one of the major obstacles for precise radiocarbon dating. They also make it impossible to date samples younger than the beginning of the 17th century. Anyway, both features make a conversion from radiocarbon ages into astronomical or true ages necessary. This can be done through dendrochronologically established calibration curves (Fig. 1) and by special computer programs developed for this purpose[2].

3 The influence of the "wiggles" on the precision of the result

The Gaussian distribution representing a conventional radiocarbon date will be transformed in a non-Gaussian (see also Fig. 4) distribution after calibration. Although nowadays a routine precision of 35 to 40 ^{14}C years is achieved by most laboratories for dates covering the last two millennia, this precision cannot be maintained after calibration. Figure 2 shows the 1 and 2 σ calendar ranges obtained for a radiocar-

[2] Hitherto (May 1997) there is no recommendation from the radiocarbon community regarding calibration programs. So there is no generally accepted program. Different radiocarbon laboratories conceived their own calibration program (e.g.: van der Plicht 1993; Stuiver & Reimer 1993; Taylor, Stuiver & Reimer 1996; Niklaus *et al.* 1992; Bronk Ramsey 1995; Pazdur & Michczynska, 1989). Some of them are available on Internet. These programs sometimes focus on different aspects and have different designs. Although the layout and software is different they all use the same data sets (*Radiocarbon* 28, no.2b, 1986; *Radiocarbon* 35, no.1, 1993). So far there has been only one attempt at comparing the programs. Aitchison *et al.*(1989) compared eight methods of calibrating radiocarbon dates and found reasonably good agreement between the methods. Unfortunately this study reveals only the situation until 1989 and no update has been made.

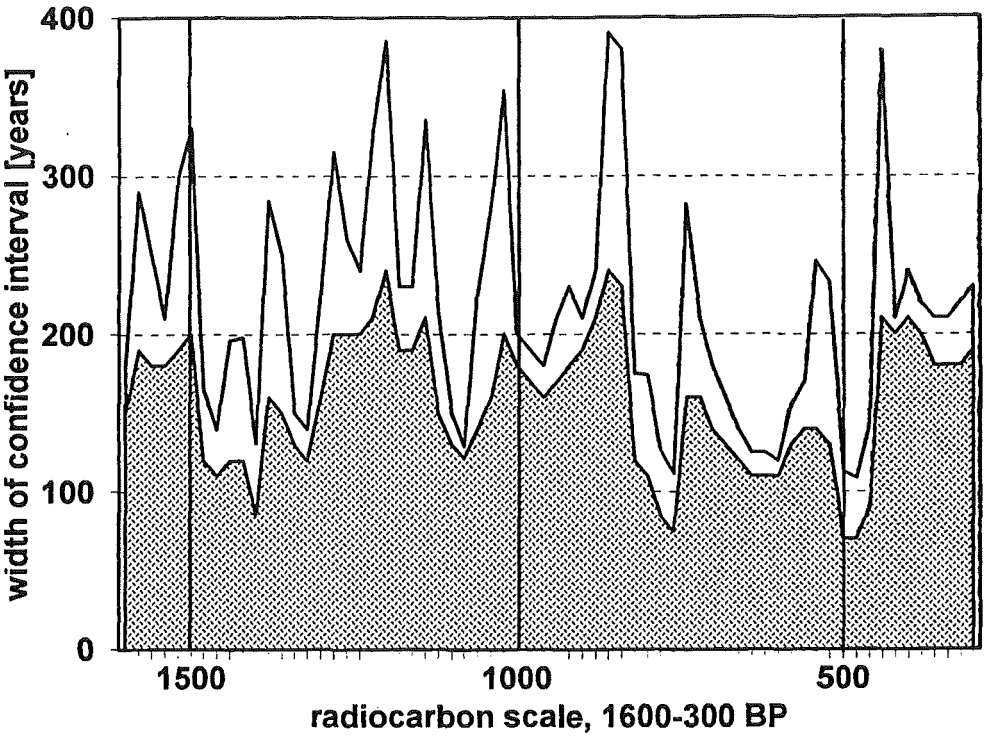


Fig. 2. - *Width of the 1 and 2 σ calendar ranges resulting from the calibration of ^{14}C ages assuming a standard deviation of 35 years.*

bon date between 1600 and 300 BP measured with a standard deviation (σ) of 35 ^{14}C years. The graph shows a succession of different peaks and troughs. Without going into details it can be stated that the mechanism provoking this pattern is mainly driven by changes in solar activity, inducing a change in the atmospheric production rate[3] of ^{14}C. The consequence of calibration is that, if no external information can be added, in most cases the accuracy decreases. The fluctuations in the atmospheric ^{14}C of the past are the domination factor limiting the accuracy of radiocarbon dating in medieval times[4].

EXAMPLE 1:
Wood related to an ancient road at Ieper, Belgium[5]

Two samples were taken from an oak beam related to the most ancient road in Ieper. The analyses were to give an idea about the age of the road that is believed to connect two nuclei which gave rise to the Medieval town. The beam showed sapwood but no bark. In order to obtain a very precise date a sample was taken from ring 8/9 and a sample from ring 19/20. The wood was transformed into cellulose to obtain a very pure sample and dated with AMS.

Table 1
^{14}C dates of wood from an ancient road at Ieper.

ring 8/9	: UtC-5394[6]	: 965±25 BP
ring 19/20	: UtC-5391	: 970±25 BP

Figure 3a represents the probability distribution of the age of the youngest ring in the wooden beam as derived from both measurements, figure 3b the calibration curve for this period. Due to the fluctuations in the calibration curve the probability is divided in 3 peaks with in between 2 zones of extreme low probability. This means that the real age of the sample is somewhere on the abscissa in the ranges covered by the peaks (1030-1060 cal AD, 1100-1130 cal AD, 1150-1170 cal AD [1σ range]) and cannot be in the zones of low probability situated in the troughs between the peaks. In practice however if no supplementary information is available the archaeologist has little gain by using this complex notation and will quote the whole range (1030-1170 cal AD)[7].

If however supplementary information can be added the precision of the date can be improved in many cases[8] as will be shown in the next paragraph.

[3] Dergachev & Chistyakov 1995.
[4] Mc Cormac & Baillie 1993; Niklaus *et al.* 1994.
[5] De Wilde 1995.
[6] UtC: samples prepared at The Royal Institute for Cultural Heritage, Brussels, Belgium and measured by AMS at the van de Graaff laboratory, Utrecht University, The Netherlands (Van Strydonck & van der Borg 1990/91; Alderliesten *et al.* in print).
[7] This range has been used to construct figure 3.
[8] Buck, Litton & Scott 1994.

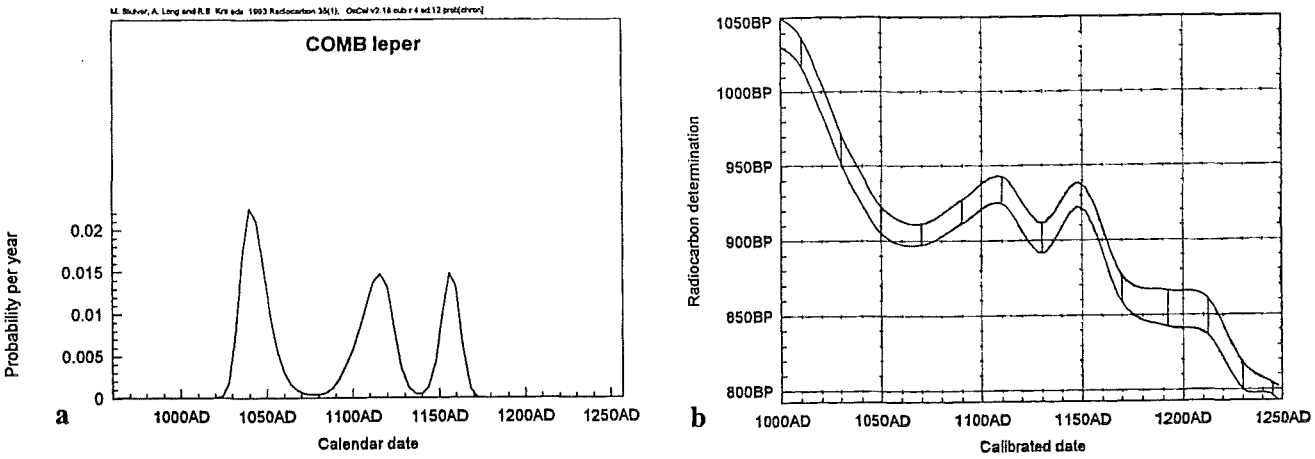


Fig. 3. - *a: Probability distribution of the calibrated age of the youngest ring in the wooden beam as derived from the radiocarbon dates from ring 8/9 and ring 19/20; b: Calibration curve for that period.*

4 The Bayesian approach to the interpretation of radiocarbon dates

The Bayesian approach[9] allows the investigator to formalize the interaction between prior beliefs and new data. This methodology consists of a statistical framework that offers the archaeologist the possibility to build his prior knowledge and beliefs into equations and compute the posterior through interaction of the prior and the data via a model. This prior information can be almost anything, from archaeological knowledge obtained from earlier excavations of similar sites or from stratigraphy, to external information like citations in old manuscripts.

Although Bayesian statistics can be used on many archaeological problems it has been remarkably successful in radiocarbon dating.

EXAMPLE 2:
"Fall of Icarus" painting attributed to Bruegel the elder[10]

Technical aspects of this painting kept in the Royal Museum of Fine Arts in Brussels, Belgium, question its authenticity. According to certain experts it is most probably a copy. From the canvas of the painting (layer 1) as well as from two linings (layer 2 and 3) small samples were taken. After an intensive pre-treatment to remove the layers of varnish, wax, paint and dust the cleaned and bleached fibres were dated by AMS.

Table 2
Conventional radiocarbon dates from the "Fall of Icarus"

layer 1 (canvas)	: UtC-5396:	380±30 BP
layer 2 (1st lining)	: UtC-5398:	200±25 BP
layer 3 (2nd lining)	: UtC-5124:	210±25 BP

The results are represented in figure 4. Layer 1 is definitely older than the two linings which are younger than 1650 cal AD. The dating result from the canvas has a rather large confidence interval as shown in table 3 and covers part of the 16th and 17th century.

Table 3
Calibrated age ranges layer 1

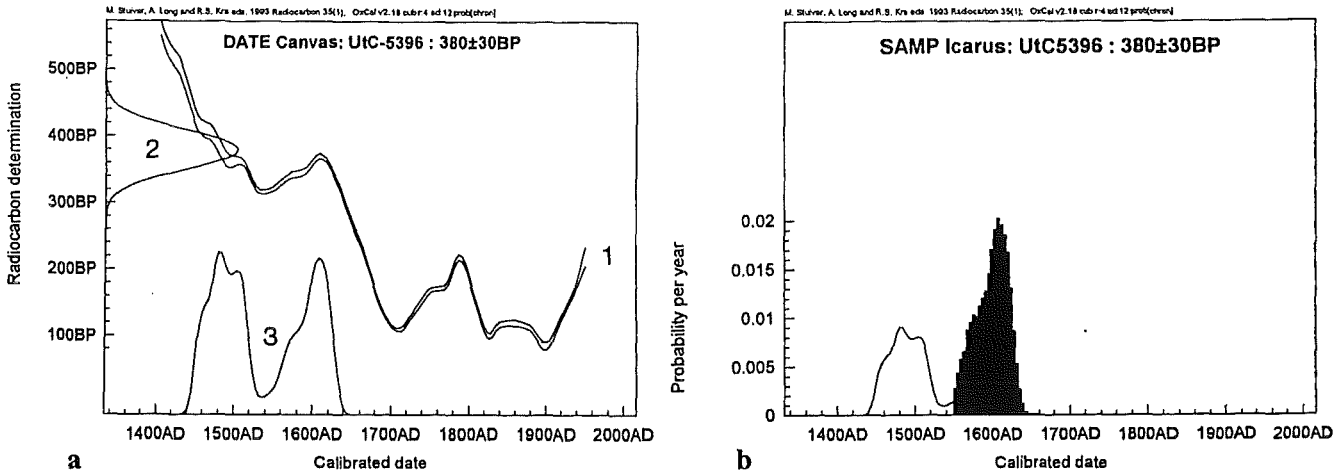
68% probability	1460-1520 cal AD (64%) 1590-1630 cal AD (36%)
95% probability	1440-1530 cal AD (55%) 1550-1640 cal AD (45%)

Bruegel's exact year of birth is not known but is placed by most scholars around 1525 AD. On the other hand, we know for sure that he was introduced to the Antwerp painters' guild of "Sint-Lucas" in the year 1551. The "Fall of Icarus" is undoubtedly from a later date. By introducing this information into the calibration program the first peak disappears because it is situated before 1551 and the probability distribution of the date will be recalculated (table 4).

Table 4
Calibrated age ranges of layer 1 assuming that the painting must have been made after 1551

68% probability	1582-1625 cal AD (100%)
95% probability	1555-1635 cal AD (100%)

[9] Litton & Buck 1995.
[10] *Bruegel, een dynastie van schilders*, 1980; Van Strydonck *et al.* in print.



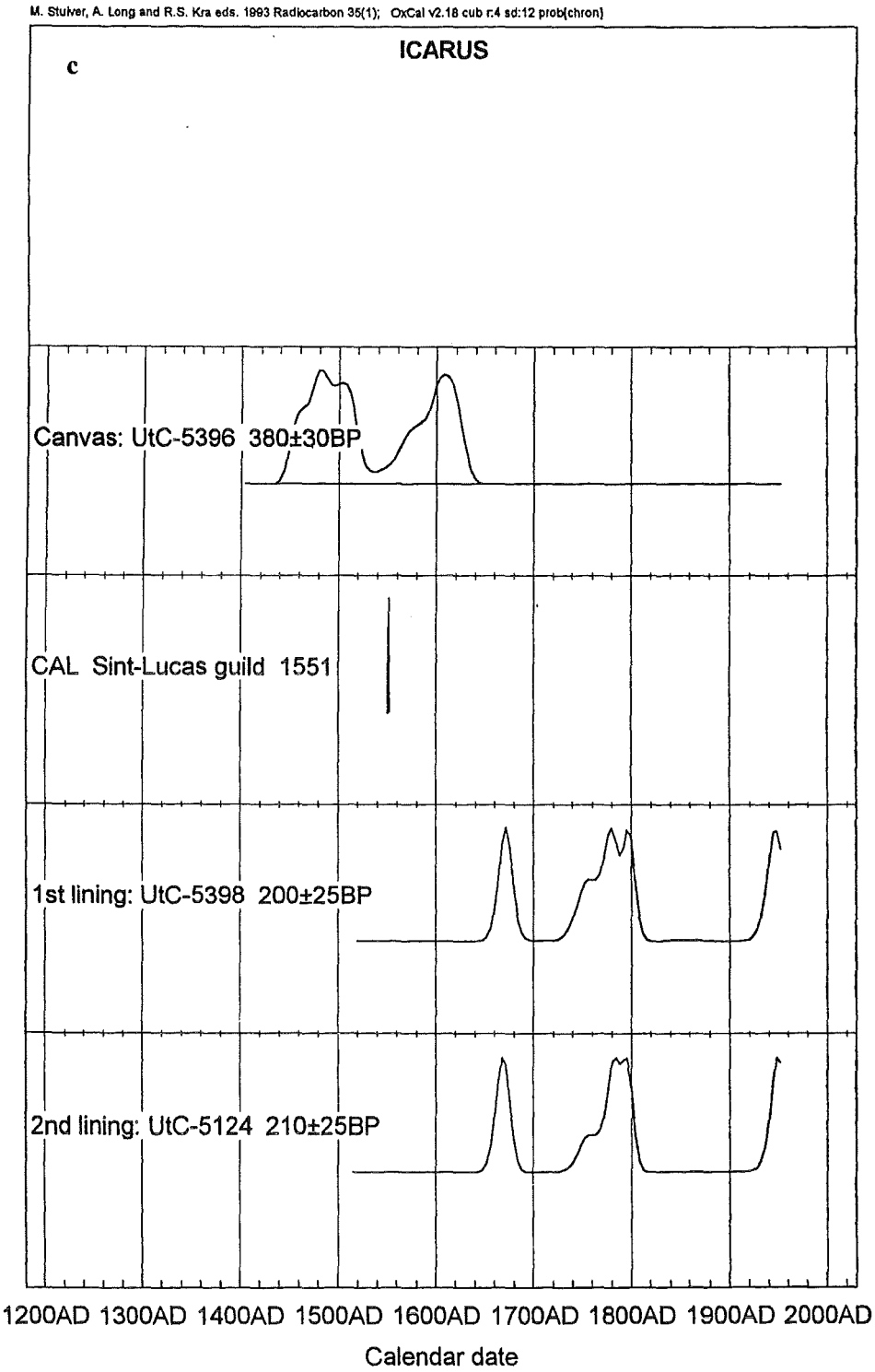


Fig. 4. - *a) Calibration curve [1], probability distribution of the conventional radiocarbon dates [2], probability distribution of the calibrated date [3].*
b) Probability distribution of the dates and Bruegels introduction to the Antwerp guild.
c) Probability distribution of layer 1 taking into account that the painting must have been made after 1551 (in black).

As a result of the introduction of this assumption the recalculated probability distribution shows that it is almost impossible that the examined painting can be attributed to Bruegel the elder who died in 1569[11]. Furthermore, the results indicate that the painting is older than the second half of the 17th century.

5 The estimation of a cultural phase

Radiocarbon can also be used to date the duration of a certain cultural phase. The problem is however that there is no consensus on how this should be done. The most simple way is to rank the different results that describe a given cultural phase and designate the oldest and the youngest as the beginning and the end of the phase. By doing this the density of the results is not taken into account. The oldest and youngest date may be outliers or extremes of what was a very short cultural period. One of the simpler techniques to assemble extra information about culturally related samples is introduced by Aitchison *et al*[12]. After calibration the individual probability curves are added up to obtain the so-called "sumprobability". In this histogram each date is proportionally represented. So if more dates are concentrated in a certain part of the time axis this part will gain more weight and represent a larger portion of the probability distribution than the rest. If all dates belong to the same cultural phase, the *floruit* or interquartile range defines the cultural optimum of this phase.

EXAMPLE 3:
Dating of Liseré linen[13]

Seven fabrics, all belonging to a group of textiles called "liseré-linen", were dated. They are white tabby woven textiles in which the geometrical patterns were realized by weft floats on half the picks. They were used as relic wrappings. They are most probably re-used textiles that were no longer suitable for their original purpose. Originally this group would have been used as altar cloths.

Table 5
Conventional radiocarbon dates from the "Liseré-linen

reference fabric	*Radiocarbon date*
Chelles:	UtC-1753: 1160±50 BP
St.-Truiden (Tx-68):	UtC-1754: 990±80 BP
Brugge:	UtC-2298: 900±50 BP
St.-Truiden (Tx-61):	UtC-1755: 770±50 BP
Tongeren (7a):	UtC-2191: 710±70 BP
St.-Truiden (Tx-67):	UtC-2193: 640±70 BP
St.-Truiden (Tx-64a):	UtC-2297: 440±70 BP

One of the results of the dating study (Fig. 5) was that the *floruit*, ranging from 1063 to 1337 cal AD, is in agreement with dates obtained by radiocarbon or art historical evidence for similar textiles from Köln, Skog and Eskelhem. On the other hand, it also became very clear that the dispersion of the results, covering a period of almost five centuries, was much more important than was expected.

Although there are many pitfalls, this type of histograms can be used for much more complex analyses[14]. One could ask for instance if the succession of peaks and troughs have any cultural meaning. A higher density in the probability curve can reveal a higher cultural activity in that period. This is true but the non-linearity of the calibration curve can also introduce this phenomenon. Smoothed calibration curves, high-precision dates and customized statistical programs are a must to try this kind of exercises.

6 Sample choice

Radiocarbon dating does not date an event but the artefact that is attributed to the event, likewise it does not date the use of the artefact but the moment that the material the artefact is made of left the carbon cycle. As a consequence, there is always a discrepancy between the event the archaeologist wants to date and the age of the datable material of this event. So the laboratory prefers short-lived material (small inbuilt age), that was used immediately after it had left the carbon cycle (e.g.: harvest) and is closely correlated to an event in the past. Examples of this type of material are: fat, wax and food remains in pottery, burned grains (cereal), carbonized nutshells, textiles, etc... The necessity of a high quality sample is much more imperative in Medieval than in prehistoric studies because of the required precision. A typical example of an investigation that can go completely wrong is the case of dating ruins. Dating the ruins of a castle to obtain information about the construction, use and destruction of such a building asks for dif-

[11] Van Strydonck *et al.* in prep.
[12] Aitchison *et al.* 1990.
[13] Van Strydonck & De Jonghe 1995.
[14] Recently a lot of work has been done on the proper use of histograms (Stolk *et al.* 1994; Törnqvist *et al.* 1994) in both geological and archaeological studies (Mc Fadgen *et al* 1994; Dye 1995). Most of the archaeological studies using histograms however come from non-European sites missing the historical framework.

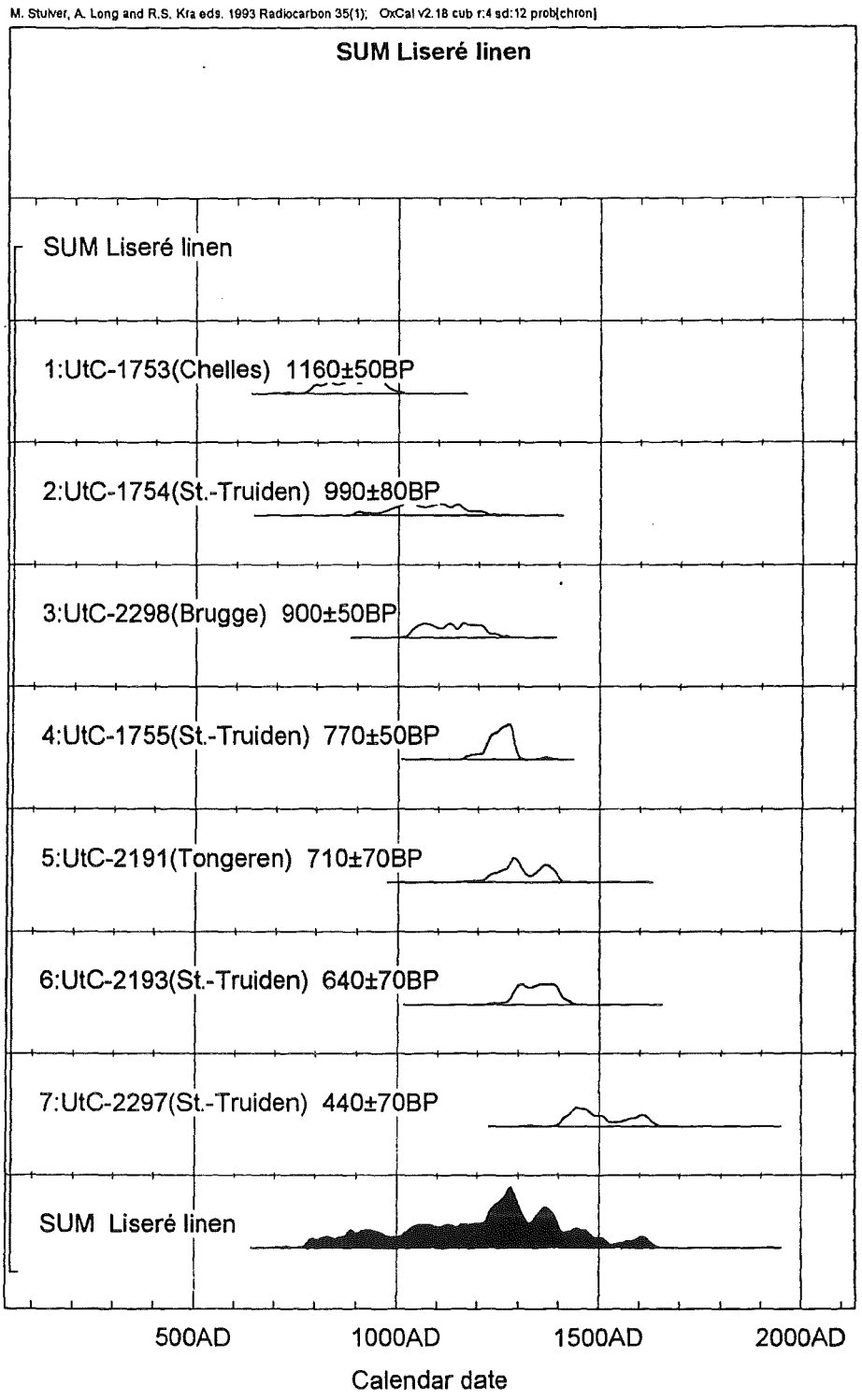


Fig. 5. - *Calibrated dates of seven Liseré-linen and the sumprobability (in black).*

ferent types of samples. The charcoal remains of the wooden beams of the castle will be useless because they will not give a date for the destruction, nor for its use. Likewise this charcoal will not date the construction of the castle. Although construction beams, if no recuperation wood is used, are made of freshly cut trees, the charcoal that remains after the sack of the castle comprise only the inner rings of the tree. Bark, sapwood and the outer rings are mostly literally gone up in smoke. A radiocarbon analysis of this type of material will predate the construction of the castle. To date the construction one should look for small milligram size samples of charcoal in the mortar. These charcoal fragments are left overs from the wood used in the kiln to transform geological carbonate into quicklime[15]. By using this material it is sometimes even possible to date different construction

[15] In brief this process can be described as follows: $CaCO_3$ (geological carbonate) + heat = CaO (quick lime); $CaO + H_2O \rightleftharpoons Ca(OH)_2$; $Ca(OH)_2 + CO_2$ (from the atmosphere) = $CaCO_3$ (mortar carbonate). In exceptional cases a direct date of the mortar carbonate is possible. This depends mainly on the presence or absence of fossil carbonate in the mortar.

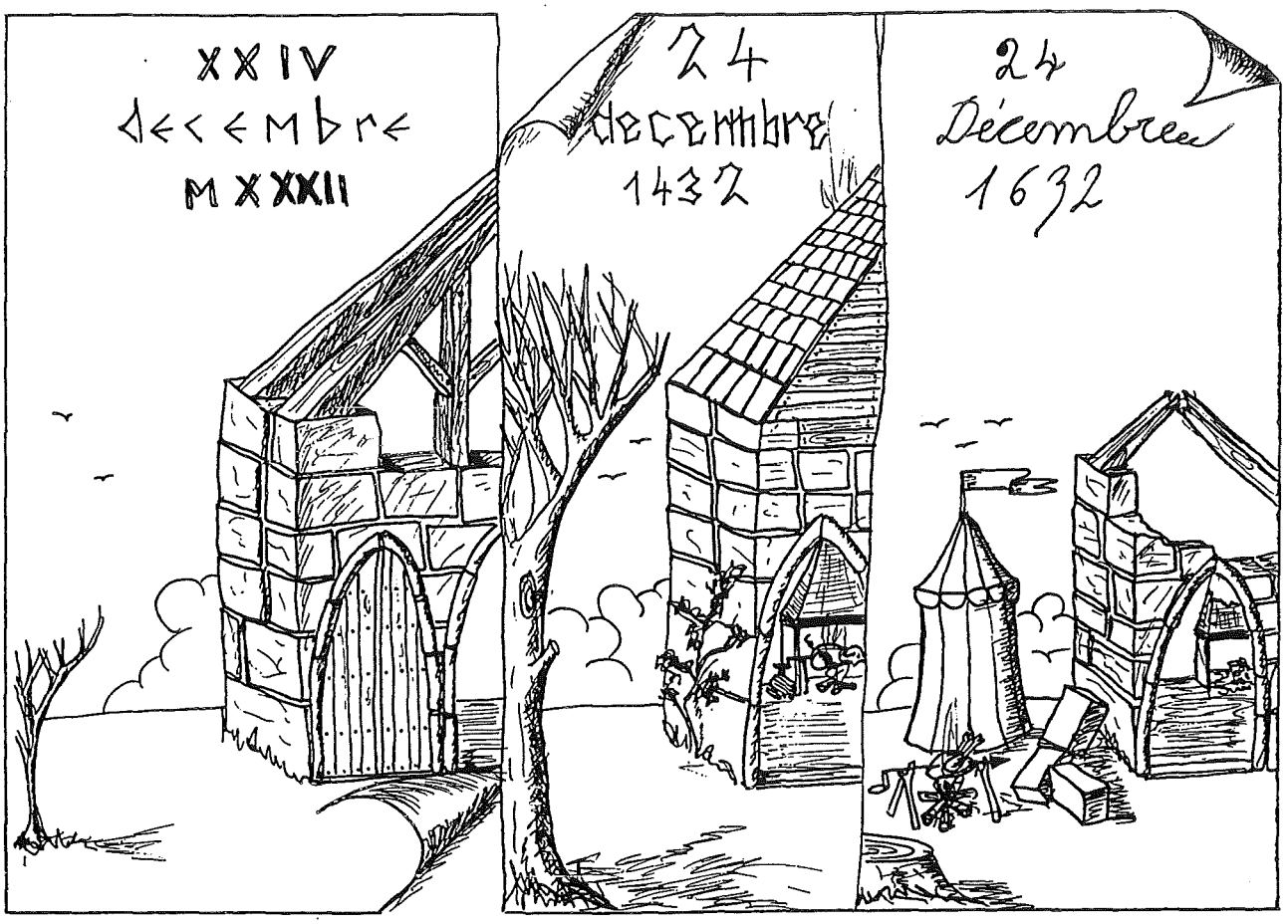


Fig. 6. - *Radiocarbon dating of ruins.*
A) Best material to date the construction of the building are small, milligram size, samples of charcoal in the mortar.
B) The building's utilization will be dated mainly by the bones of the people who lived there, by textiles from clothes and organic debris from waste pits (animal bones).
C) The sack of the castle can be dated by short-lived material, like food remains, left outside the castle in the camp of the besieger.

phases. The castle's utilization will be dated mainly by the bones of the people[16] who lived there, by textiles from clothes and organic debris from waste pits. The sack of the castle can be dated by short-lived material, like food remains, left outside the castle in the camp of the besieger. This example clearly shows that the most obvious dating material is not always the best.

EXAMPLE 4: CASTLE OF LAROCHETTE (LUXEMBOURG)[17].
Two small charcoal fragments found in the mortar of a particular wall and one from the foundation of that same wall were dated. At the same time large charcoal lumps were collected from a crevice between the bedrock and the castle wall.

Table 6
Conventional radiocarbon dates from "Larochette"

wall A/2	UtC-4360: 1150±25 BP
wall A/3	UtC-4362: 1120±30 BP
wall A	UtC-4359: 1000±25 BP
foundation crevice	IRPA-1177/1187[18]: 1110±25 BP

The dates show that the foundation was younger than the wall itself. This surprising result was confirmed by a coin dated around 1120 AD. It proves that reparation works were carried out on the foundations of this wall.

7 Absolute or relative dating

Paragraph 3 has shown that absolute dating with radiocarbon gives relatively unprecise dates for well-documented Medieval sites. On the other hand, objects out of context, like museum pieces, or isolated struc-

[16] Bones, however, can have small inbuilt ages due to the person's metabolism and diet.
[17] Van Strydonck *et al.* 1996.
[18] IRPA: samples prepared and measured by b-counting at The Royal Institute for Cultural Heritage, Brussels, Belgium.

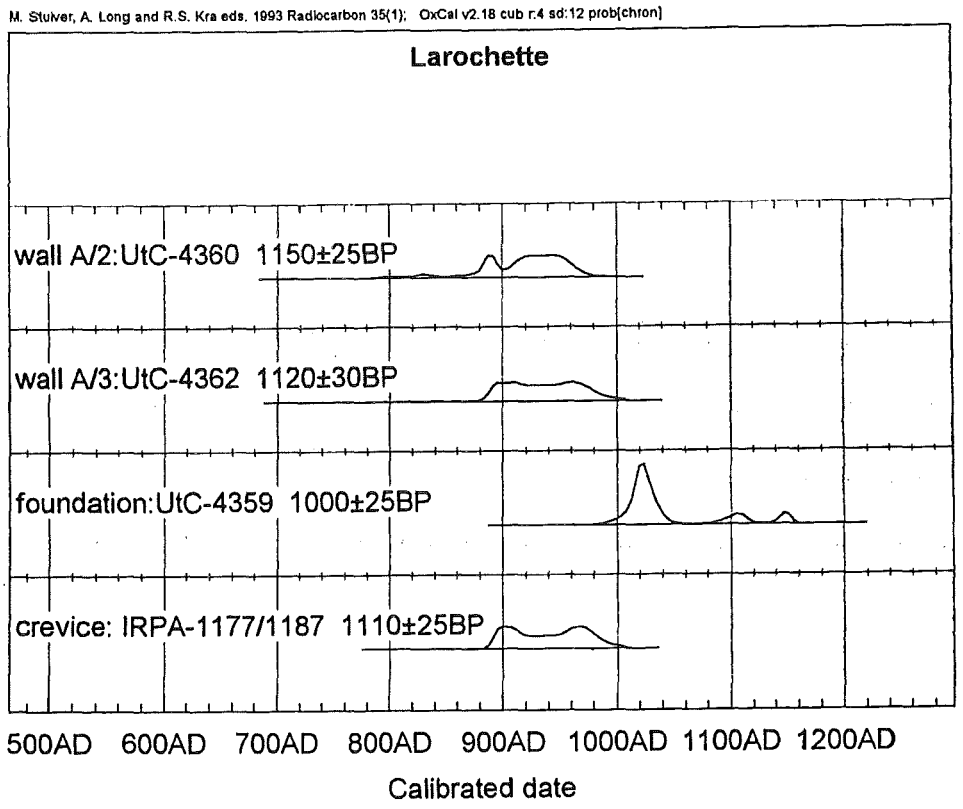


Fig. 7. - *Calibrated dates from "Larochette".*

tures, like wells, need a radiocarbon date more often than was presumed earlier. In my experience archaeologists and art historians tend to overstress style and technology when ranking objects chronologically. Style and technology give evolutionary evidence, but not always chronological evidence. Underdeveloped areas may still produce objects that are already in disuse in more developed areas and simple common tools and artefacts were used and produced over very long periods of time.

Yet relative dating is opening a much broader perspective for radiocarbon in "Medieval Europe". Not in the first place for ranking objects or events, but mainly because it enables the comparison of possibilities. This approach is linking up medieval archaeology and history. Events like battles, funerals, building activities, etc. described in ancient texts can be compared with the presumed material remains of the event. In fact, radiocarbon no longer merely provides a date, but gives a probability that an object is linked to an event. This will be made clear in the next two examples. The first example is a combination of absolute and relative dating, the second is a typical example of relative dating.

EXAMPLE 5:
St.-Ursula and the 11000 virgins[19]

The textile treasure of St.-Truiden consists of relics, skulls excavated in 1106 AD, from the so-called 11,000 virgins butchered by Attila. The skulls are draped with various precious textiles. Along with the skulls small twigs and plain white textiles were found. Four different materials were dated: a skull, a white cloth, a textile made of cotton and silk and some small twigs and leaves identified as *Buxus sempervirens L.*

Table 7
Radiocarbon dates from the textile treasure of St.-Truiden

IRPA-1032	skull	1490±35 BP
IRPA-936	white cloth	720±45 BP
UtC-1267	textile	420±70 BP
IRPA-1037	small twigs	405±30 BP

The age of the skull is very near the origin of the legend, which puts the life of St.-Ursula during the reign of Attila the Hun (433-453 AD). Although one to one and a half century younger than Attila, the skulls were already five centuries old when excavated in 1106 AD. Statistically the age of the twigs and the precious textile can be the same. The nature of the plant clearly indicates the religious origin of its addition. Most probably the textile as well as the twigs were added on the occasion of an exhibition of the

[19] Van Strydonck 1991.

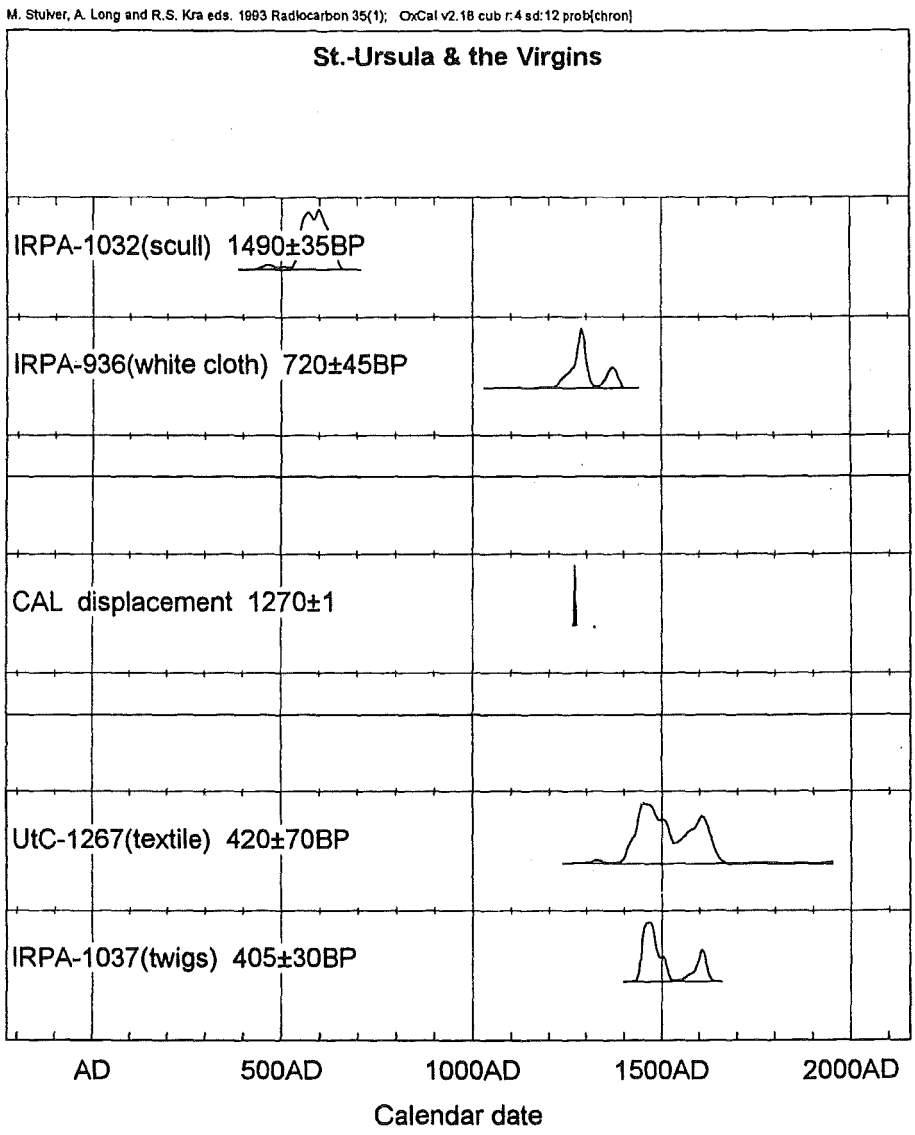


Fig. 8. - *Calibrated dates from the textile treasure of St.-Truiden and the presumed year of the displacement of the relics.*

relics. The white cloth is much older. It is most probably related to the transfer of the relics from Köln to St.-Truiden. This transfer is attributed to Willem van Rijckel who obtained the relics in 1270-1271 AD.

EXAMPLE 6
Sint-Laurentius church at Ename[20]

Around 974 the German Emperor Otto II chose to make the villa "Ehinham" the centre of a margraviate. The construction of the "Sint-Laurentius" church at Ename a few decennia later is attributed to Herman of Verdun (998-1025 AD). In 1047 AD Boudewijn V, earl of Flanders, conquered Ename and the village became a definitive part of the county of Flanders. The site was demilitarized and "Sint Laurentius" became the village church.

During the restoration of the church a wall-painting representing the *Majestas Domini* was revealed. It is situated at the east face of an arcade between the church ship and choir. This wall-painting is of a very high quality and could only be from the time of the construction or from 1200 AD or later when the church regained prestige. The question asked of radiocarbon dating was not to give the exact age of the wall-painting but whether it could belong to the time of the construction of the church or whether it was applied in a much later period.

A small charcoal fragment from the mortar in an ochre yellow part of the *mandorla* was dated twice.

Table 8
Conventional and calibrated date of charcoal from the wall-painting

UtC-3446	1010±40 BP
UtC-3447	1049±41 BP
pooled mean	1030±30 BP
calibrated date:	993-1024 cal AD (±1 σ range)
	960-1050 cal AD (±2 σ range)

[20] Callebaut 1992.

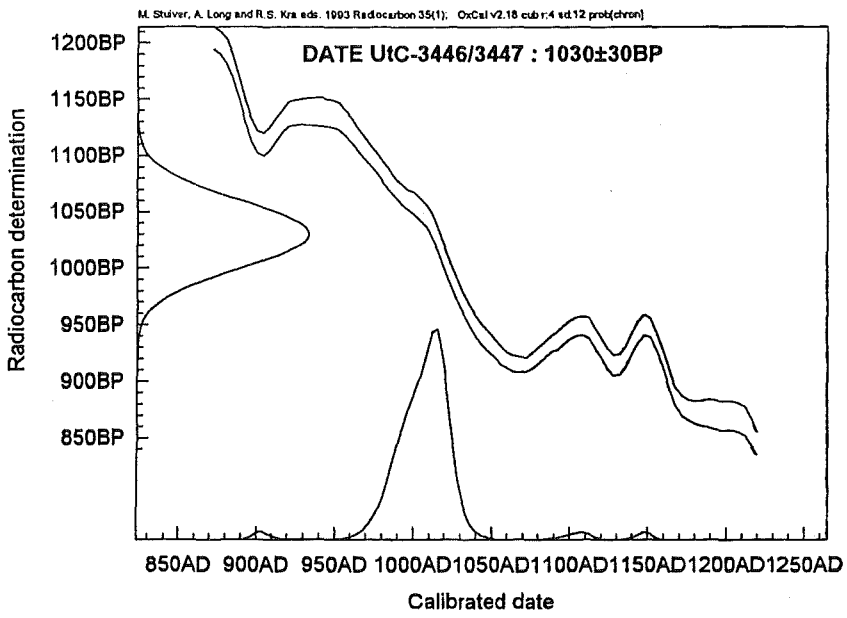
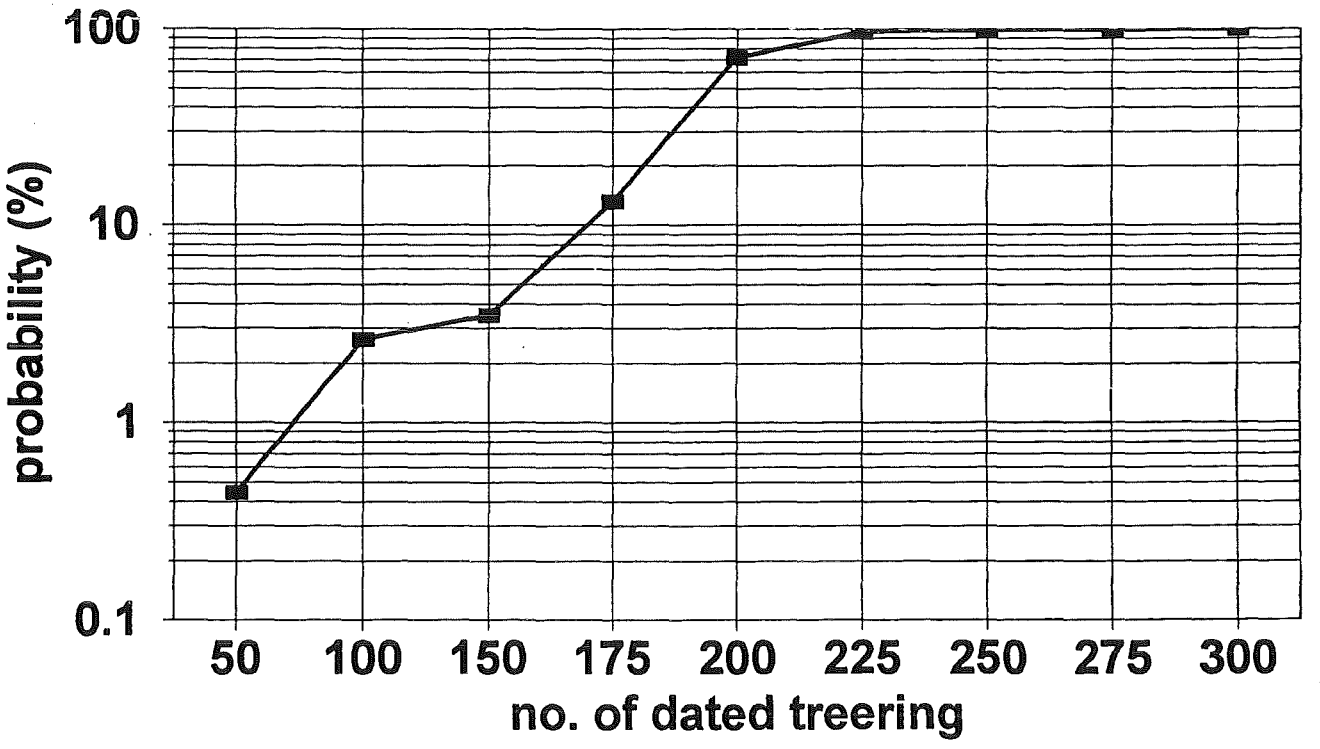


Fig. 9. - *Calibrated date from a piece of charcoal from the mandorla (Ename: Sint Laurentius church).*

The date of the charcoal fragment is relatively precise due to the fact that the calibration curve shows no wiggles in this part. The date of the sample is without any doubt synchronous to the reign of Herman of Verdun. There is however one problem we have to tackle. The dated charcoal will have an inbuilt age, depending on the growth-ring it originates from. If it is from a small branch or even from the sapwood of an old tree then this inbuilt age will be minimal, but if the charcoal originates from the core of an old tree, that inbuilt age, or more precisely the "old wood effect", will be important. In the case of the representation of the *Majestas Domini* the question is if, due to an "old wood effect", the cutting age of the tree the sample originates from, can be 1200 AD or younger, given that the measured age of the sample is from around 1000 AD. Figure 10 represents the % probability for the real age (cutting age of the tree) to be 1200 AD or younger as a function of the old wood effect. Since only a very small piece of charcoal was dated it can be stated that the old wood effect (in years) coincides with the number of

Fig. 10. - *% probability that the wall-painting is from 1200 AD or younger as a function of the old wood effect (no. of treering dated).*



the dated growth-ring. From the figure it becomes clear that the probability of this is very low. Even if ring no. 170 was dated, meaning that the tree used as fuel in the lime kiln was at least 170 years old when it was cut, the probability that the wall-painting was made in 1200 AD or later is not more than 10%. The use of such large trees as fuel in a lime kiln is very unlikely because they are not easy to handle. Moreover, these large trees are expensive raw materials not to be wasted for fuel.

8 Conclusions

This paper has demonstrated the increasing impact of radiocarbon dating on Medieval archaeology and the history of the arts. This evolution is on the one hand caused by technical improvements of the method allowing us to date smaller samples with a higher precision, but on the other hand by a different attitude of the users towards radiocarbon. While in the past radiocarbon was merely used to provide an object with a date, nowadays people working in historical periods have rephrased their questions towards radiocarbon and use the method more and more as a tool to compare material remains with historical facts. By doing this the statistical treatment of the data becomes more and more important.

Acknowledgement
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The churches of the Åland Islands and ^{14}C dating of mortar

The first results, of ^{14}C dating of mortar from the project The Churches of the Åland Islands were presented in York in 1992[1]. At that time it seemed that these new dates would shed light on the obscure period of early Christianization in the Åland Islands (ca AD 1000 to 1250). A correct dating of the twelve medieval stone churches is obviously of vital importance in this context. Since written sources from the period are virtually nonexistent and stylistic evidence is difficult to interpret, the chronology of the early churches in Åland has been a matter of controversy. Fortunately, the mortar used by the original builders can provide objective dates for the construction. Since 1992, significant progress has been made in refining the scientific dating of mortar even further. The aim of this paper is to present the development of this new technique step by step, and to give a presentation of the current state of research.

Medieval Åland

The Åland Islands consist of an archipelago of more than 6500 islands in the northern Baltic bet-

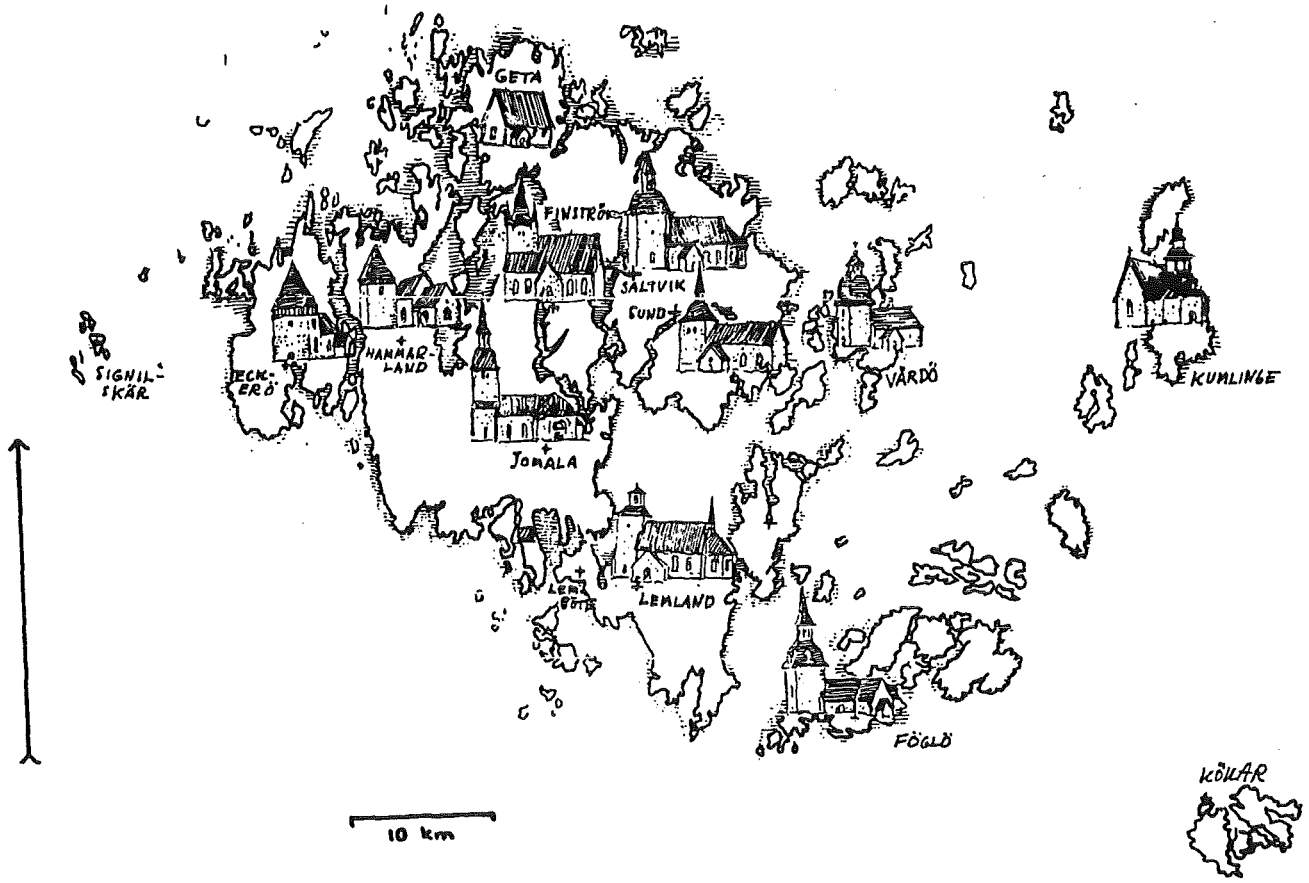


Fig. 1 - *Map of the Åland Islands with the medieval stone churches, drawn by Bo Ossian Lindberg.*

[1] Ringbom 1992.

ween Finland and Sweden. The main island of Åland forms a rough circle approximately 40 km in diameter, though much of this area is covered by bays, inlets and lakes. At one time the proportion of water to land was even greater. Over the past one thousand years, landlift has raised the islands ca 45 cm per century, so that the shorelines of the earliest Christian period lie more than four meters above the current water level.

During the Middle Ages, eight of the stone churches functioned as mother churches with attached chapels (Fig. 1). Originally, before the rise in land level, most churches were situated by the water, close to good and sheltered harbours. In addition to the churches, a series of chapels, both in stone and in wood, were built along the sailing routes. Most famous among these sailing routes is the so-called Danish Itinerary, included in '*Kong Valdemars Jordebog*' (King Valdemar's Cadastral Book). The itinerary describes a sailing route from Denmark to Estonia. It was probably written around 1250[2], and may reflect even earlier traditions.

Dating the medieval stone churches of the Åland Islands, built in local red granite with secondarily added west towers, has been a matter of dispute for centuries. Earlier generations of historians from different fields did not hesitate to place the churches in the Romanesque period (the 12th century) and to consider them very independent in style from churches in neigbouring regions of the Baltic. However, in a posthumous article published in 1948, Iikka Kronqvist claimed that they formed a relatively independent group under the influence from Gotland, and that they were indeed not erected until the second half of the 13th century. Since the 1970s, publications on the churches of Åland have generally shared this view[3]. On the other hand, a recent contribution is deeply critical of Kronqvist. Here traditional dating methods are abandoned in favour of a new intuitive approach. The result is that all the Åland churches, excepting Jomala and possibly Lemland, have been redated to the 14th or 15th centuries, or even later[4].

Since the churches are the most important monuments to have survived from the Middle Ages on the islands, they must be considered as primary sources and a key to understanding the period. A correct chronology and interpretation of the churches, their building history, and their medieval ornamentation such as wallpaintings and sculptures, is of vital importance. From 1991 onwards, when '*The Churches of the Åland Islands*' started as an independent project, it was obvious that the main task was to reach reliable and objective results for the chronology and the internal building history of the churches. With the recent controversy about the chronology in mind, this is more than ever needed.

In 1992, mortar from Hammarland and Eckerö churches was dated using conventional ^{14}C analysis. The results indicated that both churches were built in the 12th century. This date seemed plausible judging by the architectural style and the dating of coins found in archaeological excavations of the churches[5]. The method has developed in a number of important respects since the *Medieval Europe 1992* conference in York. New and more reliable results seem to change the picture of the Early Middle Ages in Åland.

Even if dating methods based on physical principles are of prime importance in the project, they are complemented with traditional methods such as the examination of later written sources, stylistic criteria, and the dating of artefacts and coins. Archival sources from the period after the Reformation may also include important information about the churches in the Middle Ages.

Among the very few written sources about the Åland churches in the Middle Ages, one is of major importance. It dates from 1335 when bishop Peter of Uppsala informed the bishop of Åbo (Turku) that the use of the tithes for seal hunting, which in olden days were used for church building in the Åland Islands, should be changed. From now on the money should benefit the households of the priests, who were too heavily burdened by travellers[6]. This is an important source of information, which can be seen as evidence for the fact that a first generation of churches must have been finished at that time. It does not, however, explicitly tell us whether they were built in stone or in wood.

Volume I of the churches of the Åland Islands, dealing with the churches of Hammarland and Eckerö, was the first in a planned series of eight, and was published in late 1995. Here, the conventional ^{14}C dating of mortar had been replaced by Accelerator Mass Spectrometer (AMS) ^{14}C dating of mortar, an important step forward in the development of the technique. The results of the AMS ^{14}C dating suggest that the naves of these two churches were erected in

[2] The Cadastral book, Codex ex -Holmensis A 41 preserved in the National Archives in Copenhagen, must have been copied from originals written down some time between 1219-1262 AD; Gallen 1993, 14, 114.

[3] Kronqvist 1948; Ålands medeltida kyrkor.

[4] Hiekkanen 1994, 11-28.

[5] Ringbom 1992.

[6] Finlands medeltidsurkunder nr. 426.

[7] Ringbom & Remmer 1995, 60-68, 204-208.

the late 13th century[7]. The method of dating mortar with AMS has been presented and published in scientific journals[8], but now is the time to present it also to an audience of medieval archaeologists.

Physical methods of dating

In the project we have made extensive use of scientific methods, such as dendrochronology and conventional ^{14}C analysis of wood. Thermoluminescence dating (dating of bricks) will also be implemented wherever possible. But, since the exact relation between the date of the wood in the churches today and the actual building phase often remains obscure, due to the replacement of burnt or rotten timbers, we felt that ^{14}C dating of the mortar could solve the problem. The hardening of the mortar must mark the original building date in a mortared stone construction.

^{14}C dating of mortar

Mortar can be dated on the same ^{14}C principle as wood or any other organic material. When lime is heated to above 1000 degrees Celsius, calcination occurs and carbon dioxide is liberated from the carbonate, leaving the residue of calcium oxide, also called quicklime. To get lime mortar from quicklime, the burnt limestone is slaked with water. Quicklime is thus transformed to calcium hydroxide. This lime putty or dry hydrate used, will harden when exposed to the air. During this carbonation process the lime in the mortar reacts with athmospheric carbon dioxide (CO_2) to form calcium carbonate ($CaCO_3$). This simple inorganic chemistry, the abundance of dateable material and the straightforward relation of the hardening mortar to the building date, makes lime mortar the ideal material for ^{14}C dating. The carbon dioxide contains a certain amount of the radioactive isotope ^{14}C, which is accumulated in the structure. When the accumulation of the carbon dioxide ceases upon hardening, the ^{14}C decays at a pace determined by the half-life of the carbon nucleus (= 5730 years). Thus, the ^{14}C age of a substance can be reached through measuring its radioactivity. Since the ^{14}C component of the atmosphere has varied through the ages, this yielded ^{14}C age has to be corrected and translated into a real age with the aid of a calibration curve. The age is given in terms of 'BP' or 'before present', which means before 1950.

Radiocarbon dating of items from the Middle Ages has been criticized, mainly because of the inexactness caused by the margin of confidence. Every result based on radioactive decay involves a statistical uncertainty, which means that the results can only be presented as time spans with a certain degree of confidence. The calibration might further add to the uncertainty.

Against this, one can always argue that ^{14}C dating can be the only method of determining a date available at all, especially in cases where written sources are lacking and scholars are in deep disagreement about the chronology.

However, the method of ^{14}C dating of mortar involves many problems. These difficulties have been discussed at length among the experts, and they have indeed discouraged scholars from using the method on a larger scale. The development of the method within *The Churches of the Åland Islands* project is a result of interdisciplinary collaboration. The conventional ^{14}C dating analysis of the wood is performed in the Dating Laboratory at Helsinki University and the AMS ^{14}C analysis takes place in the Accelerator Laboratory at Aarhus University. Researchers specializing in mortar chemistry, mineralogy, and art history are attached to Åbo Akademi University, and the project archaeologist works for the Ålands Museum[9]. The group meets several times a year. Usually the meeting takes place in the Åland Islands where the churches can easily be revisited for further examination and for taking complementary samples.

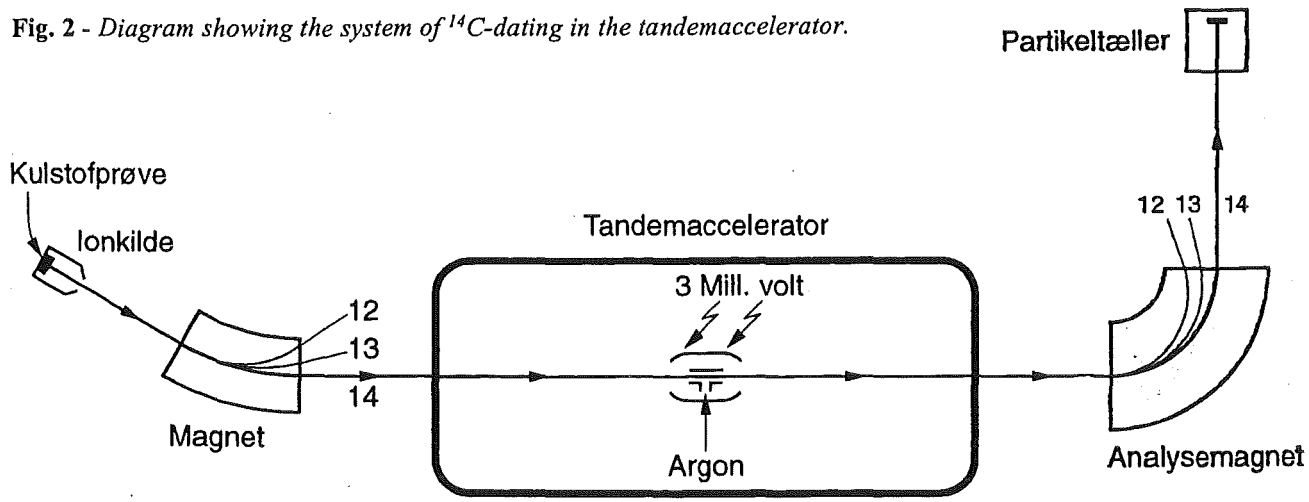
The Accelerator Mass Spectrometer ^{14}C dating of mortar.

The AMS ^{14}C dating of mortar is an important step forward in the development of the technique. The tandem accelerator is a large and complicated apparatus. Samples of carbon, in the form of graphite, are placed in the ion source (Fig. 2) from which

[8] Heinemeier & Jungner 1994; Heinemeier *et.al.* 1997; Lindroos & von Konow 1997.

[9] Jan Heinemeier, Institute of Physics and Astronomy, University of Aarhus, DK-8000 Aarhus C, Denmark. Högne Jungner, Dating Laboratory, University of Helsinki, POB. II, Fin-00014 Helsinki, Finland. Thorborg von Konow, Department of Inorganic Chemistry, Åbo Akademi University, Tureida, Uudisraivaajantie 17, 00730 Helsinki, Finland. Alf Lindroos, Department of geology and Mineralogy, Åbo Akademi University, Fin-20500 Turku/Åbo, Finland. Åsa Ringbom, Department of Art History, Åbo Akademi University, Fin-20500 Turku/Åbo, Finland. Kenneth Gustavsson, Ålands Museum, Mariehamn.

Fig. 2 - *Diagram showing the system of ^{14}C-dating in the tandemaccelerator.*



point the carbon atoms are accelerated. With the aid of magnetic and electric filters one can separate carbon-isotopes of different mass from each other and let the beam with ^{14}C-atoms reach the final detector where they are counted. Their number is counted in relation to the amount of ^{12}C- and ^{13}C-atoms which are measured at another point. Since we are dealing with a radioactive material the amounts of atoms are diminishing with age. The fewer ^{14}C-atoms that reach the detector in relation to ^{12}C- and ^{13}C-atoms, the older the sample.

Compared to conventional ^{14}C-dating the AMS only requires small amounts of mortar. Less than 1 milligram of carbon is sufficient. Not only does this make the preparation of the samples safer from contamination, but more importantly, it allows a complete mineralogical and chemical analysis of the fine fractions.

Our first application of AMS ^{14}C dating of mortar was to date Newport Tower, Rhode Island in 1993. Here small samples were the only possibility due to limitations set by local officials. Some had argued that the tower could have been constructed by the Vikings centuries before the discovery of America by Columbus. The result of the AMS analysis of the mortar showed that Newport Tower was built between 1651 and 1679[10]. This date corresponds with written evidence about its existence in 1677, and with 17th-century artefacts excavated from the tower foundations by archaeologists from Harvard University. The results from Newport Tower were so promising that we decided to introduce the AMS analysis into the Åland project, even if it meant postponing the publication of Volume I of the Åland churches by a whole year.

[10] Heinemeier & Jungner 1994; Heinemeier *et. al.* (1997).

[11] See the discussion in Folk & Valastro 1976 and in Van Strydonck *et al.* 1992.

Sampling

For a successful dating of mortared stone constructions many samples are needed, including several samples from each building unit and from each phase of construction. Whenever possible, the samples should be taken from the interior of buildings. This is because the mortar is better preserved where it has been sheltered from rain, surface water and ice. The samples should receive preliminary testing at the sampling site with a pH indicator for alkaline reactions from poorly carbonated lime.

A method with problems

The ^{14}C dating of mortar has been known since the 1960s, but the multitude of problems has restricted further development of the method. It is well known that different circumstances can influence the results in different directions. Without necessary precautions, dates yielded can be either too recent or too old[11].

There are several cases when the results given are too recent, as for instance alkaline mortar samples where the carbonization process or hardening has been delayed. This can happen in such cases where the mortar is in the core of a thick wall, in a water-damaged area, in an area impenetrable for water, if the mortar is covered with paint or concrete, or if the mortar is improperly slaked. The mortar can also recrystallize, but this situation can be identified with the polarizing microscope and it does not significantly affect the dating. These problems are usually avoided if normal sampling precautions are taken and if the samples are taken from places sheltered from the weather and ground water.

A more severe problem is that the dating can yield too high an age. This can happen if the sample is con-

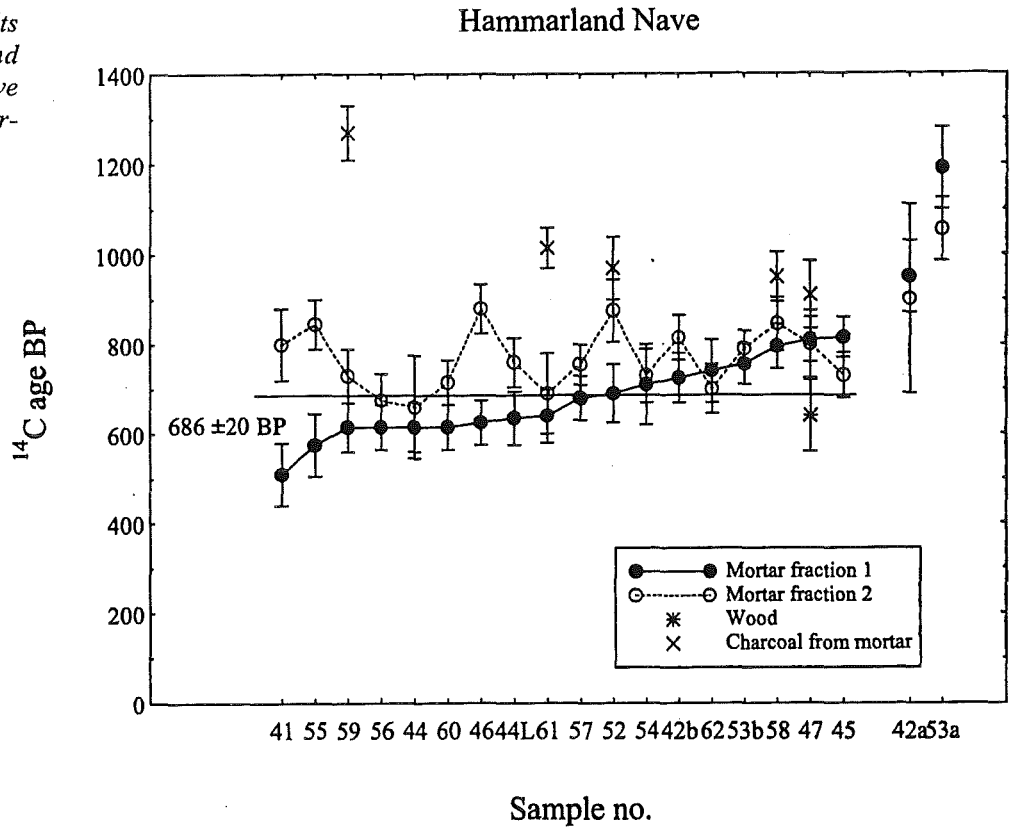


Fig. 3 - *^{14}C dating results for mortar, charcoal and wood samples from the nave in the church of Hammarland.*

taminated with fossil carbonate. There are several cases where this can occur:

a) if the limestone has been improperly burnt, leaving a carbonate residue of the stone. These residues or clasts usually occur within larger limestone fragments. But the clasts can be identified microscopically and they are large enough to be removed by sieving.

b) if it forms an aggregate containing limestone, marble, shells, or reused mortar added to the lime when the mortar was mixed. This type of contamination can be severe. In limestone areas like Åland, the aggregate can consist almost entirely of fossiliferous limestone gravel. Some finegrained limestones can be very difficult to distinguish from lime mortar.

Looking back, we can establish that Åland is an extremely difficult area from this point of view. The main island is covered with ordovician limestone, not only in big field stones, but also in the sand used as filler in the mortar. But this may also have been a blessing in disguise, since it made us so much more cautious of contamination and aware of the importance of a successful separation.

The separation

The separation is done first mechanically and then chemically. The mechanical process reduces the contamination from unburnt limestone. First the samples are crushed in a hand mortar. It is vital to separate the hard clasts in the filler from the porous lime mortar to be dated. Crushing the porous mortar lime carefully so that only the mortar is broken and not the individual clasts in the mortar sand, is extremely important as the clasts may contain fossil carbonate. Then the samples are sieved and a fine fraction (<62 microns) is extracted. The sieving is the most important step in the process of removing filler material. After the mechanical separation, the mineral composition is analysed by polarizing optical microscopy on thin sections of the original mortar sample, and on briquettes of the separated fractions.

Before the AMS analysis takes place a further chemical separation with phosporic acid under vacuum is performed. This is because the fossil limestone reacts more slowly with acid than does the mortar. In the reaction a carbon dioxide gas is evolved from the sample carbonate. The first 30 % of the gas is collected separately as a first fraction of the reaction and the rest is collected as a second fraction. The fractions are then ^{14}C dated separately. In the first fraction the reaction is so fast that it has not had time to affect the small limestone particles left in the sample. It tends to show a more recent age than the second fraction, which is slower. The first fraction shows a more accurate date than does the second, but if the two fractions yield the same ages it shows that the separation has been successful and that the result is even more reliable.

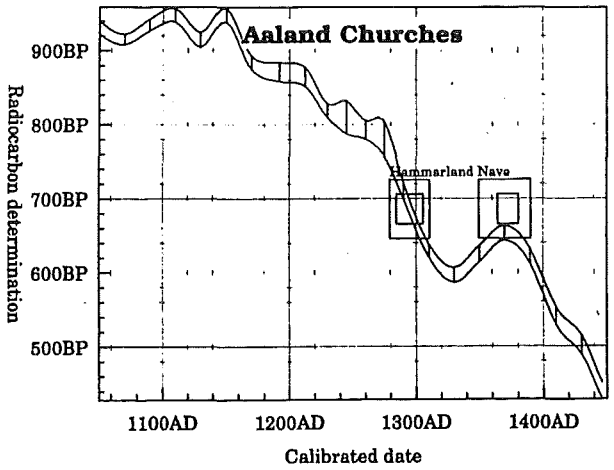


Fig. 4 - *The ^{14}C results for mortar from the nave in the church of Hammarland measured against the calibration curve.*

The results

The churches of Hammarland and Eckerö

As had been said the first example of AMS dating of mortar was implemented on Newport Tower, Rhode Island[12]. But the development of the method relies on large series from the churches of the Åland Islands, Hammarland and Eckerö, and now most recently from the church of Saltvik. The results are tested against traditional archaeological dating methods such as coins, other artefacts and architectural and artistic style. The results are further measured against other methods such as ^{14}C of wood, dendrochronology and, most importantly, they are compared to AMS analysis of wooden particles or charcoal encapsulated in the mortar.

Fig. 3 shows the AMS dating results for both fractions of the Hammarland nave samples. The samples are ordered according to increasing ^{14}C age of the first fractions and the numbers of the samples are shown below horizontally. All the samples are assumed to belong to the first building stage. With the exception of two samples (42a and 53a), the AMS results of the first fractions reflect a fairly consistent distribution of age. They exhibit a scatter which is due to the irregularity in the calibration curve at the beginning of the 14th century (Fig. 4). The first analysis of samples 42a and 53a yielded results that were too old compared to the other samples. A critical mineralogical analysis of those samples did indeed reveal a large contamination of limestone. After another careful sieving (at this point wet sieving was introduced), the samples were analysed once more and as a result they fitted well into the pattern (42b and 53b). This analysis was performed only after the publication of Volume I of the Churches of the Åland Islands, but it confirms the date suggested there. The average of the first fractions of the mortar is 686 ±30BP.

AMS analysis of the wood and the charcoal (59C, 61C, 52C, 58C, 47W, 47C) encapsulated in the mortar showed results that were far older than the mortar dates and extremely varied. One reason for this variation is that old wood has been used by the builders and that the charcoal that was tested represents the very core of the log still surviving after a fire had destroyed the outermost annual rings.

The results from the nave of the church in Eckerö are more uniform (Fig. 5). A total of eight samples from the nave show a remarkably narrow ^{14}C distribution of the first fractions. The average ^{14}C date of the nave in Eckerö is 718 ±25 BP.

The church of Saltvik

The church of Saltvik was the next in line to be analysed, another of the typical Åland churches in red granite with secondarily added building units such as the west tower and the porch. Today the church is vaulted in two naves. Its six crossvaulted bays are divided by two slender columns, all in concrete. Written records and bricks found in excavations inform us, however, that a brick vault of the original two naves was torn down in the 1850s. Estimated ages of the nave so far have ranged from the 12th and the 14th centuries, based on style, coins and dendrochronology of the secondary tower[13]. The sacristy has been seen as a later addition to the nave[14].

But careful examination of the attic in the sacristy reveals that the sacristy must belong to the first building period. Clearly visible remains of the south gable of the sacristy built into the northern wall of the nave could be seen as evidence that the sacristy was built prior to the nave.

There are also details suggesting that the sacristy and the nave were erected simultaneously, as for instance the joint between the eastern wall of the sacristy and northern wall of the nave, where stones from both walls overlap each other.

With the results from the AMS analysis of mortar from the churches in Hammarland and Eckerö, we felt confident that we were on the right path, that we really knew what pattern to follow. But the church of

[12] Cf. Tubbs & Kinder 1990; Cf. Van Strydonck *et al.* 1992.
[13] Gardberg 1973, 36 ; Dreijer 1979, 299-307; Ringbom 1992, 147; Hiekkanen 1994, 243.
[14] Gardberg 1973, 32; Hiekkanen 1994, 243.

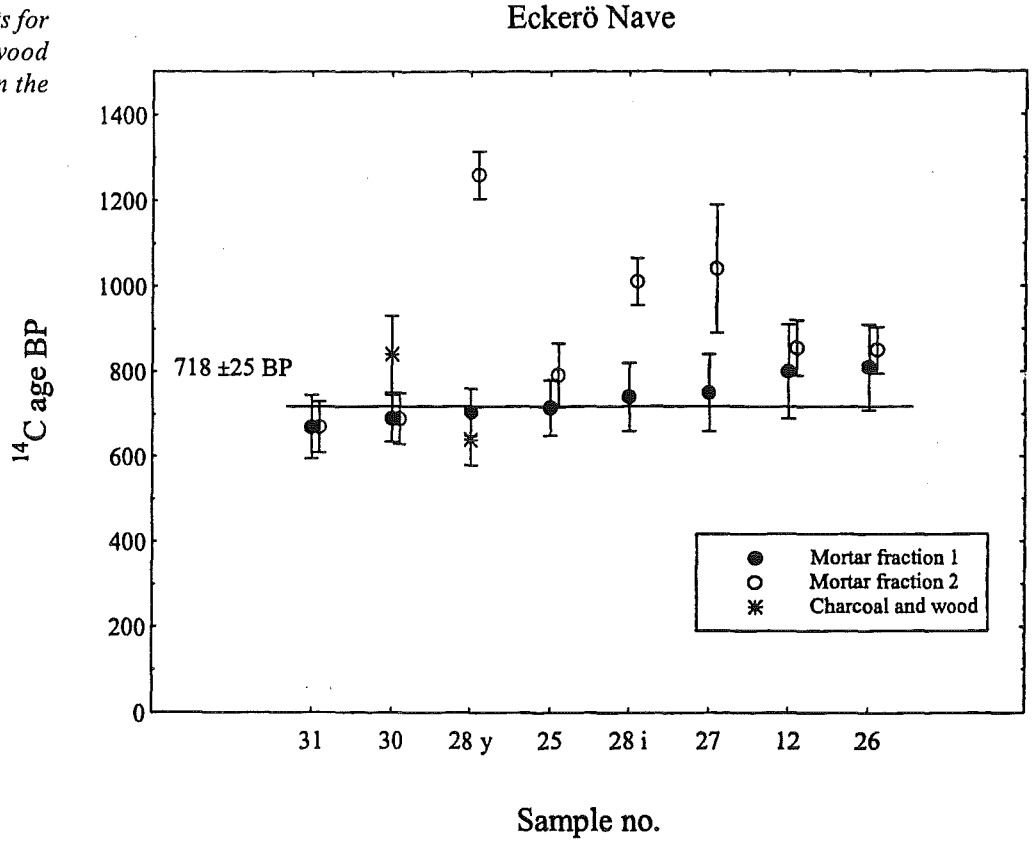


Fig. 5 - *^{14}C dating results for mortar, charcoal and wood samples from the nave in the church of Eckerö.*

Saltvik showed that there was a need for further refinement. Here the mortar was so hard that a successful separation proved problematic, especially as this mortar has a great deal of limestone filler. A first series from the nave yielded very uneven results, which obviously meant that grains of limestone in the separation had been crushed into small fragments. These results from Saltvik alerted us to the necessity of even more careful separation. Further improvements were needed in the process.

From that point on new steps have been performed in addition to the wet sieving. The fine fraction is also stirred in distilled water and decanted after one minute. In this procedure most of the mineral matter from the filler material will sedimentate, while a large fraction of the porous mortar material will remain in suspension. This suspension is then allowed to sedimentate for one hour before the water is removed and the sample is placed in an oven to dry. Briquettes are prepared from the dried samples. Thin sections for the microscopy are cut from the briquettes, which are also eventually used for the dating analysis. The <62 micron fraction is further carefully wet-sieved with a 38 micron sieve since the 38-62 micron fraction seems to be optimal and contain the least amount of limestone filler and the largest amount of carbonated lime in the mortar.

Furthermore, in Saltvik another useful method has been introduced through combining the polarizing microscope with cathodoluminescence. When irradiated, most limestones have a strong luminescence, often showing a bright red-orange colour, whereas the mortar is usually reflected in a dull brown or tilered. The cathodoluminescence can also identify the type of binder and its degree of carbonization. It can recognize the recrystallizations in the binder, it can trace the presence of unburnt or partly burnt limestone and unslaked quicklime, and it can establish the mineralogy of the filler[15].

We have recently received the results from a new series of samples from Saltvik, samples which have been carefully prepared according to the description above. The first fractions show a very even distribution, which means that the separation has been successful. They suggest a complicated chronology with a hectic building period around 1372-81, when the porch and the west tower were added, immediately after rebuilding the upper parts of the nave. This intensive rebuilding of the nave may coincide with the secondary brick vaulting, but more samples are needed to fully understand the relation between the first nave and the sacristy.

The results from the sacristy, where four samples taken from the attic show an even distrubution of the first fractions, indicate that the sacristy in Saltvik was built more or less contemporarily with the naves in Hammarland and Eckerö, or 710 ±30 BP (Fig. 6).

[15] Lindroos & von Konow 1997.

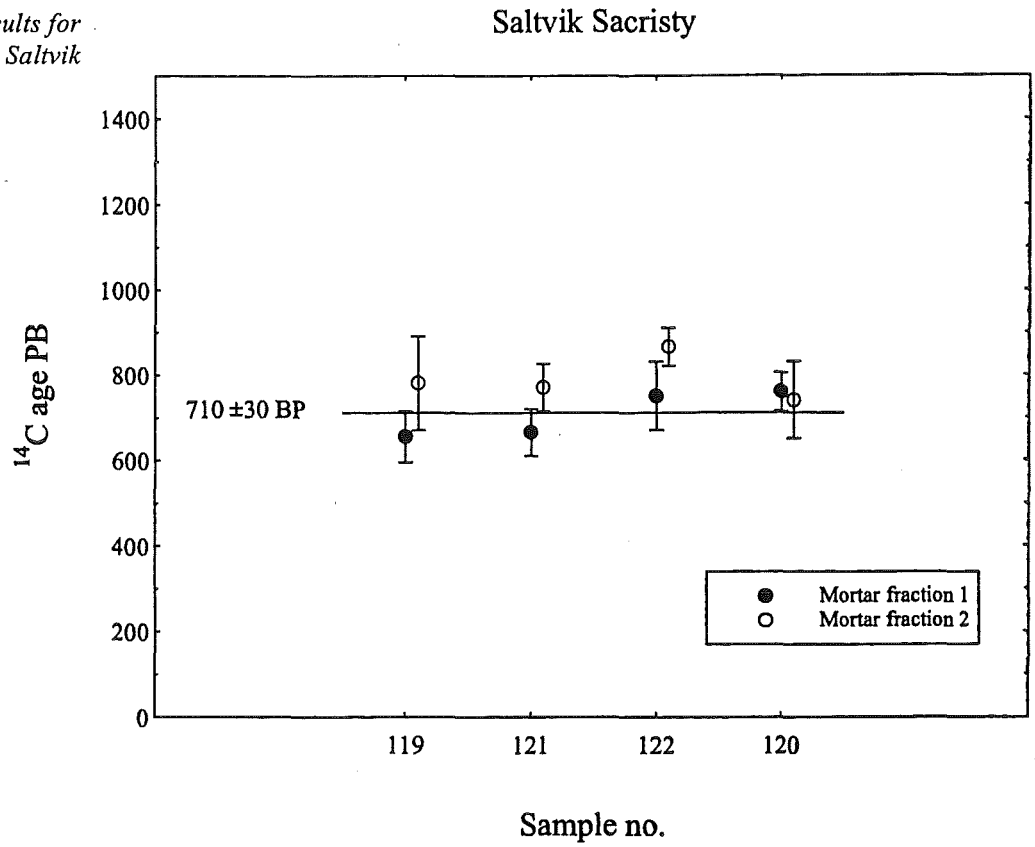


Fig. 6 - *^{14}C dating results for mortar samples from Saltvik sacristy.*

Lemböte chapel

The Danish Itinerary mentions several place names in the Åland archipelago, in some of which have been found remains of medieval chapels. Best known among these, and the first one to be mentioned on the Åland side after Arholma in Sweden, is Lemböte ('Linaebötae') chapel, a construction in red granite placed high up on a rocky peninsula, not far from an excellent harbour. Although the itinerary does not explicitly mention the chapel, it has generally been dated to the 13th century or earlier. This date has been based not only on the itinerary, but also on hoards of coins found between the altar and the eastern wall of the ruins. Recently a surprisingly late date has been suggested: 'in the beginning of the 16th century at the earliest'[16].

The chapel, dedicated to St. Olof, had its chalice confiscated by the Swedish crown in the 1540s, and it was reported as being neglected, roofless and ruinous as early as 1674. Since the late 19th century, the ruins have repeatedly been heavily restored[17]. So far only two preliminary samples from Lemböte have been analysed, and because of the restorations performed, they had to be selected cautiously. One was taken from the cavity after a beam belonging to the original roof construction in the exterior of the eastern gable, and the other from mortar surrounding a limestone slab crowning the east window. The results yielded are 1280-1300 AD for the first (Lembo 1) and 1300-1390 AD for the second (Lembo 2). More samples are undoubtedly needed, but according to the cathodoluminescence microscopy these samples are reliable[18], and they certainly suggest a medieval dating as do the coins.

Conclusions

Combined with careful separation and preparation, the method of AMS ^{14}C analysis of mortar is an important step forward in the dating of mortared stone constructions. Compared to conventional ^{14}C dating, the AMS analysis provides narrower margins of error, and it allows a complete minerological and chemical analysis. However, the method of AMS dating of mortar has to be further improved and refined, and it has to be tested on different types of mortar and different chronologies.

[16] Hiekkanen 1994, 246.

[17] Hausen 1916, 51-55; Ringbom 1994, 479-482.

[18] Lembo 1 'Almost free from limestone and less quartz than in most other Aaland samples. The mortar luminescence colour is bimodal; both dark brown and lighter brown to tile red. The few limestonegrains are red-orange. Seems very good for dating'; Lembo 2 'Only a few grains of limestone and rather few quartz grans too. The mortar has dark brown luminescence and the limestone dark red. Seems good for dating'. Alf Lindroos, personal communication.

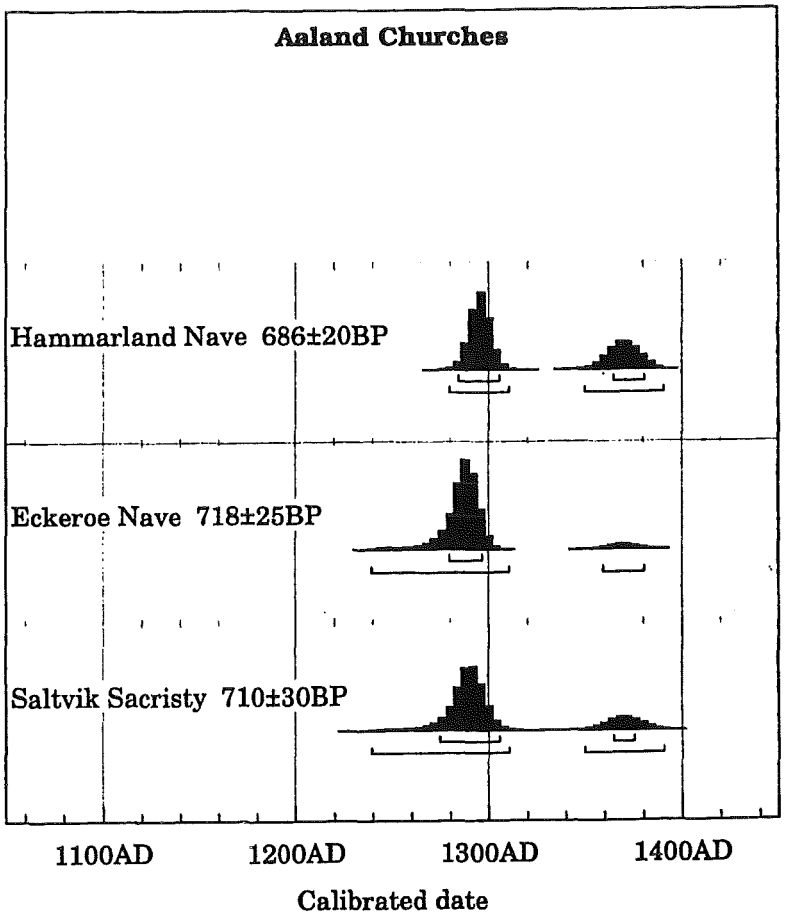


Fig. 7 - *Calibrated ^{14}C ages for three Åland churches, the naves of Hammarland and Eckerö, and the sacristy from Saltvik, shown as probability distributions of calender years.*

The final determination of what the churches can reveal about the history of medieval Åland will obviously have to wait until all the churches have been analysed, but nevertheless, some interesting observations can be made. There seems to have been a building boom around 1280-1300 (Fig. 7), not only for parish churches, but possibly also for chapels along the sailing routes. So far Ilkka Kronqvist's estimation about the chronology of the Åland churches – that they were erected in the second half of the 13th century – has been confirmed.

Church building during the last decades of the 13th century would fit in very well with the written record about seal tithes in 1335, which informs us that the tithes before that date had been used for building churches in the county of Åland. Stylistic datings of wall painting in the churches of Jomala and Lemland suggest the same period. The date of the naves in these two churches is furthermore indirectly confirmed by the dendrochronology of the towers. In Jomala, where the tower may belong to the first construction, it was erected around 1280, and in Lemland the secondary tower belongs to the 1310s[19]. The building activity in Saltvik in the second half of the 14th century, together with secondary building stages in other churches, reminds us however that stone churches in Åland continued to be rebuilt and added to all through the Middle Ages. Some of the Åland churches may indeed entirely belong to the 15th century.

Surprising building activity suggests a strong economy in the Åland archipelago at the end of the 13th century. We do not know what happened, but one clue may be that on either side of the Åland Islands two new towns were being established, Stockholm and Åbo (Turku). Ålanders may well have profited from their geographical situation in between, delivering timber and lime for building and fish for food, all three of these commodities being known to have formed the basis for Åland's economy later.

How does the present dating of the churches affect the discussion about the Christianization of the Åland Islands? There is undoubtedly a gap in time between the 11th century when the burial system suggests a change in religion, and the end of the 13th century when the building of churches in stone was initiated. Here we must imagine one or two generations of wooden churches preceding the present stone churches. Remains of some wooden churches have been identified in archaeological excavations, and there are coins and artefacts which further suggest earlier churches on the sites of the present ones.

[19] Ringbom 1992.

Furthermore some of the burials from the late Viking period may continue well into the 11th and the 12th centuries. More research has to be focused on the prehistoric archaeology of this period. Churches in stone built at the end of the 13th century, close to the biggest Viking Age burial sites, do suggest a direct and unbroken transition to Christianity, a topographical religious continuity[20], but the process of Christianization may well have been much slower than has been suggested earlier.

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[20] Cf. the situation in Sweden, Brink S. 1992; Gräslund A.-S. 1992.

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Application de la méthode de datation par le radiocarbone à l'étude des nécropoles médievales

Résumé

Après avoir été longtemps appliquée surtout à la datation des sites préhistoriques, la méthode de datation par le radiocarbone est, depuis quelques années, très employée dans les études médiévales. En effet, les récents progrès, tant dans la précision des mesures que dans la conversion des dates carbone 14 en années réelles, permettent d'obtenir des datations très précises jusqu'au milieu du XVe siècle. Comme on peut dater non seulement les ossements mais aussi les graines ou les très petits charbons de bois, et que parfois quelques milligrammes de matière sont suffisants, on conçoit que l'on ait pu obtenir d'intéressants résultats sur des tombes isolées dépourvues de matériel archéologique caractéristique ou sur des ensembles complexes de sépultures. On donne ici des exemples de séries de datations sur des nécropoles françaises et en particulier sur celle de Notre Dame du Bourg à Digne.

Avant de prendre des exemples de séries de datations sur des nécropoles, on rappellera rapidement le principe de la méthode et les récents progrès qui permettent de l'utiliser aujourd'hui pour la période médiévale.

I Rappel théorique et récents progrès

a Principe

La possibilité de dater des sites archéologiques par le radiocarbone tient au fait que celui-ci étant radioactif, sa teneur en matières carbonées décroît avec le temps dès le moment de leur dépôt. En effet, le carbone 14 est produit de façon continue dans la haute atmosphère par l'action du rayonnement cosmique sur l'azote. Très rapidement, les atomes de ^{14}C formés s'oxydent en gaz carbonique CO_2 et peuvent être incorporés dans toutes les matières carbonées vivantes ou minérales, par photosynthèse pour les végétaux, par nourriture pour les animaux ou absorption pour les carbonates. A partir de la mort de l'organisme ou la précipitation du calcaire, il y a perte progressive de la teneur originelle en radiocarbone. La date de cette "mort" est calculée d'après la mesure du taux de radiocarbone résiduel car la décroissance de la radioactivité est régulière avec le temps. Les atomes de carbone 14 sont radioactifs, c'est à dire qu'ils se désintègrent spontanément au bout d'un certain temps en émettant un électron et en redonnant un atome d'azote. Cette désintégration est un phénomène régi par les lois de la statistique et si l'on fait la moyenne pour un très grand nombre d'atomes, sa fréquence est absolument constante et est définie par la période de l'isotope ^{14}C. Toute matière carbonée, isolée de la source de production de radiocarbone, perd la moitié de sa teneur originelle en carbone 14 tous les 5570 ans. Dater un échantillon consistera donc à mesurer sa teneur en radiocarbone actuelle et à la comparer à celle qu'il avait lors de sa "mort".

b Les récents progrès de la méthode

L'emploi du carbone 14 pour dater des échantillons de la période médiévale n'a commencé à se développer que depuis quelques années, c'est à dire depuis que des progrès ont été faits, dans plusieurs domaines, pour permettre d'obtenir une précision des dates compatibles avec cette période.

Des progrès techniques dans la mesure de la teneur en radiocarbone

Jusque vers le milieu des années 80 il fallait quelques grammes de carbone par échantillon et les datations n'étaient obtenues couramment qu'avec une marge d'erreur de ± 100 ans, précision bien insuffisante pour la plupart des études médiévales. D'une part, avec la mise au point et l'emploi d'un accélérateur de particules couplé avec un spectromètre de masse, il est possible maintenant de travailler sur des échantillons très petits (une graine, une esquille d'os par exemple). D'autre part, avec l'amélioration des performances des appareils de comptage de radioactivité,

on atteint désormais en routine des marges statistiques de ± 40 voire ± 30 ans. Ces deux perfectionnements de la technique de mesure sont mis à contribution pour la datation des échantillons médiévaux quelque soit leur taille.

Des progrès dans la connaissance des matériaux à dater

Tout matériel à dater peut avoir été pollué au cours de son séjour dans la terre par l'apport de carbone secondaire tel que du calcaire et des matières humiques. Les échantillons sont soumis à un traitement chimique poussé pour permettre d'éliminer ces pollutions qui pourraient fausser les dates. La réduction possible de leur poids minimal pour une mesure permet un traitement plus sélectif.

On est capable de trier le bon et le mauvais matériel (Evin 1992): les paquets de graines, les gros charbons de bois, les bois sont reconnus comme bons matériels de datation. Il faut cependant remarquer que dans le cas des bois et charbons de bois, la date donnée sera toujours celle de la pousse du bois et non celle de leur utilisation.

Les datations des nécropoles médiévales se font surtout sur les os. Ceux ci sont peu affectés par des pollutions. De plus, les matières organiques sont sélectionnées avec efficacité. Le principal problème rencontré est l'état de conservation de la matière organique qui varie d'un site à l'autre, et même quelquefois d'une couche à l'autre dans un même site. Il faut aussi noter que l'emploi de tout conservateur ou de tout produit chimique de consolidation des os rend ceux-ci impropres à la datation.

Mais il existe des matériaux carbonés qui sont encore peu appropriés à la datation directe par le carbone 14: les tessons de poteries, par exemple, et surtout les mortiers de construction. Pourtant la mesure de ces derniers serait très utile en archéologie médiévale et devrait, en principe, pouvoir être faite, car lors de la prise, il y a intégration du gaz carbonique atmosphérique donc de ^{14}C. Si ce mortier a servi à fabriquer un mur par exemple, la date théoriquement attendue dans ce cas est la date de construction du mur. Or, jusqu'à présent, les différents essais de datations n'ont rien donné de satisfaisant. De façon générale, les dates sur mortier sont souvent vieillies car le carbone récupéré pour la datation provient de différentes sources que l'on ne sait pas encore séparer (Oberlin 1988).

Des progrès dans la transformation des âges carbone 14 en âges réels

Dans son principe, la méthode du carbone 14 implique que la production de cet isotope ait été constante au fil des siècles. Ceci n'est pas totalement exact. En datant des objets archéologiques d'âge connu précisément, on a constaté qu'il pouvait y avoir des écarts entre les âges carbone 14 et les âges réels: les dates en calendrier radiocarbone (BP) sont plus jeunes que la réalité sauf pour la période médiévale où elles seraient un tout petit peu plus vieilles. On a fait appel à la dendrochronologie qui permet de dater un bois à l'année près: en prenant des arbres très anciens encore vivants et en mesurant avec une extrême précision la teneur en ^{14}C de leurs cernes de croissance, on a pu comparer presque année par

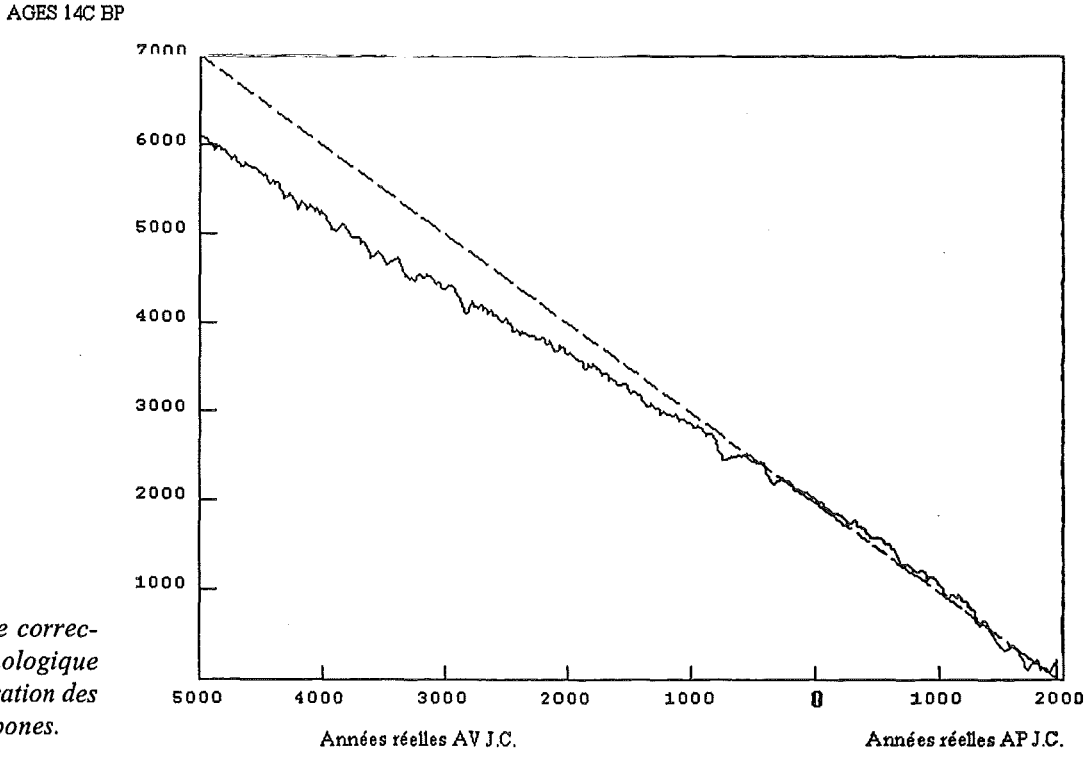


Fig. 1. - *Courbe de correction dendrochronologique permettant la calibration des datations radiocarbones.*

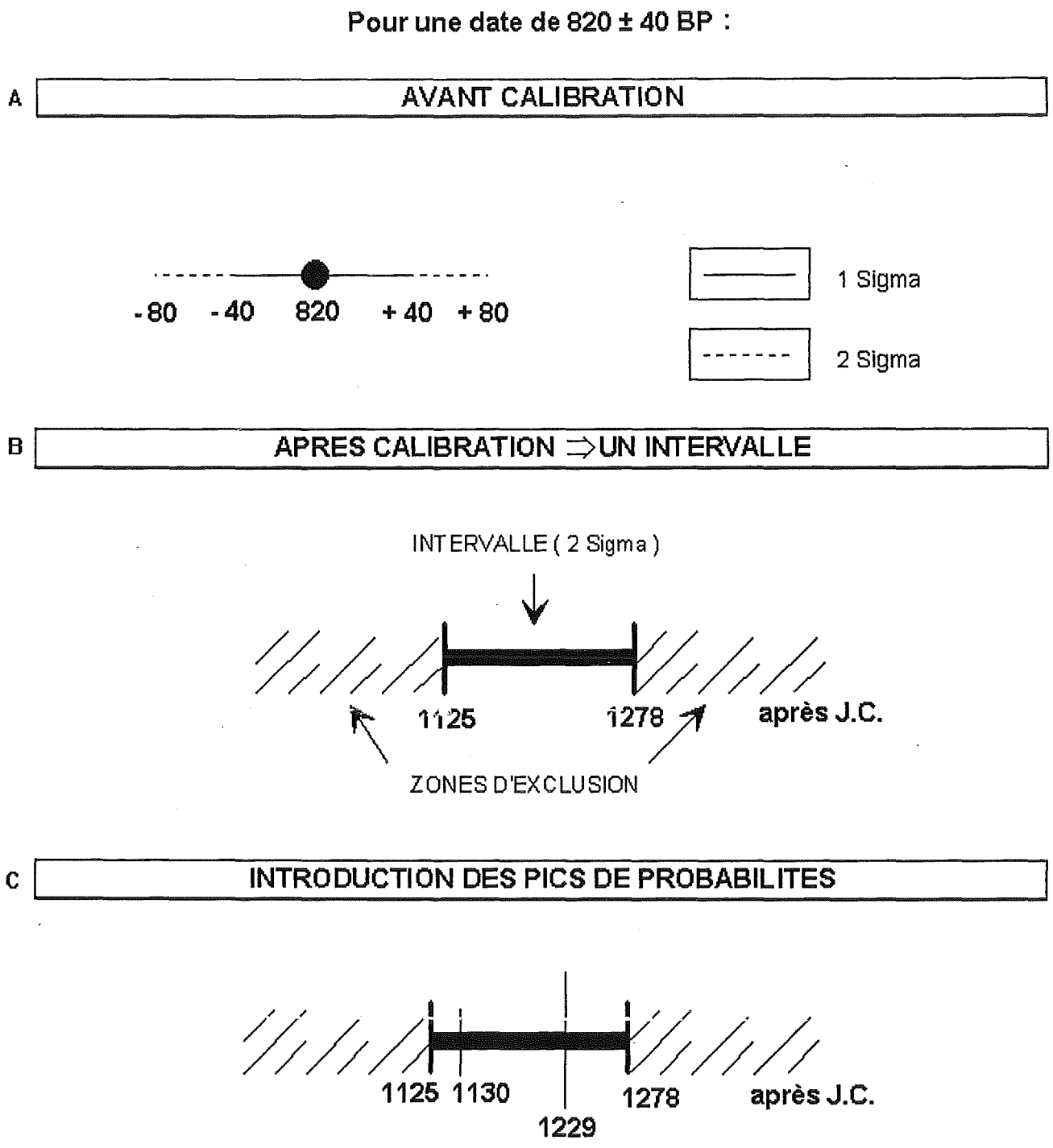


Fig. 2. - *Les représentations graphiques d'une datation C14.*

année les âges carbone 14 avec leur correspondance en années réelles et établir ainsi des tables de correction.

La courbe résultante de ces corrections, appelée courbe de correction dendrochronologique, permet de faire correspondre un intervalle de temps en années réelles à toute teneur résiduelle en ^{14}C (Stuiver *et al.* 1993). Cette courbe montre une tendance générale au rajeunissement des dates radiocarbones par rapport aux âges réels pour les millénaires avant Jésus Christ. On constate en outre des fluctuations d'amplitude quelquefois fortes (fig. 1).

Ces fluctuations amènent à considérer les précisions que l'on peut attendre de la méthode de datation en fonction de la tranche de temps où on l'applique. Pour la période médiévale, on constate que la déviation de la courbe est faible. Les corrections à apporter pour obtenir une date en années réelles à partir de la teneur en radiocarbone sont minimes. On voit aussi que pour toute cette période, il n'y a pas de fluctuations importantes comme on en observe à l'âge du Fer. La courbe est presque une droite de l'année 150 avant J.C. à l'année 1450 après J.C. C'est un grand avantage pour obtenir des datations précises. Par

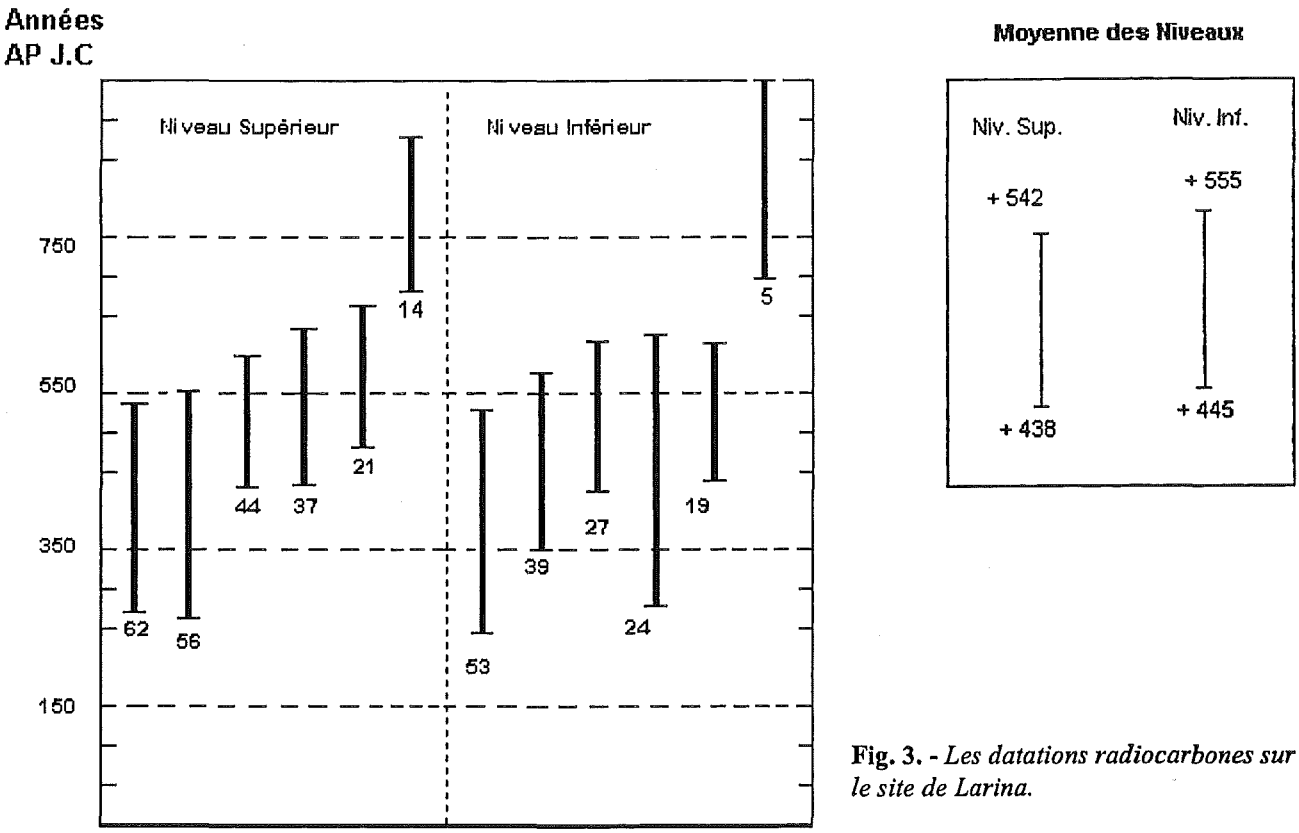


Fig. 3. - *Les datations radiocarbones sur le site de Larina.*

contre, après 1450, on voit que la courbe est très perturbée: on peut ainsi dire, pour simplifier, que la limite d'application de la méthode correspond à la fin du moyen-âge.

Lorsque l'on a calculé l'âge en tenant compte de la période du radiocarbone, on a un "âge conventionnel radiocarbone" exprimé en années BP (avant 1950). A cette date est associée une marge statistique d'imprécision de la mesure. Après correction, on obtient 2 chiffres limitant un certain intervalle de temps et avec une probabilité de 95% (l'âge exact a 95% de chance de se trouver dans cet intervalle). L'utilisateur de la date corrigée peut affirmer avec une quasi certitude que l'événement daté se situe sur une certaine plage de temps et qu'il n'y a pratiquement pas de probabilité pour qu'elle se trouve en dehors (fig. 2). Pour la période médiévale, les dates sont données généralement avec une marge d'incertitude de ± 40 ans. Le passage en années réelles donne dans ce cas une plage de l'ordre de 1 siècle et demi.

Lorsque l'on fait la correction point par point de la plage de dates BP, la forme irrégulière de la courbe fait qu'une ou plusieurs périodes particulières ressortent entre les deux extrémités de l'intervalle: les limites de celui-ci excluant toujours toute attribution à l'extérieur. En outre, on voit se dessiner un ou plusieurs pics de probabilité à l'intérieur de l'intervalle. Cette information peut se coupler parfois avec des arguments archéologiques qui peuvent contribuer à lever l'ambiguïté chronologique entre plusieurs dates possibles indiquées par ces pics

Cette méthode de datation s'avère particulièrement utile lorsqu'il s'agit de dater des sites ou des secteurs de sites très dépourvus d'indications chronologiques, et en particulier des ensembles de tombes ou des inhumations isolées de l'Antiquité tardive ou du haut moyen âge, ou dont la complexité stratigraphique laisse subsister des interrogations.

II Exemples

a Le camp de Larina (Hières sur Amby - Isère)

Cette nécropole était constituée de deux types de tombes, les unes en coffre de lauze, les autres en pleine terre ou en coffre de bois. La typologie et les objets retrouvés dataient le site du IV au VIe siècle, sans qu'il soit possible de connaître l'écart de datation entre les deux ensembles de sépultures.

Douze datations ont été effectuées (six par ensemble). Deux d'entre elles ont donné des âges nettement plus récents que les autres (fig. 3) laissant supposer deux inhumations plus tardives, hypothèse confirmée plus tard pour l'une d'entre elles par des arguments typologiques. On retrouve cinq datations concordantes par ensemble. Les deux ensembles étant homo-

Tableau 1
Les datations radiocarbones des ossements du sarcophage de Saint Sernin de Toulouse

Echantillon	Référence du laboratoire	Datation en années BP	Intervalle en années réelles	Maxima de probabilités
Le Comte	Ly-6168	1105 ± 75	de 763 à 1075 ap.J.C.	957, 900, (830) ap. J.C.
Sujet I	Ly-6169	1235 ± 60	de 675 à 926 ap. J.C.	778, 730 et 850 ap. J.C.
Sujet II	Ly-6170	1080 ± 40	de 883 à 1013 ap. J.C.	957, 900 ap. J.C.
S.10	Ly-6171	940 ± 50	de 1009 à 1202 ap. J.C.	1038, 1110, (1150) ap. J.C.
Os brûlé	OxA-4541(Lyon-34)	1185 ± 55	de 698 à 964 ap. J.C.	870, 830, (940) ap. J.C.

gènes, on a pu faire les deux moyennes des cinq dates et ainsi réduire à ± 20 ans la marge d'incertitude, donc la longueur de l'intervalle en années réelles pour chaque niveau. En regardant les plages de temps définies par ces moyennes, celle du niveau inférieur parait paradoxalement postérieure. En fait, on peut conclure à la quasi contemporanéité des deux ensembles de sépultures. Mais cet exemple montre bien la limite d'utilisation du carbone 14 pour les périodes récentes et son impossibilité de séparer chronologiquement des événements très proches.

b Le sarcophage dit de Guillaume Taillefer à Saint Sernin (Toulouse - Haute Garonne)

La fouille du sarcophage dit de Guillaume Taillefer a mis au jour une vingtaine d'individus dont un parfaitement conservé appelé "le comte". En effet, une tradition ancienne identifiait la tombe comme celle de Guillaume Taillefer, comte de Toulouse au XIe siècle. Cinq datations ont été faites qui ont permis de classer en chronologie les restes de certains individus (tableau 1). Les résultats ont montré que deux individus appartenaient très probablement à une première période que l'on peut situer au VIII-IXe siècle. Les deux sujets suivants, dont "le comte", sont très contemporains l'un de l'autre: l'examen des pics de probabilité les situe l'un et l'autre autour du milieu du Xe siècle. Le dernier lot d'ossements est nettement plus récent, c'est à dire XIe ou XIIe siècle, et sa contemporanéité avec les quatre autres individus est quasiment à exclure. La comparaison des datations entre elles permet de les regrouper en trois ensembles se succédant à environ 1 siècle d'intervalle (Evin 1996).

Pour les ossements attribués au "comte", la confrontation des données radiocarbones avec les données historiques conduit à une révision de son attribution traditionnelle à Guillaume Taillefer décédé en 1038: en effet, si on raisonne sur les pics de probabilité, ce comte serait mort un siècle plus tôt, au milieu du Xe siècle.

c Notre Dame du Bourg (Digne - Alpes de Haute-Provence)

Les fouilles de la cathédrale médiévale Notre-Dame du Bourg à Digne introduisent à une problématique, en particulier funéraire, complexe et diachronique s'étendant de l'Antiquité aux temps modernes. Le bâtiment reconstruit à partir des années 1200 est implanté au centre du bourg canonial organisé dans le vallon du Mardaric, dans une position excentrée par rapport au *castrum* médiéval construit sur la hauteur dominant la vallée de la Bléone. Cette dichotomie spatiale attestée par les textes dès le XIIe siècle laissait supposer la présence en cet endroit d'un édifice épiscopal antérieur, bâti sans doute au coeur ou au contact de la Cité antique (Février 1964, 1986, 1990). Mais de celle-ci l'on ne savait à peu près rien de concret jusqu'aux fouilles de 1983-1984 (Bonifay *et al.* 1986). Il en était presque de même de la première organisation chrétienne.

Seul un texte peut-être tardif et très discuté, la *Vita S. Marcellini*, faisait remonter le temps de l'évangélisation et de la structuration du diocèse aux dernières décennies du IVe siècle, avec l'action de Vincent, compagnon de Marcellin sacré évêque d'Embrun en cette période; le même texte, bientôt repris dans le *Martyrologe* d'Adon, mentionnait en outre l'existence d'un culte funéraire environnant les tombes vénérées de Vincent et de son compagnon Domnin sur lesquelles des miracles avaient eu lieu (Adon 1985). Le premier nom d'évêque véritablement assuré reste ainsi celui de Pentadius qui participa au concile d'Agde en 506 et dont l'épiscopat put se poursuivre jusqu'en 533 au moins (Roux 1971). Des mentions sporadiques se suivent encore jusqu'au début de l'époque carolingienne. Comme en beaucoup de diocèses provençaux, le silence se fait

ensuite. Il dure jusqu'au commencement du XIe siècle, époque où l'un des évêques les plus actifs semble être Hughes de Chandol (connu de 1038 à 1066), auquel il convient peut-être d'attribuer bon nombre des transformations architecturales observées dans les fouilles.

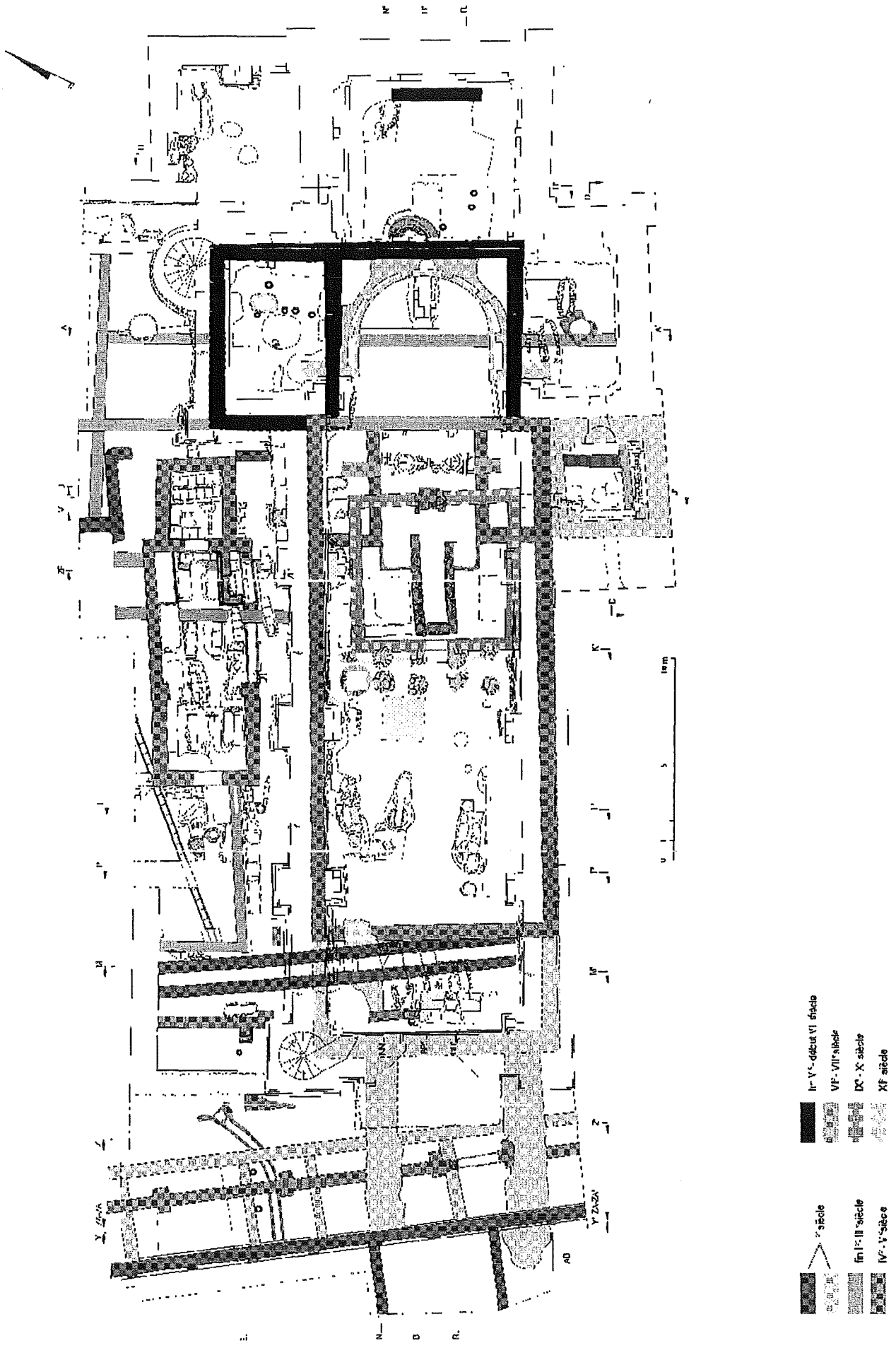
A côté de la pauvreté de ces mentions scripturaires, les fouilles poursuivies depuis plus de dix ans sur ce site devaient en effet révéler une structuration architecturale aussi complexe qu'évolutive (Démians d'Archimbaud 1989, 1990, 1992, 1995). Celle-ci semble s'être poursuivie sans solution de continuité – au contraire de l'évolution constatée sur bien des sites de Basse-Provence – pendant tout le haut moyen âge, à en juger du moins d'après les indices stratigraphiques et chronologiques fournis en particulier par la datation des tombes. Les travaux concernèrent aussi bien l'intérieur de l'église cathédrale, entièrement excavée, que son environnement nord et ouest (fig. 4). Ils conduisirent à la mise au jour d'un ensemble monumental antique scandé par deux portiques à l'est et à l'ouest. A l'intérieur de ce cadre préexistant, une zone funéraire s'organisa dans la partie nord du site autour d'un ou de deux mausolées. Puis, sous la cathédrale actuelle, une basilique prit place, bientôt amplifiée par la construction d'un vaste chevet plat conservé sur près de 4m de haut sous la croisée du transept actuel. Outre un beau sol mosaïqué attribuable à la fin du Ve siècle, la présence de vestiges d'aménagements liturgiques et plus tardivement d'un choeur vraisemblablement canonial ne laisse guère de doute sur la fonction ecclésiale de cet ensemble. Il fut partiellement transformé au XIe siècle, ainsi que son environnement envahi alors par des séries considérables de tombes sous lauzes, souvent avec dépôts funéraires (verres et/ou céramiques).

Plus de 1400 inhumations furent recensées au cours de ces fouilles. Si la moitié d'entre elles se rattache aux temps modernes (XVIe-XVIIe siècles essentiellement), les sépultures antérieures à la construction de la cathédrale actuelle présentent un particulier intérêt, dans leur faciès comme dans leur succession stratigraphique et dans leur mise en relation avec les éléments architecturaux découverts. L'étude était cependant rendue délicate en bien des points en raison des enchevêtrements constatés et de la rareté du matériel datant; il devient vite évident également que des permanences typologiques pouvaient exister. Le recours aux datations carbone 14 fut donc privilégié. Une trentaine de sépultures put être étudiée de cette façon, neuf autres analyses étant actuellement en cours.

Les recherches concernèrent prioritairement les tombes déposées dans la zone funéraire nord dont il importait de bien interpréter l'évolution et les structures bâties (fig. 5) (tombes 1170, 1530, 1519, 1525, 1527C, 1169C, 1523, 1116, 1117, 1537). Plusieurs tombes sous tuiles environnant la basilique ou accolées à ses murs ouest et est furent également examinées (tombes 235, 834, 1107, 1420). Deux tombes sous tuiles en position stratigraphique manifestement tardive s'ajoutèrent à cette série (tombes 230, 1334). Afin de vérifier la chronologie des sépultures pouvant appartenir à l'époque carolingienne d'après les données de fouille, des analyses furent aussi tentées sur des tombes maçonnées ou en fosse (T. 221, 260, 285, 297, 298). Toutes les autres analyses concernent des tombes à coffre formé de pierres plus ou moins soigneusement équarries ou de lauzes, parmi lesquelles se distingue un petit groupe initial, stratigraphiquement et chronologiquement (tombes 1158, 1361, 1487), dont l'attribution au second quart du XIe siècle paraît plausible. L'on notera en outre qu'aucune des tombes examinées dans les cas les plus tardifs ne dépasse le milieu du XIIIe siècle, même dans les datations les plus larges (cas extrême: la tombe 1113, avec une plage comprise entre 1052-1250; pics à 1197, 1130, 1070).

Les résultats acquis permirent de préciser considérablement l'interprétation chronologique des différents secteurs de la fouille; ils attirent aussi l'attention, de façon parfois très neuve, sur la plus ou moins longue durée d'utilisation de certains types de sépultures, dont les tombes sous tuiles. Sans faire ici l'analyse détaillée de ces apports, l'on peut insister sur leur intérêt dans le cas de la zone funéraire nord. L'étude confirme l'ancienneté des sépultures, apparues à la fin du IIIe ou au tout début du IVe siècle (tombes 1170 et 1530, en cercueils cloués), puis liées à l'organisation du mausolée est (tombe 1519) et à sa seconde phase d'utilisation (tombe 1525), en cercueil terré inséré dans un coffre de tuiles, attribuables à la seconde moitié du IVe siècle; la même chronologie peut s'appliquer aux sépultures placées immédiatement à l'ouest (tombes sous tuiles 1527C, 1169C, 1523). Au Ve siècle en revanche peuvent appartenir les tombes 1116 (en coffre de tuiles sous enduit rose) et 1117, cette dernière a gros coffre de pierre placé (sous un enfeu ?) sur le tracé du mur primitif du bâtiment. C'est dans la seconde moitié du VIe siècle seulement que prirent place, dans le bâtiment ouest, les tombes 1536 et 1537, toutes deux à coffre de tuile déposé dans un massif maçonné sous une couverture de béton de tuileau: chronologie qui pourrait s'accorder avec celle du sarcophage déposé à proximité (analyse en cours) (Colardelle *et al.* 1996). L'ancienneté relative, confirmée par le radiocarbone, de ces groupes d'inhumations doit être relevée: elle n'est pas sans rapport avec la période de mutation indiquée dans les textes et l'on serait tenté de voir, dans la structuration progressive de cette zone, les consé-

Fig. 4. - *Digne, Notre-Dame du Bourg. Plan d'ensemble des fouilles (dessin F. Gillet et J. Isnard).*



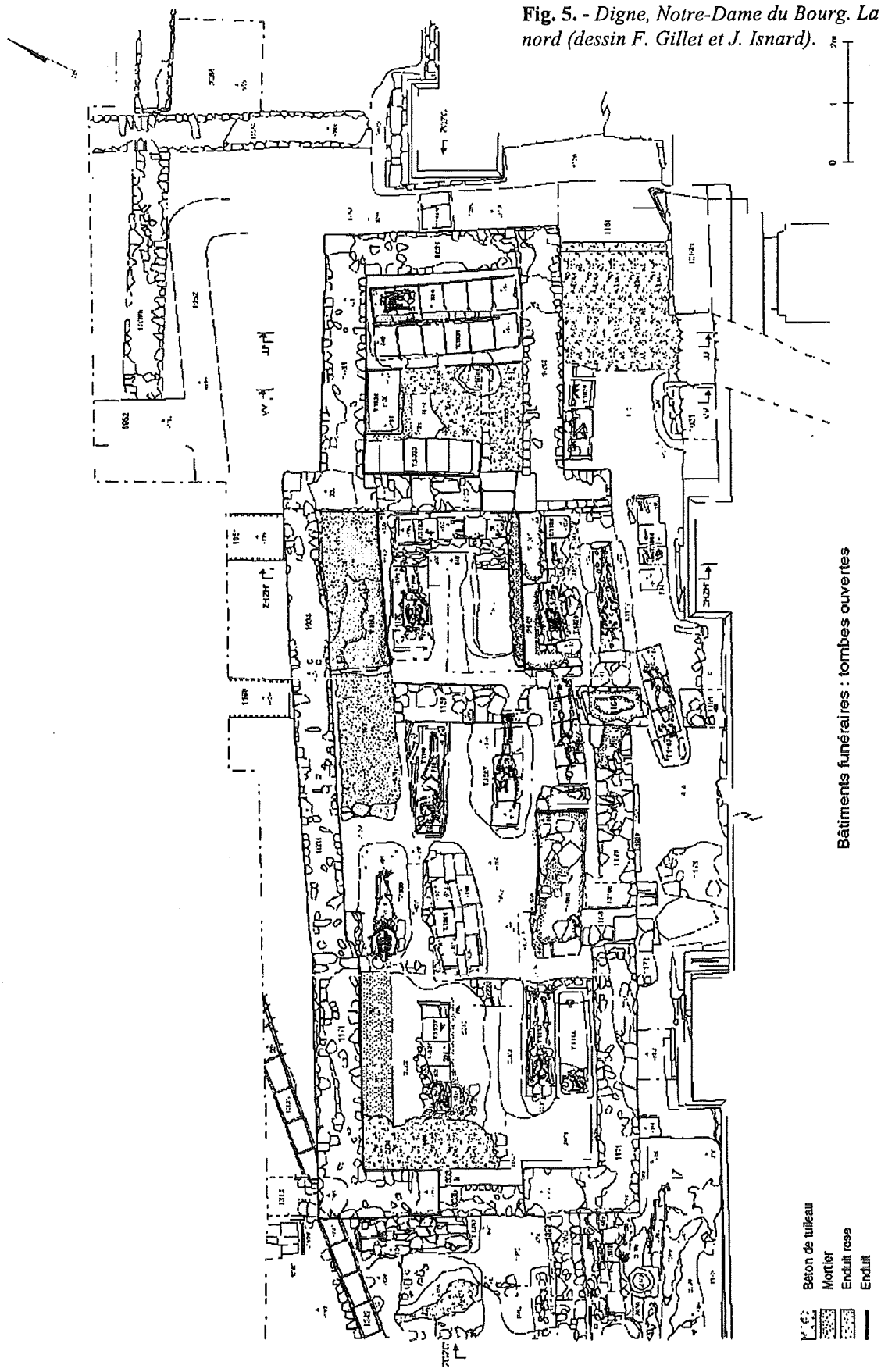


Fig. 5. - *Digne, Notre-Dame du Bourg. La zone funéraire nord (dessin F. Gillet et J. Isnard).*

quences de la christianisation de ce site, très probablement effective dès le tournant du Ve siècle.

Si aucune inhumation n'existait à l'intérieur de la grande église sud, plusieurs tombes sous tuiles prirent place contre le vaste chevet plat oriental. L'une des plus anciennes, la tombe 235, peut être attribuée au milieu du VIe siècle: cette datation précise donc très utilement le temps de création et de fonctionne-

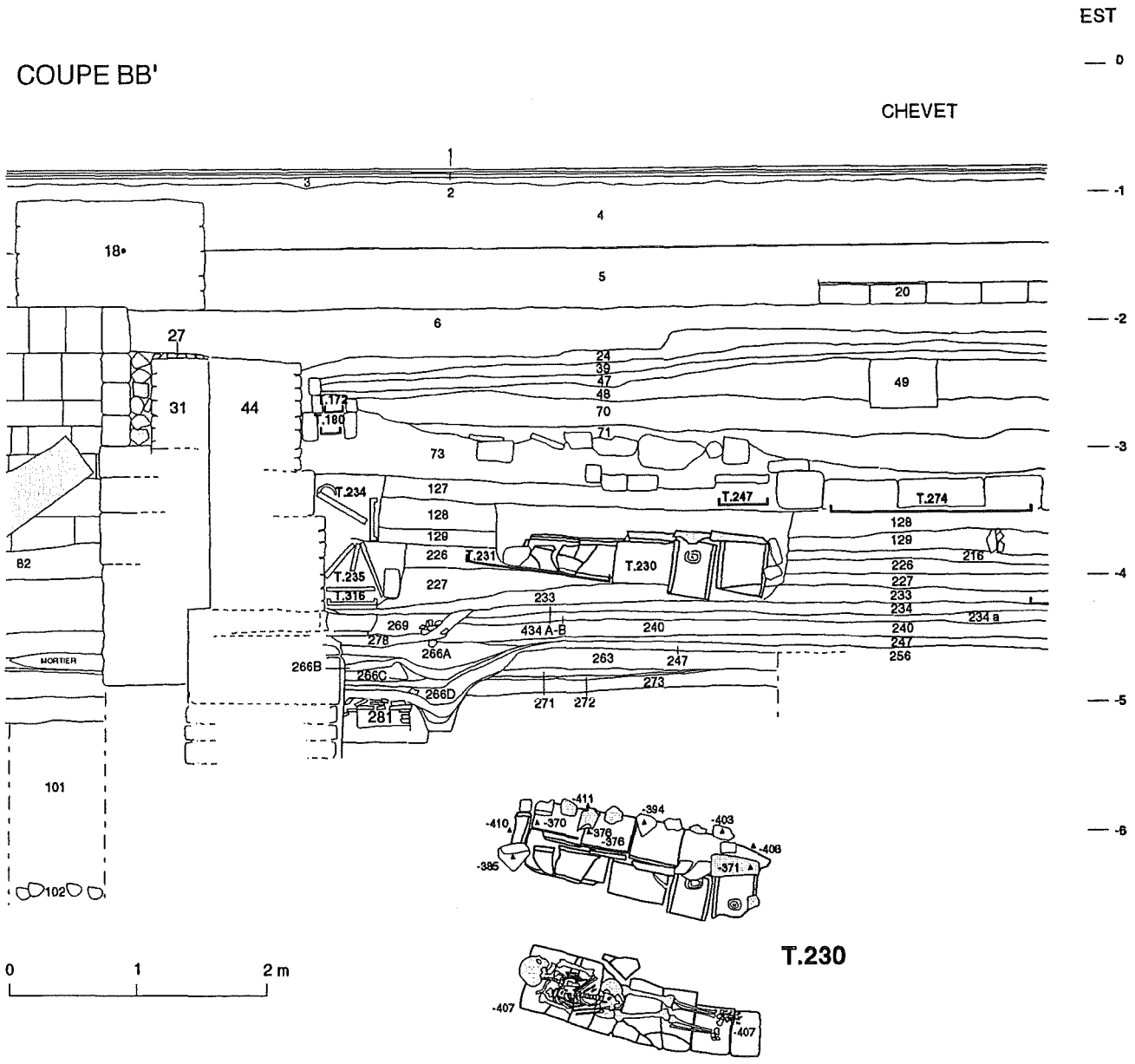


Fig. 6. - *Digne, Notre-Dame du Bourg. La tombe 230, en stratigraphie, fermée et ouverte (dessin R. Guild et F. Gillet).*

ment de ce second état de la basilique. Il en est de même d'une tombe sous tuiles placée dans son environnement nord (tombe 1107: fin du VIe siècle). A l'ouest, les datations de deux tombes similaires (tombes 1420 et 834, cette dernière placée contre la façade occidentale de l'édifice) renvoient à la seconde moitié du VIIe siècle: période qui semble marquer alors, dans cette zone, l'extension ultime de cette phase du cimetière.

Les datations carbone 14 furent aussi utiles pour situer clairement dans le temps les niveaux de sépulture attribuables à l'époque carolingienne d'après la stratigraphie. Les types identifiés concernent le plus souvent des tombes maçonnées (cas analysés: tombes 285, première moitié du IXe s.: 260, première moitié du Xe s.; 221, deuxième moitié du Xe siècle) ou des tombes en fosse (tombes 297 et 298: première et deuxième moitiés du Xe siècle). Mais il s'y ajoutait aussi quelques tombes sous tuiles dont la position stratigraphique n'était pas sans surprendre. L'analyse effectuée sur l'une d'entre elles, la tombe 230 (fig.6), confirme sa chronologie très tardive, au Xe siècle (entre 900-972). Ce cas apparemment extrême mais non isolé oblige donc à prêter une particulière attention à ces permanences typologiques. A Digne même, d'ailleurs, l'on peut encore noter la présence d'une tombe d'enfant de même faciès dont la datation, stratigraphiquement et d'après les analyses, ne saurait être antérieure à la seconde moitié du XIe siècle.

Dans la même optique, des contrôles chronologiques s'avéraient indispensables pour situer dans le temps l'ennoiement des sépultures médiévales et les structures bâties associées. Déjà évoquées sommairement plus haut, les analyses au carbone 14 permirent

de dater les premiers temps de ce nouveau cimetière (tombes 1158, 1361, 1487) puis son développement jusqu'à la fin du XIIe siècle essentiellement. Outre l'intérêt ponctuel que ceci pouvait représenter pour les tombes contenant des dépôts funéraires (verres en particulier, dont une exceptionnelle série fut retrouvée ici) (Foy & Démians d'Archimbaud 1996) les précisions obtenues ainsi autorisent maintenant une étude plus exacte des phases de transformations du site, y compris à l'emplacement de l'ancienne zone funéraire nord où l'enchevêtrement des inhumations et des périodes fut particulièrement marqué.

Les exemples ci-dessus montrent diverses utilisations des datations radiocarbones et illustrent les changements qu'ont amené les récents progrès en datation radiocarbone. Mais la mesure d'un échantillon ne conduisant à définir qu'un intervalle de un siècle et demi voire un siècle, le recours à cette méthode de datation a un interêt limité lorsque les données de textes ou de typologie apportent une bien meilleure précision. Pour la période médiévale, le carbone 14 sera employé dans des cas bien particuliers comme par exemple, dater des sites ou des secteurs de sites très dépourvus d'indications chronologiques tel que des ensembles de tombes.

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Development of a methodology for the estimation of the provenance of archaeological ceramics

Introduction

The possibility of determining the most probable provenance of archaeological ceramic fragments is an important tool for archaeologists and ethnographers, because it leads to a complementary knowledge about technological aspects, markets, uses and other important features.

The estimation of the most probable provenance may be done by chemical analysis of the ceramics and by appropriate statistical treatment of the chemical data. In this paper, we present both the chemical analysis procedures for ceramic fragments and clays and the statistical methods employed for solving the provenance algorithm.

The methodology is illustrated with a set of archaeological ceramics from the excavations carried out at Mosteiro de S. Martinho de Tibães, near Braga, in the North of Portugal.

Chemical analysis of ceramics

The chemical analysis of ceramics is done by X-ray fluorescence spectrometry at the Philips X'Unique II spectrometer available at the Laboratory of Chemical Analysis of TecMinho, at Guimarães.

The preparation of samples is as follows:

a) archaeological and ethnographic ceramics:
- physical removal of glass coating, when applied,
- surface cleaning by ultrasonic procedure, immersed in 95 % ethyl alcohol,
- drying at 110° C, during 24 hours,
- milling, for at least 15 minutes, in a planetary mill,
- pressing of a disk with about 4 grams of material and a 30 mm diameter.

b) clays:
- drying at 110° C, during 24 hours,
- milling, for at least 15 minutes, in a planetary mill,
- pressing of a disk with about 4 grams of material and a 30 mm diameter.

In each case, a separate sample was heated for 24 hours at 1100° C, in order to determine the loss on ignition (l.o.i.), which is an important data for the balance of the chemical analysis for 100 weight %.

The calibration of the spectrometer is done with disks of standard clay materials, the chemical analysis of which has been certified by international organizations. Some of these clays were carefully mixed with known amounts of compounds of certain elements, in order to prepare new standards for these specific elements. The analysis is performed with four different crystals: LIF220, Pe, Ge and TLAP, depending on the element to be analyzed. With this calibration procedure, the following elements are currently being determined:

Na, Mg, Al, Si, P, S, Cl, K, Ca, Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, As, Sr, Rb, Y, Zr, Nb, Sn, Ba, W, Pb, La and Ce.

Statistical treatment of chemical analysis data

For the statistical treatment of the data obtained by chemical analysis, some elements which are potential contaminants in archaeological ceramics have not been considered. These elements are: sodium and chlorine (because of possible use of the pottery in cooking - NaCl), phosphor (because of possible contamination with soils and agricultural fertilizers), sulfur and calcium (because of contamination with gypsum and other sulfate products), and lead and tin (because of contamination with materials present in the glass coating materials).

As the purpose of the work is to compare samples of unknown origin with the chemical characteristics of materials of known provenance, and fired materials present different loss on ignition values than clays, and levels of contamination of archaeological ceramics may vary considerably, the chemical analysis was transformed to a new 100 % basis, deleting the values corresponding to the above-mentioned elements and to the loss on ignition value. All of the statistical analysis was then performed on these transformed data.

For the statistical treatment, two different approaches were followed, according to the type of data

obtained. Hence, for the case where clays and ethnographic ceramic samples of well-known origin have been analyzed, the first treatment consisted of the determination of the average and standard deviation for each chemical element. This first treatment allowed us to gather the necessary information concerning the chemical characterization of the area from where the ethnographic samples, or the clays, were obtained. For each chemical element, a box plot representation is produced, thus allowing a preliminary comparison between the several known provenances.

When a lot of archaeological ceramic fragments of unknown provenances were treated, the first step of treatment consisted in defining clusters of fragments according to their chemical similitude. This is done by the calculation of the euclidian distance between samples, producing a pre-defined number of groups of samples. Then each pair of groups was compared using multivariate analysis of the Hotelling type, in order to determine whether the pre-groups showed significant differences among them. A 5 % level of significance was employed. when two groups were not considered significantly different one from the other from the chemical point of view, the two groups were merged together and further analysis was done with the new merged group. The cluster analysis continues until no more merging of groups is accepted. Then, the final significant groups for the set of samples considered are established.

Each group determined as stated here is then compared with the chemical data for the area or sites that have been characterized, concerning clays and ethnographic samples of surely known provenance. The comparison is done again by multivariate analysis of the Hotelling type, allowing the estimation of the degree of probability that the group might be of that provenance.

Determination of the provenance of the ceramic fragments found at the Convent of S. Martinho de Tibães, near Braga

A set of 25 fragments, previously selected on the basis of their physical appearance and of the representativity shown for the whole of nearly 2000 fragments available, has been analyzed. The cluster analysis gave two different and homogeneous groups, with the following chemical characteristics (see table 1).

Group I is representative of about 9 % of the fragments found, whereas the Group II represents about 51 % of the fragments. The remaining 40 % of the fragments could not be included in any of the homogeneous groups, nor was there enough homogeneity between them to define other groups.

Table 1.

Element	Mean Group I	Std.Dev. Group I	Mean Group II	Std.Dev. Group II
Al_2O_3 (%)	14.84	1.84	24.63	1.62
SiO_2 (%)	71.90	2.56	62.55	1.32
Fe_2O_3 (%)	3.99	0.54	6.78	0.63
K_2O (%)	3.82	0.21	3.05	0.24
TiO_2 (%)	0.67	0.08	1.06	0.07
MgO (%)	1.45	0.19	1.10	0.09
Ba (ppm)	814	90	754	280
Ce (ppm)	254	35	237	58
Cu (ppm)	110	16	134	27
Cr (ppm)	126	65	93	20
La (ppm)	188	53	149	37
Mn (ppm)	588	122	408	132
Ni (ppm)	76	4	75	38
Rb (ppm)	440	33	419	58
Sr (ppm)	208	12	142	30
V (ppm)	37	9	79	15
Zn (ppm)	125	20	169	16
Zr (ppm)	325	68	241	95

The two groups were compared with the chemical characteristics of some different known production centers in the North of Portugal, already studied by the research team of the project PROCEN (The ceramic production of the North of Portugal - century XII to century XX). From this analysis, the second group, representative of about 51 % of the total of the fragments found, is significantly similar to the group formed by the ethnographic production of the region of Prado/Parada de Gatim/S. Mamede de Escariz, which is a traditional pottery making region, located some 5 km from Tibães. This means that the majority of the ceramics found at Tibães were from pieces that were made at the local level, or very close to it. The smaller group, on the other hand, could not be considered similar to any other group of ethnographic or clay materials from local sites known with certainty. This could be explained by the limited knowledge currently available concerning the yet existing and extinct ceramic production centers in the North of Portugal. The work currently being done under the above-mentioned research project will contribute greatly to the enlargement of the coverage of production centers and to their characterization from the chemical analysis point of view. As more data will be gathered, more complex statistical tools, like discriminant analysis, might elucidate the provenance of archaeological ceramics.

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Virginie Chevrier

Au fil des charpentes du Bassin Parisien ou promenade dans les combles de divers édifices religieux (XIIè-XVIè s.)

L'étude qui suit a été réalisée sur des monuments situés dans une zone géographique française baptisée Bassin parisien. Cependant les limites de ce secteur varient selon différents critères: la nature du sol, le climat ou l'homme.

D'abord nous ne tiendrons pas compte de la limite administrative, définie par nos contemporains. En effet, elle ne correspond pas aux limites politiques et administratives qui ont pu exister tout au long du Moyen Age. Cette limite, contrairement aux deux autres (géologiques et climatiques), n'influence en rien la croissance des arbres. La base d'une étude dendrochronologique se situe dans l'influence plus ou moins grande de facteurs extérieurs sur la pousse annuelle des cernes. C'est grâce à ceux-ci que l'on sera capable, à travers des réactions de croissance similaires durant des périodes difficiles, de trouver des corrélations entre des arbres d'une même zone.

Les limites adoptées pour "notre" Bassin Parisien dépendent donc des deux types d'influences abiotiques sur les végétaux qui sont, le sol et le climat. On couplera alors la limite géologique et la limite climatique pour définir le Bassin Parisien (fig. 1). La limite géologique est un peu plus étendue que la limite climatique, et elle permet d'englober, dans le Bassin Parisien, la cathédrale de Langres et la basilique de Chaumont. Si on considère que les bois utilisés pour les charpentes proviennent de sites locaux ou proches (ce qui est généralement encore le cas à la fin du Moyen-Age, cf. infra), la ressemblance au niveau de la croissance des cernes sera peut-être un peu moins flagrante entre ces deux sites et le reste. En effet,

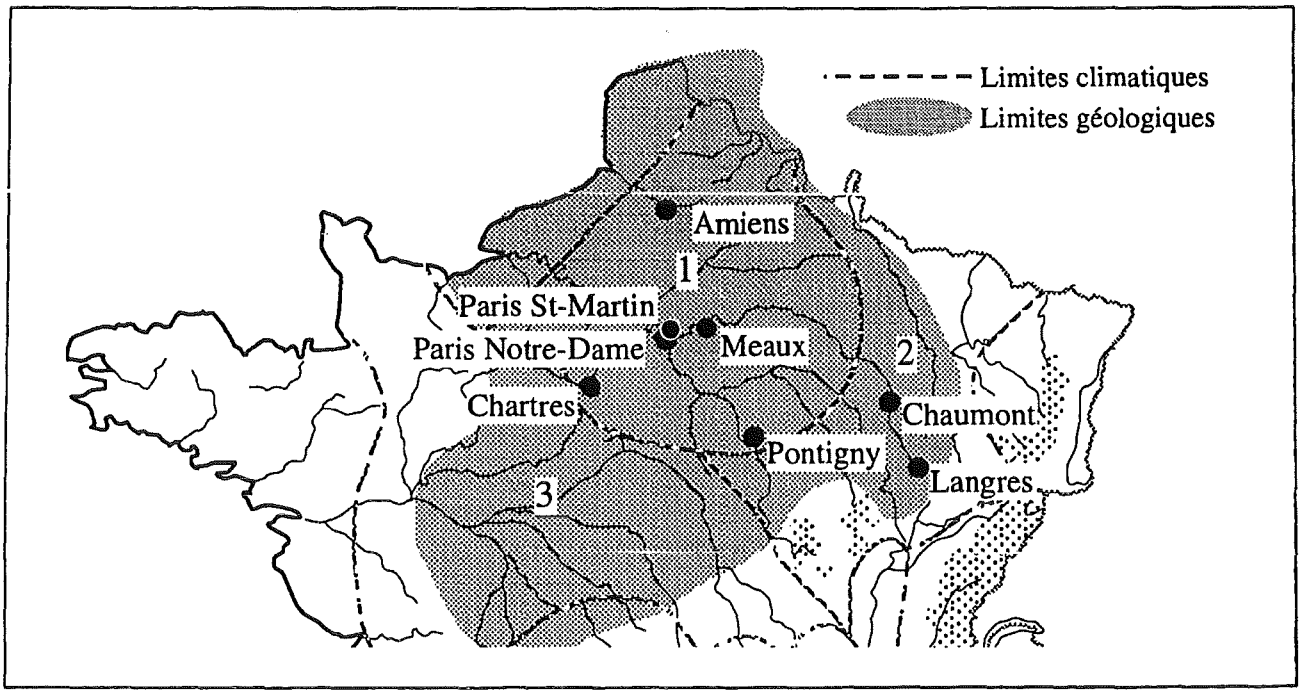

Fig. 1. - *Délimitation du Bassin Parisien en fonction du sol (limite géologique) et du climat. 1: Bassin Parisien (pluviométrie faible à moyenne, hivers froids). 2: Lorraine, Plateau de Langres, Morvan (hivers rudes, brouillards fréquents). 3: Moyenne vallée de Loire, Centre, Contreforts du Massif Central, Poitou-Charentes (bon ensoleillement, surtout en été).* D'après Choisnel E. et Payen D., 1989: L'agrométérologie, dans: *Le grand atlas de la France rurale*, Paris, J.P. De Monza, 410-411.

l'influence climatique est plus continentale à Langres qu'à Amiens ou à Chartres. Cependant la tendance générale est assez semblable pour permettre de rapprocher et de comparer tous ces sites.

Les sites

Après cet éclaircissement des frontières du Bassin Parisien, il convient de situer chaque monument étudié. Les importances des bâtiments sont différentes: certains sont des cathédrales (Paris, Amiens, Chartres, Meaux et Langres), d'autres sont des simples églises (Saint-Jean-Baptiste à Chaumont et Pontigny) ou encore un réfectoire d'une ancienne abbaye (Saint-Martin-des-Champs à Paris). Cette liste, qui sera complétée par des études ultérieures, permet de mettre à jour et répertorier les acquis sur le sujet choisi.

Les sites de Pontigny et Saint-Martin-des-Champs, à la différence des autres, appartiennent à une communauté monastique. Leurs chantiers ne sont pas situés en pleine ville, et ils ne profitent donc pas de l'aide financière apportée par les dons paroissiaux. Les autres édifices sont situés au coeur des villes médiévales. L'organisation du chantier au niveau administratif et financier est alors différente, et pourtant le résultat est très comparable.

Le chantier

Le bois : transport et exploitation

Les textes récents traitant des chantiers médiévaux de construction sont axés avant tout sur l'histoire de la pierre, depuis la carrière jusqu'à sa pose dans l'édifice. Depuis quelques années, les métaux ont repris la place qui leur était due dans les écrits, mais le bois reste encore en arrière plan. On sait cependant qu'il était omniprésent dans les constructions (Chapelot 1996, 36). On le trouvait tout d'abord dans le rôle de bois de chauffe pour la cuisson des tuiles ou la fonte des métaux, puis sous la forme de bois d'oeuvre dans les échafaudages, les charpentes ou les décors.

Le bois de charpente est utilisé vert: il n'appartient donc pas à un commerce de longue distance. A l'inverse, celui des travaux plus décoratifs, tels les menuiseries, sont des bois sélectionnés qui passent par un véritable commerce: ainsi la dendrochronologie montre que les lambris qui couvrent encore certaines voûtes du donjon de Vincennes ont été importés de Pologne (Pousset 1996).

Les arbres coupés pour la construction des charpentes proviennent certainement de forêts proches du chantier, appartenant au commanditaire. Le transport de ces bois, relativement coûteux même sur une courte distance, devait s'effectuer au maximum par voie fluviale. En effet, ce type d'acheminement des matériaux de construction existait déjà avant le Moyen-Age et constituait un des moyens les plus pratiques et économiques pour atteindre, avec de gros chargements, le centre des villes desservies par un cours d'eau (Erlande-Brandenburg 1993, 106). Nous avons ici les cas de Langres, Chaumont et Meaux traversées par la Marne, Amiens par la Somme, Chartres par l'Eure et Paris par la Seine. Les autres chantiers se trouvent toujours à proximité d'une voie fluviale telle l'Yonne pour Pontigny. Les bûcherons coupaient les arbres qui étaient ensuite empilés sur des barges et transportés par les convoyeurs jusqu'à leur destination. Les troncs arrivaient entiers sur le chantier. Ils n'étaient équarris et taillés qu'ensuite car l'écorce protégeait le bois lors du voyage.

Au XIIè siècle, les beaux fûts dans les forêts aux abords des villes se raréfient. L'exploitation se fait d'abord de façon anarchique et les prélèvements, à l'image de l'abbé Suger qui cherche de belles poutres pour la charpente de la basilique Saint-Denis, sont effectués par furetage. Il n'y a pas de véritable exploitation. A ce moment la différence avec la pierre est énorme puisque les carrières font déjà l'objet d'un véritable commerce organisé. Puis, les propriétaires des massifs forestiers se sont de plus en plus soucié de l'avenir. Ils ont commencé par interdire les prélèvements "à la sauvage" et peu à peu ont réservé des futurs beaux bois d'oeuvre. Certaines forêts se retrouvent "jardinées": les arbres tordus, dépérissants ou d'essences "tendres" sont ôtés tels des mauvaises herbes. C'est également le début du traitement de certaines forêts en taillis sous futaie. Mais aucune règle n'existe encore et c'est seulement à partir du XIVè siècle qu'on tente d'unifier ces pratiques (Larrère & Nougarède 1993, 39). L'ordonnance la plus importante fut celle de Charles V en 1376 qui réglementa les droits d'usage dans les forêts du Royaume.

Les hommes et leurs outils

Les hommes qui travaillaient sur place étaient recrutés dans les environs. Cependant, les postes "à responsabilité" ne leur étaient pas réservés, les places de manoeuvres étaient en revanche beaucoup plus nombreuses. En effet, les architectes ou maîtres d'oeuvre (le vocabulaire à utiliser est encore mal défini) sont de grands voyageurs dont on retrouve la signature dans des édifices très éloignés les uns des autres. Le charpentier possédant une place également impor-

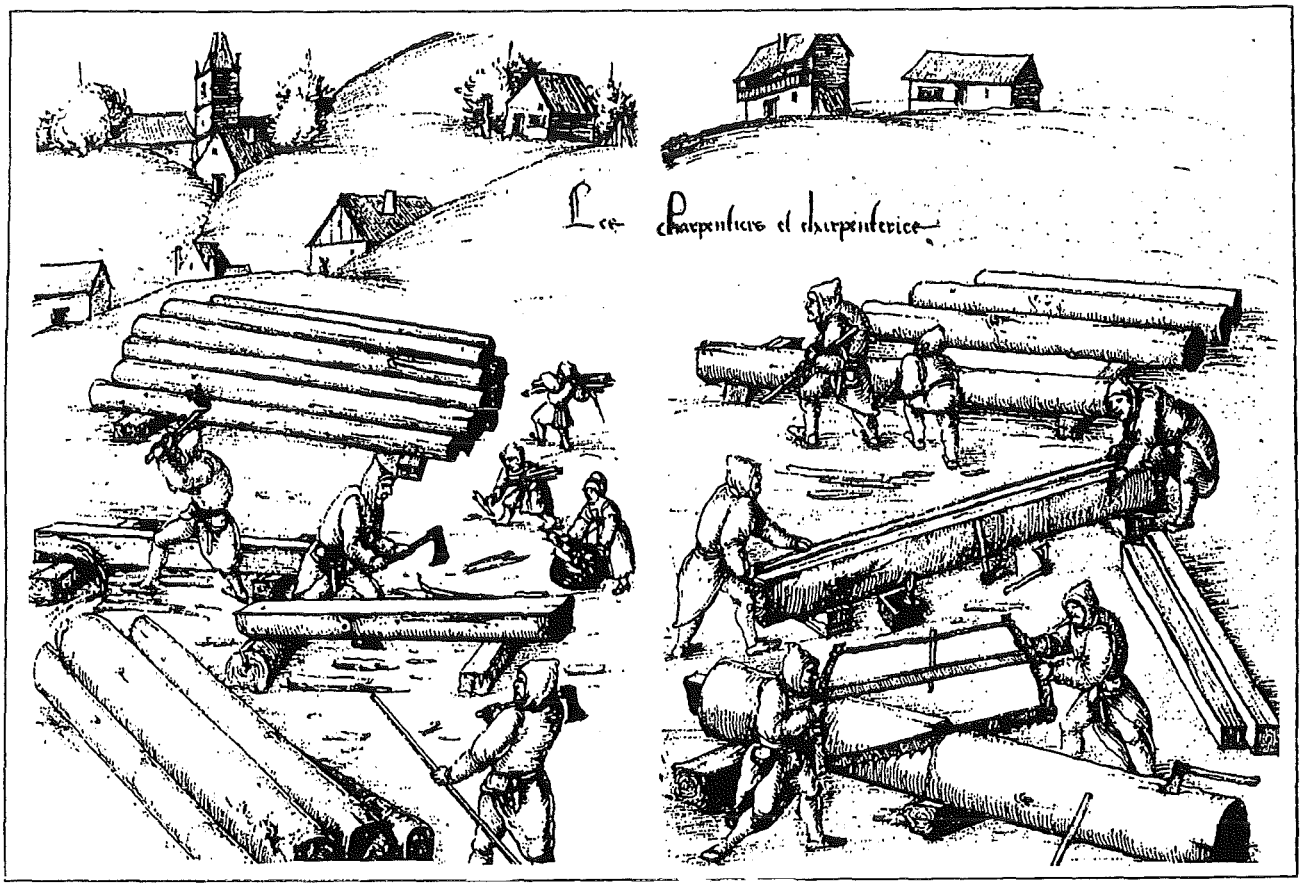

Fig. 2. - *Les charpentiers au travail.* La rouge Myne de Sainct Nicolas de la Croix *dessinée par Heinrich Groff, débit du XVIè siècle. Ecole nationale supérieure des Beaux-Arts, Paris.*

tante dans la hiérarchie des bâtisseurs, on pense qu'il se déplace lui aussi d'un chantier à l'autre. Malheureusement aucun nom personnel de charpentier n'est connu (ni dans les livres de comptes, ni signé ou gravé sur une pièce de charpente), on ne peut donc pas suivre leur trace aussi bien que pour les architectes.

Les bûcherons et les charpentiers sont assez fréquemment représentés dans l'iconographie médiévale (fig. 2). Ce qui laisse encore penser qu'ils occupaient une place importante sur le chantier. Ces représentations permettent, outre de se rendre compte de leur présence, de connaître les outils qu'ils employaient. Pour l'équarrissage, la hache et la doloire sont les plus reproduites. Le sciage de long est très peu visible, le seul exemple connu est la scie hydraulique à lame verticale de Villard de Honnecourt. Cette pratique ne semble donc pas communément admise par les hommes de l'époque. On en veut pour preuve les études dendrochronologiques sur des pièces de charpenterie: une poutre sciée dans sa longueur est bien souvent synonyme de restauration du XIXè siècle. D'autres variantes de la hache sont à remarquer: l'herminette, avec son tranchant perpendiculaire au manche, pour dégager les tenons et la bisaigüe qui peut servir d'épais ciseaux à bois pour creuser les mortaises (fig. 3). Les engins de levage sont également connus, non pas seulement par les dessins, mais parce qu'il en reste encore en place dans certains édifices: c'est le cas de la cage d'écureuil (cathédrale de Beauvais, église du Mont-Saint-Michel) et surtout des poulies (par l'intermédiaire d'une chèvre par exemple) pour les levages verticaux.

On a longtemps pensé que les échafaudages partaient toujours depuis le sol pour monter jusque sous les combles. Cependant on s'aperçoit de plus en plus qu'après les vagues de déforestation (apogée au XIIè siècle), les hommes ont cherché à faire des économies de bois notamment en redécouvrant l'échafaudage en bascule (accroché dans le mur), plus léger, démontable, et facilement réutilisable.

Les marques de charpentier

L'étude de ces marques n'apporte rien quant à la datation absolue du site, en revanche, elle permet de dire si la charpente du bâtiment pris en compte est homogène ou non.

C'est le cas pour la charpente de la nef à Langres. Un relevé systématique sur les poinçons et les liens inférieurs de toutes les fermes permet de conclure à

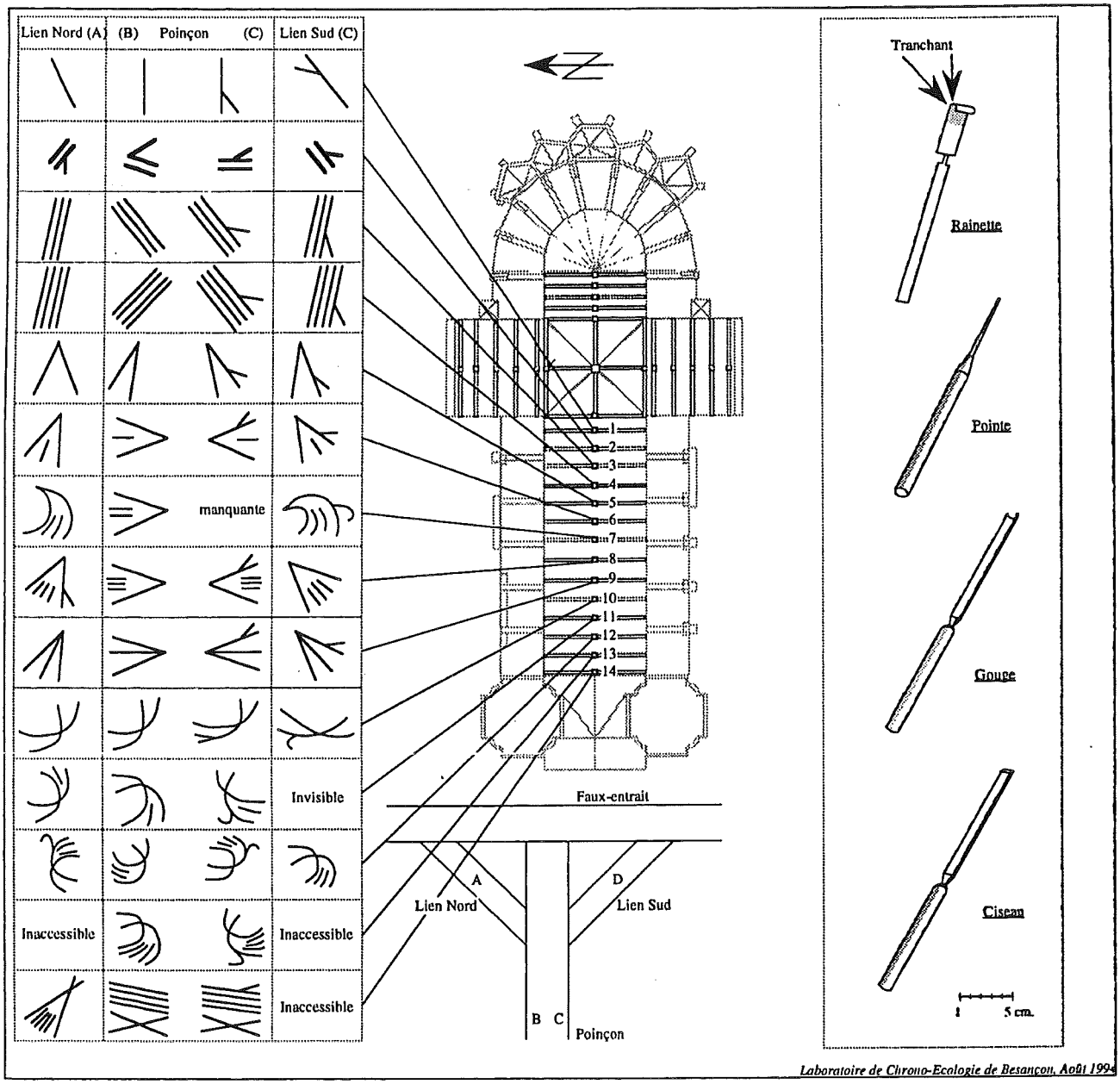

Fig. 3. - *Relevé des marques de charpentier dans la cathédrale Saint-Mammès à Langres (52) et schéma des outils employés pour marquer les poutres.*

un ensemble contemporain (fig. 3). En effet, même si le style n'est pas partout identique (on peut reconnaître plusieurs "mains"), tous les numéros se suivent sans erreur ni chevauchement. Les outils utilisés ne sont pas tous spécifiques aux marques de charpentier. A Langres, on remarque deux instruments différents mais trois types de marques: les courtes et profondes sont tracées à l'aide de la rainette alors que les longues et fines, droites et courbes, ont été réalisées avec une simple pointe (fig. 3). La rainette est l'outil de traçage des marques par excellence (Leport 1977), mais on rencontre aussi la pointe, le ciseau ou la gouge. Le traçage différent des marques est certainement dû, dans ce cas, à la présence de trois personnes marquant simultanément les fermes.

Ce n'est pas le cas dans la nef de Notre-Dame de Paris. En effet, on trouve des marques courbes et d'autres droites (faites pour les premières à la gouge et les secondes au ciseau), réparties respectivement sur les pièces au nord et au sud de la nef. Ce choix correspond à un des premiers essais de latéralisation des poutres dans une charpente. Un peu plus tard (vers la fin du XIIIè siècle) apparaîtra la contremarque qui est encore utilisée actuellement. Cette différence permet d'éviter toute confusion lors du montage entre des pièces ayant une position symétrique.

Toujours à Notre-Dame de Paris mais dans la charpente du choeur, les fermes, depuis la cinquième, sont marquées de façon continue de 2 à 28. Fait sur-

prenant, les fermes de 1 à 4 ne participent pas à cette numérotation. Il n'existe pas d'archives pour l'expliquer, mais une hypothèse peut être émise à partir d'une observation faite à la cathédrale de Meaux. Dans la charpente du choeur, les deux premières travées (c'est à dire les trois premières fermes) qui ont été renforcées dès l'origine par une multiplication des fermes pour recevoir les cloches, sont numérotées différemment du reste du choeur. Un tel beffroi aurait aussi pu exister à Notre-Dame de Paris, et dispaître à partir du moment où les cloches ont trouvé leur place dans les tours.

La datation

Comparaison typologique

Grâce à une typologie de plus en plus précise de l'évolution de la charpente pour le Nord de la France, nous avons tenté de situer chronologiquement la construction de chaque édifice étudié. De nombreux critères ont été pris en compte à cet effet et en particulier ceux qui nous semblaient les plus représentatifs d'une évolution: la présence de pannes, la pente du toit, l'utilisation de poteau ou de poinçon et le contreventement (fig. 4).

	Notre-Dame Paris Nef	Notre-Dame Paris Choeur	St-Martin des-Champs	Meaux Choeur	Pontigny Transept	Chaumont Nef	Langres Ch+Transept	
Charpente à chevron formant ferme	X	X	X	X	X	X		XVIè →
à fermes et à pannes							X	→
Pente du toit 60° / 45°	54°	56°	56°	55°	50°	46°	53°	XIIIè XVIè
Poteau	X							XIIIè →
Poinçon		X	X	X		X	X	→
Contreventement absent					X			XI-XII-XIIIè
fermes principales reliées "au sol"	X	X				X	X	XIIIè
lierne entre poinçons	X	X	X	X		X	X	XIIIè
pannes latérales						X	X	XIII-XIV-XVè
faîtière et croix de Saint-André						X		XIV-XV-XVIè
faîtière sans chevron formant ferme							X	XVI-XVII-XVIIIè
Datation dendrochronologique	1173	1211	1218	1224	1380	1390	1562	

Fig. 4. - *Tableau récapitulatif des sept charpentes étudiées et des quatre points de comparaison retenus pour le classement chronologique, et de leur datation dendrochronologique.*

La charpente du transept de Pontigny est sans aucun doute la plus ancienne (fig. 5). C'est une charpente à chevron formant ferme et la transition entre ce type et les charpentes à fermes et à pannes ne se fait pas avant le XVIè siècle. L'angle du toit est de 50°, or on sait qu'il tend à se redresser au XIIIè siècle jusqu'à 60° avant de s'abaisser à nouveau à partir du XVIè siècle (Hoffsummer 1996, 139-140). Il n'y a encore ni poteau ni poinçon. Et surtout, cette charpente ne présente aucun contreventement longitudinal exceptée une poutre que l'on a appelée "dorsale" et qui relie les entraits retroussés par leur milieu en s'appuyant sur le sommet des voûtes. L'absence de contreventement est notée seulement jusqu'à la fin du XIIè siècle et début du XIIIè pour le Nord de la France. Cette charpente appartient donc à un type ancien, certainement antérieur au XIIIè siècle.

Puis quatre charpentes se retrouvent situées dans un laps de temps assez réduit. Elles ont de nombreux points communs qui permettent de les imaginer en pleine construction au XIIIè siècle. On va cependant essayer de les classer chronologiquement. La pente du toit est sensiblement la même pour toutes, mais l'angle le plus faible (54°) correspond à celle du choeur de Notre-Dame de Paris (fig. 5). Seule cette dernière charpente est encore construite avec un poteau alors que celles de Saint-Martin-des-Champs, de Meaux et de la nef de Notre-Dame de Paris ont déjà un poinçon (fig. 5). La différence se situe au niveau des forces exercées sur ces pièces: l'une est comprimée (le poteau), et l'autre est tendue (le poinçon). Ce dernier n'est utilisé en temps que tel qu'à partir du XIIIè siècle. Aucune charpente ne comporte de poutre faîtière (qui apparaît vers le XIVè siècle), en revanche, et à la différence de Pontigny, toutes présentent une ébauche de contreventement longitudinal, reliant soit les poteaux, soit les poinçons. Le contreventement se situe encore dans la partie médiane ou basse de la charpente et souvent encore sur deux plans (latéral et central). Il évolue néanmoins vers sa situation de rendement optimum optée par les charpentiers du début du XIVè siècle, c'est à dire dans la partie centrale et supérieure du toit. La charpente du choeur de Notre-Dame de Paris semble donc être la plus ancienne alors que les trois autres sont pratiquement contemporaines. On se risquera tout de même à proposer d'abord celle de Saint-Martin-des-Champs, puis la charpente de l'abside de Meaux et enfin comme plus récente celle de la nef de Notre-Dame de Paris. Bien entendu une comparaison avec l'architecture générale du bâtiment et une recherche dans les textes d'archives apporteraient peut-être l'assurance nécessaire à la confirmation de cette hypothèse. Cependant le but de ce travail est de montrer quelle précision il est déjà possible d'atteindre avec la seule étude de la charpenterie. Une analyse dendrochronologique viendra ensuite redater les charpentes avec une exactitude unique.

Ensuite viendrait la charpente de la nef de Chaumont qui est encore une charpente à chevron formant ferme comme les précédentes (fig. 5). Pourtant elle a déjà des pannes latérales avec une faîtière et un contreventement sur le sommet, ainsi que des croix de Saint-André (elles apparaissent entre le XIVè et le XVè siècle). Cependant la pente du toit est descendue à 46°, ce qui semble anachronique en comparaison des charpentes de l'époque qui sont plus proches de 60°.

Enfin, la charpente du choeur et de la croisée de la cathédrale de Langres est encore un peu plus récente (fig. 5). En effet c'est une charpente à fermes et à pannes. Elle serait donc postérieure au XVIè siècle puisque la transition s'est faite à ce moment (cf. supra). La faîtière est également présente avec des sous-faîtières et des liens en écharpe à la place des croix de Saint-André.

Étude dendrochronologique

La typologie de la charpente en vue d'une datation n'est en revanche pas applicable à celle de la cathédrale de Chartres puisqu'elle a entièrement été refaite au XIXè siècle après un incendie en 1836. Seule l'analyse dendrochronologique des restes de tirants qui se trouvent dans les piles des bas-côtés a pu donner une datation (Lambert & Lavier 1990, 168-170). Ces pièces maintenaient les bas-côtés à la nef et au choeur, engendrant un ensemble contrebuté et stable. La date donnée par la dendrochronologie est de 1201d (d = date obtenue par dendrochronologie), avec un très court aubier, qui nous emmène dans le premier quart du XIIIè siècle pour l'abattage et la mise en place des tirants. Cette phase correspond uniquement aux échantillons du choeur. On remarque alors une seconde phase se terminant en 1186d et correspondant aux tirants prélevés dans la nef. Deux échantillons avec aubier permettent une estimation d'abattage vers 1200, donc un peu avant le voûtement du choeur. Ce qui signifie une évolution du chantier de la nef vers le choeur, à l'inverse de la plupart des mises en place de charpentes.

Une étude similaire sur la cathédrale d'Amiens a permis de prélever les tirants restants dans les piles. Ils ont été datés au laboratoire de Chrono-Ecologie de Besançon de 1231d. La mesure d'aubier sur certaines pièces permet de déterminer deux phases: le voûtement des bas-côtés de la nef avec les travées basses du transept vers 1220, et le voûtement du déambulatoire entre 1241 et 1254. La datation de la charpente,

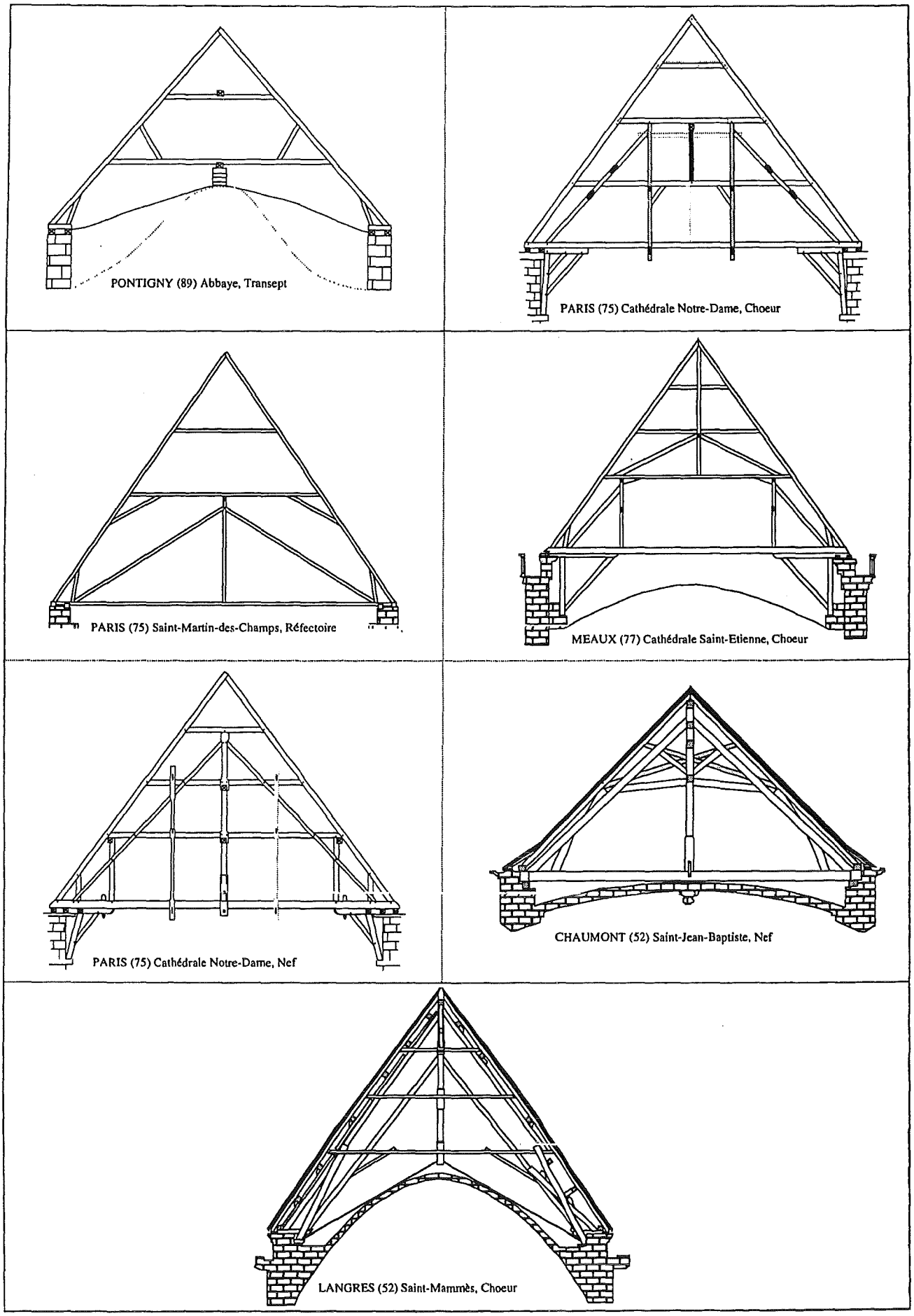

Fig. 5. - *Coupes transversales des charpentes étudiées, classées en fonction de l'évolution typologique des charpentes dans le nord de la France (l'échelle des charpentes les unes par rapport aux autres n'est pas respectée).*

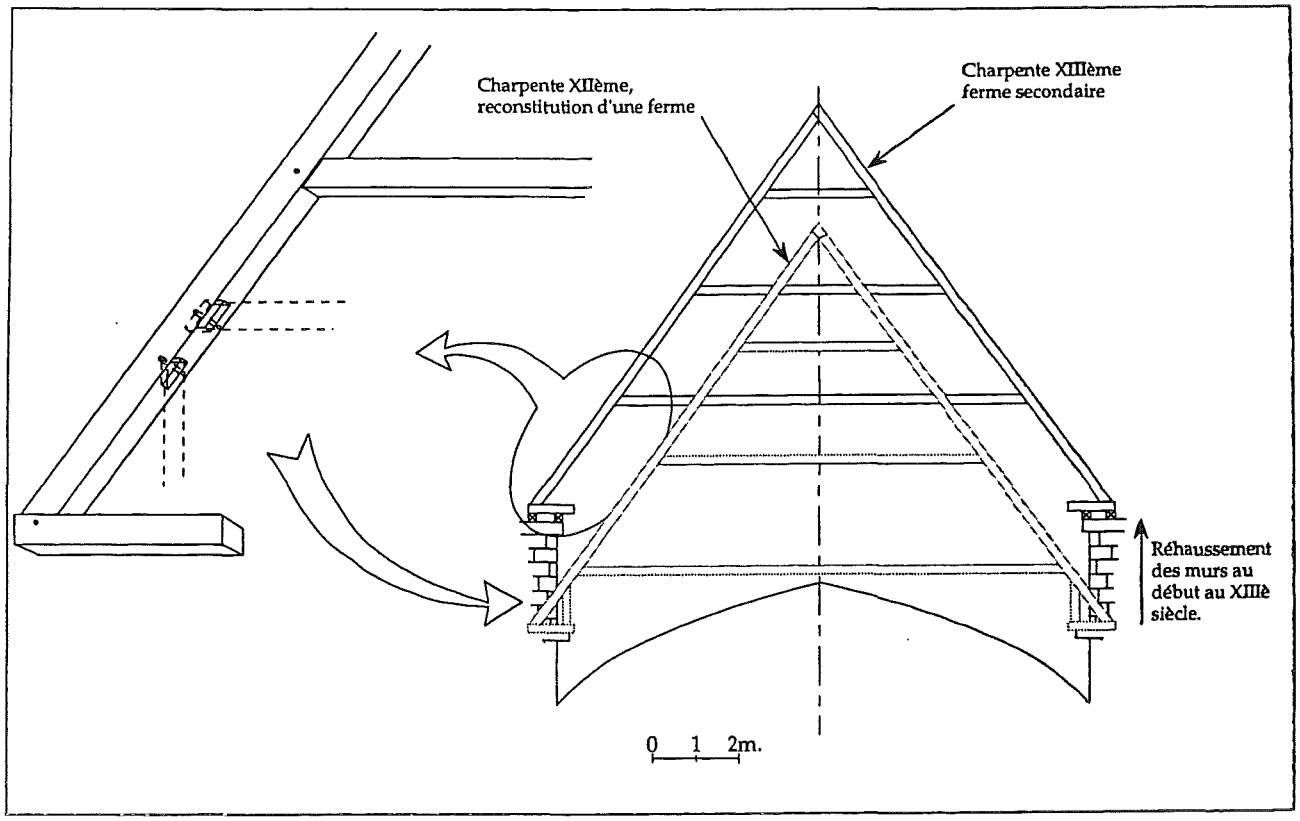

Fig. 6. - *Paris (75). Cathédrale Notre-Dame, essai de reconstitution de la charpente d'origine (avant 1200 dans le choeur), d'après les traces de mortaises laissées dans certaines poutres.*

également en dendrochronologie, au laboratoire de Liège révèle un échantillon avec écorce, daté pour son dernier cerne de 1284d. Une première phase d'abattage peut donc être déterminée en hiver 1284-1285d (Hoffsummer 1996, 39). Cependant quelques échantillons sont plus tardifs: la dendrochronologie les date du milieu du XVIè siècle (1527 pour le dernier cerne mesuré, auquel il faut ajouter l'estimation d'aubier manquant). On parle d'un feu dû à la foudre en 1527, et à cause duquel la charpente aurait été entièrement reprise. Mais l'incendie était en fait très localisé et seule la flèche a du être remontée car les échantillons les plus récents proviennent précisément de cette partie.

Même avec une partie synchrone, les deux moyennes d'Amiens (tirants et charpente) ne sont pas comparables. On tend à incriminer la nature très différente des bois (beaux fûts pour la charpente et petits arbres dominés pour les tirants) afin d'expliquer cette complication. Un article, en préparation avec P. Hoffsummer et G-N. Lambert, devrait apporter des précisions sur l'étude dendrochronologique du monument.

Toutes les charpentes prises en compte ici ont été datées par dendrochronologie. Une série de poutres (une vingtaine en moyenne par monument) ont été sélectionnées (taille, rôle, présence d'aubier ou d'écorce, accessibilité sont les principaux critères) et prélevées, à l'aide d'une mèche creuse montée sur une perceuse. Les échantillons (ou "carottes") sont ainsi préparés, mesurés et analysés au laboratoire de Chrono-Ecologie de Besançon (sauf pour la cathédrale de Meaux, étudiée par Mme Trenard). On réalise la courbe de variation interannuelle de croissance des cernes pour chacun (Lambert & Lavier 1990). Une comparaison entre les échantillons du même site permet de faire une moyenne entre ceux qui ont une croissance similaire. Cette moyenne sera ensuite comparée, selon la même méthode, avec d'autres références locales ou régionales. Lorsque l'on parle de la date trouvée pour une moyenne, elle correspond toujours à la date du dernier cerne mesuré, donc celui qui se rapproche le plus de la date d'abattage. Mais en fait c'est à chaque cerne mesuré que l'on donne une date puisqu'un cerne correspond à une année. Ceci est valable pour les arbres vivant sous nos latitudes (à la différence des bois tropicaux qui n'ont pas forcément un cycle annuel de croissance) et en particulier le chêne (qui est l'essence employée pour ces charpentes) ou le hêtre, le frêne et divers résineux également étudiés par la dendrochronologie.

Pour la majorité des charpentes étudiées ci-avant, la date donnée par la dendrochronologie va confirmer et préciser celle apportée par l'analyse typologique.

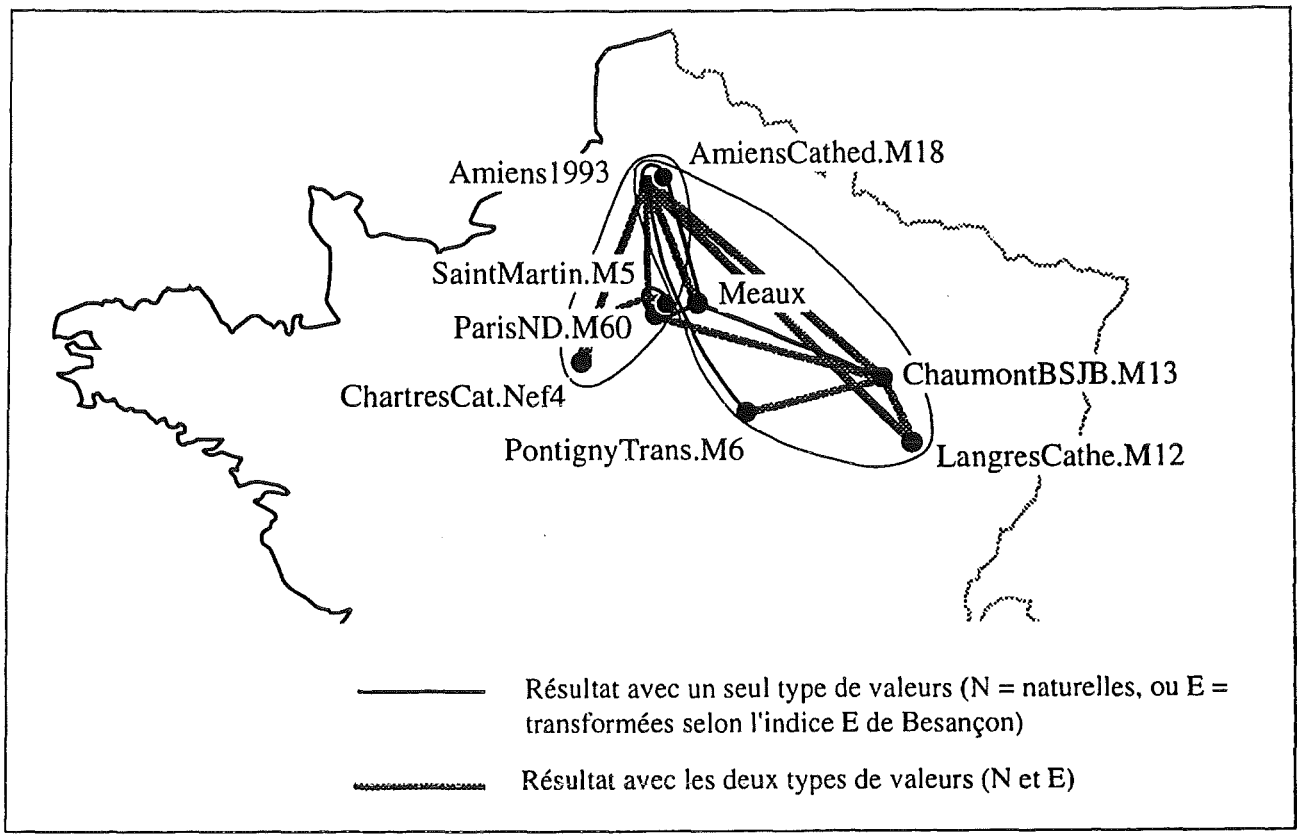

Fig. 7. - *Interdatation des sites étudiés dans le Bassin Parisien.*

C'est le cas pour Saint-Martin-des-Champs daté (sous réserve d'un nouvel apport d'échantillons) de 1218d mais l'aubier n'est pas présent et empêche toute estimation; pour l'abside de la cathédrale de Meaux de 1224d (Trenard 1996, non publié) dont deux aubiers complets déterminent sa construction au début de l'année 1225; pour la nef de Notre-Dame de Paris de 1211d (avec de l'aubier mesuré sur plusieurs bois, ce qui nous mène au maximum en 1233 pour l'abattage (Lambert 1996, 150-151) et la construction de la charpente puisque les bois étaient utilisés verts); pour la nef de Chaumont de 1390d mais sans aubier lisible, repoussant la date d'abattage vers la première moitié du XVè siècle; pour le choeur et la croisée de la cathédrale de Langres, datées de 1562d avec de l'aubier sur la moitié des pièces qui permet d'estimer l'abattage au maximum en 1574. On sait par ailleurs (d'après les livres de comptes) que des bois avaient été commandés pour cette charpente en 1563-1564 afin de la reconstruire après un incendie en 1562. Il semble donc que ce chantier ait été étendu aux parties orientales de l'édifice, alors que les marchés ne précisent d'intervention que dans la nef et la croisée. Voici donc un bel exemple de la fiabilité de cette méthode et de sa précision.

En revanche, les deux exemples restants sont plus problématiques.

La charpente du transept de Pontigny, qui semblait plutôt construite à la fin du XIIè siècle, est datée par la dendrochronologie de 1380d avec de l'aubier qui porte l'estimation maximum d'abattage à la date de 1400. La datation dendrochronologique est étayée par des calculs mathématiques et statistiques, alors que la typologie repose sur des comparaisons au niveau technique pour lesquelles nous avons tenté de faire une classification selon leur évolution. Les charpentiers auraient donc reconstruit la charpente du transept au début du XVè siècle sans changer sa forme initiale. Mais pourquoi ne faire que recopier l'antérieure alors qu'ils auraient pu l'améliorer avec les nouvelles techniques mises au point au XIIIè siècle. L'étude des archives s'avèrerait fondamentale pour aider à résoudre cette énigme.

Pour la charpente du choeur de Notre-Dame de Paris, le problème est légèrement différent bien que les deux analyses arrivent également à plusieurs dates. La dendrochronologie donne une datation pour le dernier cerne de la moyenne en 1173d (avec de l'aubier et donc une estimation maximale de la date d'abattage en 1204), alors que la typologie plaçait cette charpente au début du XIIIè siècle (vers 1220). Une observation détaillée des poutres montre des mortaises inutilisées, toutes taillées à la même hauteur. Il semble donc évident que ces pièces provien-

nent d'un lot de réemploi. Là les textes nous sont d'un grand secours: un observateur de l'époque décrit le chantier du choeur (incluant sa charpente) terminé en 1177. Les bois étudiés sont donc certainement issus de cette charpente provisoire et ont été retaillés puis repositionnés. On peut proposer une reconstitution de la charpente d'origine d'après les traces de mortaises (fig. 6). D'autre part, dans les textes, on lit qu'une nouvelle charpente est reconstruite lors du rehaussement des murs goutterots dans la première moitié du XIIIè siècle. On observe donc ici un cas de réemploi qu'il n'est pas toujours facile de reconnaître si l'ensemble est cohérent et qu'aucun autre moyen de datation ne vient le remettre en cause. La datation par dendrochronologie apporte donc la date d'abattage des arbres avec leur première utilisation, mais jamais la date de leur réemploi.

Toutes les moyennes obtenues ont été "calculées" entre elles afin de regrouper celles qui ont les croissances les plus similaires (donc les meilleurs résultats de corrélation) (fig. 7). La moyenne sur la charpente d'Amiens (Amiens 1993) comporte beaucoup d'échantillons (77) et semble s'interdater avec la majorité des autres sites. Le fait d'être très fournie en bois estompe les spécificités individuelles et produit une moyenne plus propice à la datation puisqu'elle représente la croissance des arbres sans particularismes locaux.

Les moyennes de Langres et de Chaumont, outre le fait de se trouver en limite est du Bassin Parisien, appartiennent à des époques un peu plus tardives, elles n'ont donc pas autant d'années de recouvrement avec le reste. Le problème est le même pour Pontigny qui est datée de la fin du XIVè siècle.

Il est assez difficile, avec ces seules informations, de définir des sous-groupes à l'intérieur du Bassin Parisien puisque la répartition géographique des sites étudiés correspond avant tout à des époques différentes (XIIè-XIIIè siècles pour l'Ouest, et XIVè-XVè-XVIè pour le Nord et l'Est). Des sites supplémentaires, inversés pour les périodes et les "zones", seraient donc les bienvenus pour une étude plus complète et permettraient de lancer des hypothèses concrètes. Elle rendrait également possible de nouvelles comparaisons entre les charpentes afin de peaufiner l'évolution typologique de ces dernières. Deux articles, l'un en préparation sur la cathédrale de Beauvais entre P. Hoffsummer et J-L. Taupin, et l'autre publié dans les *Cahiers du Patrimoine* sur la cathédrale de Laon (Hoffsummer P.) nous serons déjà très utiles.

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"Bassin Parisien 8": un référentiel dendrochronologique pour le nord de la France (Ve-XVIIIe s.)

1 Cadre de la recherche

Les premières recherches françaises en dendrochronologie ont été menées dans le Bassin parisien, dès la fin des années 60. En effet, les travaux de Madame L. Leboutet (1966) portaient sur des problèmes d'ordre méthodologique et statistique. Quelques études de bâtis médiéval rouennais ont été réalisées dans le cadre du Centre de Recherche Archéologique Médiévale de Caen (CRAM), et permirent de constituer la première chronologie datée en France (Leboutet 1982). Après le démantèlement, en 1987, de l'unité dendrochronologique installée au CRAM, nous avons pu recueillir l'ensemble des échantillons qui y ont été traités; quelques-uns d'entre-eux ont été intégrés à notre référentiel. Ils recoupent, par exemple, les séquences issues de Douai, "La Fonderie" (Nord - 59), de Rouen (maisons médiévales - Seine Maritime - 76) ou encore de Famechon, "Le Marais" (Somme - 80).

Parallèlement, Y. Trénard avait développé à la fin des années 70 un autre pôle dendrochronologique à Paris, au Centre Technique du Bois et de l'Ameublement, et ses recherches étaient résolument tournées vers l'étude du mobilier et des charpentes (Trénard 1985). Cependant, une étude dirigée sur les forêts de l'Oise nous a fourni la base d'une solide chronologie de plus de 360 ans à partir d'arbres actuels (Trénard & Duchâteau 1985).

Dans le cadre de notre thèse, nous avons pour notre part assuré le suivi dendrochronologique de la plupart des sites archéologiques du Nord de la France découverts entre 1990 et 1996. Cela représente un total d'environ 70 sites avec environ 90 chronologies de site. Pour les charpentes ou les structures encore en élévation, nous avons collaboré avec des étudiants-chercheurs du Laboratoire de Chrono-Ecologie de Besançon (V. Chevrier, Université de Franche-Comté, F) et avec Monsieur P. Hoffsummer du Laboratoire de Dendrochronologie de l'Université de Liège (B).

2 Présentation générale du référentiel "Bassin Parisien 8"

Sur l'ensemble du Bassin parisien, environ 70 gisements dendrochronologiques ont été étudiés depuis 1984 au Laboratoire de Chrono-Ecologie. La Picardie, l'Ile-de-France et la Haute-Normandie ont produit l'essentiel du matériel étudié. Il s'agit de régions où d'importants travaux d'aménagement du territoire ont été effectués depuis une quinzaine d'années. Ces travaux ont été le véritable moteur d'une archéologie de sauvetage intervenant avec des moyens financiers et humains conséquents. Conjointement, ces régions bénéficient dans les vallées d'un niveau de nappe phréatique élevé, favorisant ainsi la conservation des éléments organiques. Toutes ces conditions réunies ont donc permis que de nombreux sites archéologiques en milieu humide soient fouillés et étudiés en dendrochronologie. En revanche, la Champagne est faiblement représentée dans notre banque de données, sans doute en raison d'une politique de grands travaux moins intense qu'autour de Paris. Pour l'essentiel, nos analyses dendrochronologiques portent sur 40 sites archéologiques allant du Néolithique moyen au bas Moyen-Age, 10 paléo-chenaux en contexte pré- et protohistorique, mais nous avons également échantillonné dans 18 charpentes médiévales et modernes et enfin dans 7 massifs forestiers.

Environ 3000 échantillons de chêne (*Quercus* sp.) ont été mesurés. 1535 ont été intégrés dans différentes moyennes de site datées ou non. 980 composent enfin notre référentiel du Bassin Parisien dans sa huitième version. Notre chronologie de référence, "Bassin Parisien 8", appelée plus succinctement "BP 8", longue de 2343 ans, débute en 348 av. J.-C. et se termine en 1995. Bien qu'un hiatus de 15 ans subsiste entre 264 et 278 de notre ère, nous pouvons considérer cette chronologie comme continue.

3 Représentativité et distribution chronologique des échantillons

L'objectif de cette étude étant l'établissement d'une dendrochronologie la plus longue possible sur l'ensemble du Bassin Parisien, aucune séquence n'a été écartée, surtout lorsqu'elle touche une période peu étalonnée. Certains gisements dendrochronologiques ne sont représentés que par un seul échantillon; c'est le cas, par exemple, de Noyen-sur-Seine avec la découverte ponctuelle d'une pirogue monoxyle carolingienne. En revanche, sur des sites plus riches en échantillons, des choix ont dû être opérés en concertation avec l'archéologue, compte tenu des délais imposés à notre analyse dendrochronologique. Nous n'avons alors retenu que le matériel directement utilisable pour obtenir une datation des structures archéologiques et nous avons écarté les séquences perturbées ou trop courtes.

La variabilité de la couverture (en nombre de bois par an) de "Bassin Parisien 8" est donc relativement importante et entraîne des problèmes bien similaires à ceux rencontrés par nos collègues français, suisse, belges, hollandais ou allemands. L'étalonnage de "Bassin Parisien 8" présente quelques faiblesses sur le IIIe, le VIIIe et le XVIIe s. ap. J.-C. Vers 700, puis vers 1600, la moyenne est de 5 cernes par an. Certains sites sont encore en cours d'étude et leurs résultats sont donc partiels. L'intégration de ces données à notre référentiel du Nord de la France, de même que la multiplication des prélèvements permettront de combler ces lacunes.

A l'heure actuelle, en Europe, les références dendrochronologiques pour le Bas-Empire Romain et le Haut Moyen-Age sont bien pauvres, dans certains cas même inexistantes. En effet, les bois mérovingiens sont extrêmement recherchés. De fait, pour dater un bois mérovingien en France, on doit nécessairement se référer aux chronologies constituées en Allemagne septentrionale ou orientale. Longtemps, cette carence en échantillons fut attribuée aux grandes invasions et aux changements sociaux et culturels qu'elles suscitèrent. Il faut peut-être voir aussi dans ces périodes pour lesquelles nous disposons de peu de références dendrochronologiques des changements techniques, climatiques ou plus simplement des problèmes de conservation différentielle.

Pourtant, les sites du haut Moyen-Age sur le Bassin parisien montrent de réelles ressources en bois. Les recherches que nous avons menées à cette occasion nous ont permis de mettre en place la première chronologie du chêne du Nord de la France pour la période située entre 270 et 650 ap. J.C., principalement à partir des sites carolingiens d'Auteuil et de Belle-Eglise (Oise - 60 - F). Cet aspect de notre chronologie constitue, par conséquent, un atout majeur de "Bassin Parisien 8".

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Recent re-discoveries in the Continental Early Medieval Collections of the British Museum

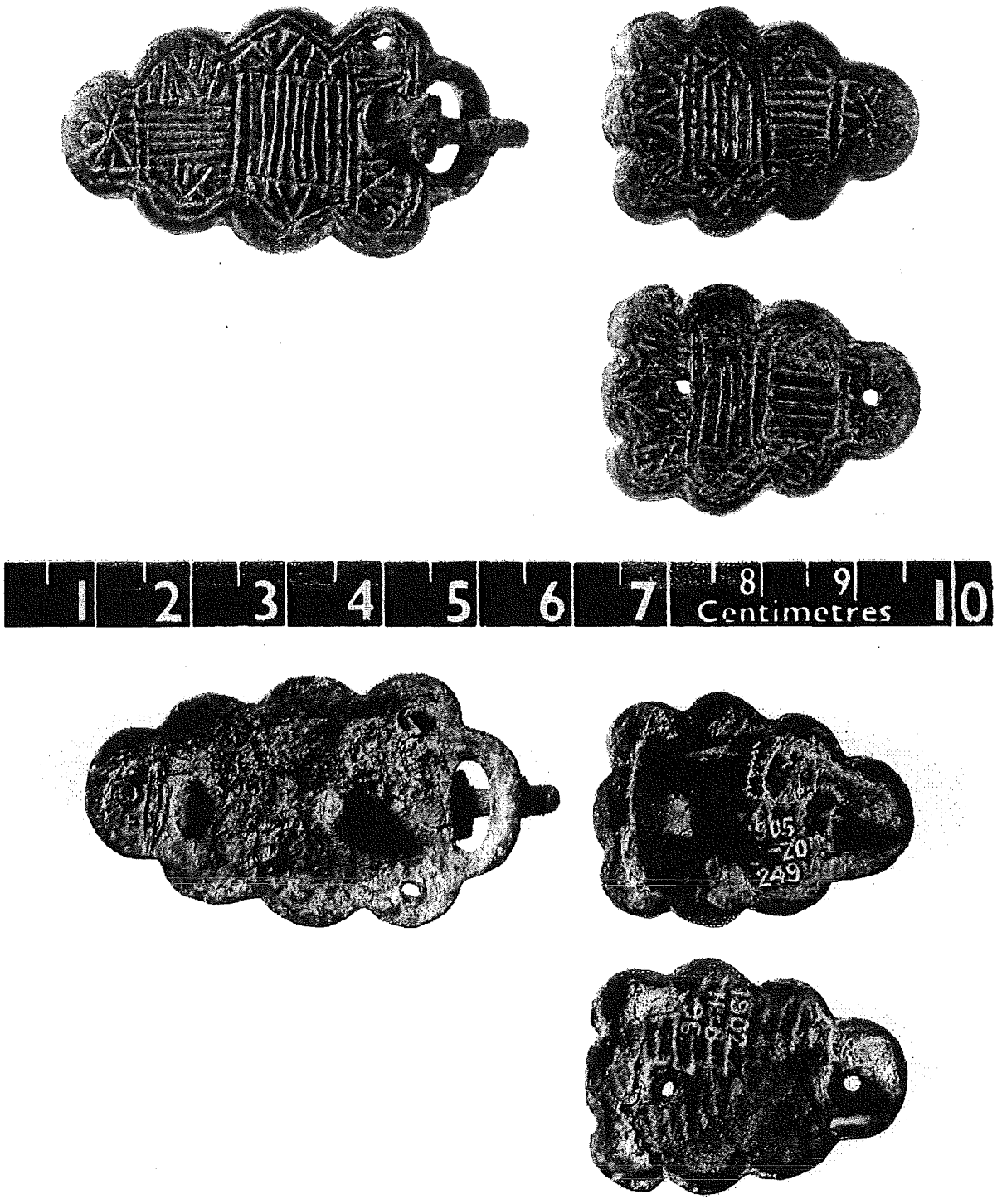
In recent years I have been privileged to be involved with background research for a summary catalogue of the Continental early medieval collections of the British Museum (Kidd, Haith & Ager, in preparation). It has been particularly rewarding to come across either long-forgotten archival information, or internal evidence from the material in the collections themselves, relating to the provenances of a growing number of important items. Sometimes these have been published in the past with either incomplete, or incorrect findspots. A few of the more significant recent examples are discussed in the present paper.

Firstly, pivotal in any discussion of Anglo-Saxon contacts with the Merovingian world, or of the expansion of Frankish dominion over southwestern France after the military defeat of the Visigoths, has been the cemetery excavated at Herpes (Charente) by Philippe Delamain, between 1886 and 1893 (Delamain 1892; Vierck 1970; James 1977, 167; Haith 1988, with further references to Delamain's publications; Kidd & Ager 1992). Delamain died in 1902 and the majority of the artefacts found there was acquired as his collection by the British Museum in 1905 (1,161 objects), through the agency of the antiquities dealers Messrs Rollin & Feuardent, who had rooms in both London and Paris. The collection had previously been in the possession of Edouard Guilhou, who had himself obtained it from a Parisian dealer by the name of Houzeau. As regards the provenance of the collection, the museum's register entry states (under accession no. 1905,5-20): "All from Herpes, Charente"[1]. But, as previous research by my colleague Cathy Haith has shown (1982; 1988), although there seems no doubt that Delamain did find Merovingian-period graves at Herpes, a broader, less certain provenance, including one or two other known cemetery sites in southwestern France, such as Biron where he also excavated, could have applied to many of the items in the collection not specifically said by him to be from Herpes (Haith 1982, 32; see also the doubts about these two cemeteries expressed by Ament 1978, 393, n. 75). Since then, my own work has deepened the doubts about the catch-all findspot of Herpes and broadened the field of possibility to include northern France. The results are presented here both to illustrate the pitfalls that can be associated with interpreting the evidence of old collections and in the hope that further research will be able to advance the enquiry.

Most telling in this respect are a number of correspondences that have recently been observed between objects in the Delamain Collection and other collections acquired by the British Museum at the end of the 19th century and the beginning of the 20th. Firstly, a buckle in the Delamain Collection (registration no. 1905,5-20,248) clearly forms a matching pair with a counterplate in the acquisition purchased from David Reiling of Mainz in 1902 (reg. no. 1902,11-8,96), said to be from the District of the Rhine and Moselle, but, from the types of objects it contains, probably from northern France (see below). The visual match between the two objects is confirmed beyond doubt by exactly the same kind of repair work carried out in antiquity on both pieces. This further implies that the counterplate, no. 249 in the Delamain acquisition, registered as belonging with the buckle and of the same design, is either part of the same set of fittings or comes from another matching pair of buckle and counterplate, which can only have been made in the same workshop. The Reiling material, it should be noted, was acquired by the museum a year after the Delamain Collection had been bought by Houzeau, but some two-and-a-half years before the acquisition of the Delamain Collection. Had either Delamain or Reiling (or even perhaps a previous owner) obtained part or parts of a set or matching set from the other? It was not uncommon for collectors

[1] Objects in this collection are identified by the numerical prefix 1905,5-20, followed by the object number. For convenience the prefix may be substituted by the name of Delamain in the text below. For clear reference the departmental letter code "M&LA" may be added before the registration number, but it has been dispensed with here as no other department is mentioned.

Fig. 1. - *a-b: Gilt bronze buckle and counter-plate said to be from Herpes; with c: matching counter-plate said to be from the Rhine/Moselle district (front and back; scale 1/1). Copyright British Museum.*

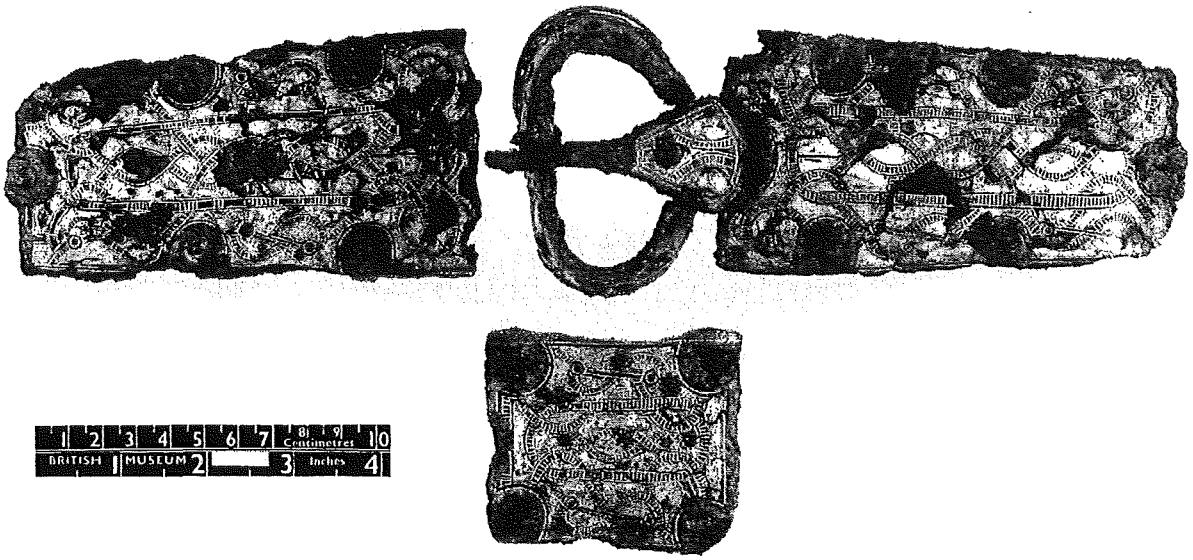


to exchange objects to obtain comparable material or to fill a gap in their collection and Delamain is known to have withheld some items from his sale. Or did both men obtain parts of the same or matching sets from a third party?

Secondly, and still more perplexing, a Delamain buckle and matching backplate (nos. 284 and 285) find their matching counterplate in a piece registered as early as 1891 (reg. no. 91,10-19,4), said to be from Amiens (Somme), but probably from the more general Amiens region. All three pieces were clearly made to be worn on the same belt and so are most likely to have been found in the same grave.

It seems highly improbable that parts of the two matching sets of fittings noted above, allegedly from Herpes, should also be found in graves on the other

Fig. 2. - *a: Silver-inlaid iron counter-plate from the Amiens region; with b-c: matching buckle and back-plate said to be from Herpes (scale 1/2). Copyright British Museum.*



side of the country, or even perhaps in Germany. Rather it is evident that the provenances of all of these objects is wholly uncertain and that original sets of belt-fittings have been broken up in modern times, though by whom and for what purpose is as yet unknown. Deliberate deception is certainly one possibility, as has been shown to have occurred elsewhere in France at the end of the 19th century (Vallet 1986, 12). Was a quantity of material added to Delamain's collection by a dealer(s) after his death to increase its value?

The Amiens/"Herpes" connection is reinforced by the similarity between a manuscript label with a number and triple letters 'no. 7 ALT' on a Delamain buckle (no. 272) and other triple-letter labels, though without numbers, on objects "from Amiens" (in the 91,10-19 registration series), e.g. 'BTT' and 'BIT' (?) on two disc brooches (91,10-19,21 and 22). Exactly the same type of lettering as on the Delamain buckle, and with a number ('No. 9 ABT'), can be seen on a Merovingian buckle and counter-plate in the Diergardt Collection (no. 194) in the Römisch-Germanisches Museum (RBA-Nr. 38888). However, the precise significance of the lettering, which may represent site-name abbreviations or a dealer's price code, has not yet been solved.

One further indication of a northern component in the so-called Herpes material is a very close similarity between the form and decoration of the counter-plate no. 276 and a buckle-plate fragment in the Reiling "Rhine/Moselle" Collection (reg.no. 1902, 11-8,92). Although buckles of this type are not uncommon, and these pieces need not derive from a set, it is remarkable that, with the exception of this one piece "from Herpes", the distribution of published examples is entirely north of the River Loire and in the Rhineland (Schulze-Dörrlamm 1990, map fig. 12). Taken with the evidence presented above, this third item, too, reinforces the hypothesis that the Delamain Collection is, in fact, a mixed batch incorporating material from another collection or collections, as well as from Herpes and Biron. It now appears that objects from northern France could have been added to it.

It may, therefore, be significant that, in 1891, when the Amiens material was acquired by the museum, Delamain was still excavating at Herpes, at a time when Baron de Baye was making controversial claims that the cemetery was Visigothic, while others insisted that it was essentially Frankish (Haith 1988, 74). In the face of such controversy, did Delamain attempt to bolster the Merovingian component of the material from Herpes by purchase(s) from northern France, or did he acquire material from this region simply to provide Frankish parallels for this component? It is an interesting question, but the point cannot be pressed on current evidence.

Let us return for the moment to the Reiling acquisition, as we have seen said to be from the Rhine/Moselle district, but more probably from northern France. It was bought from Reiling (a known falsifier of provenances to enhance the prestige of the antiquities he was selling), in 1902, and a further connection with the Amiens region or north-

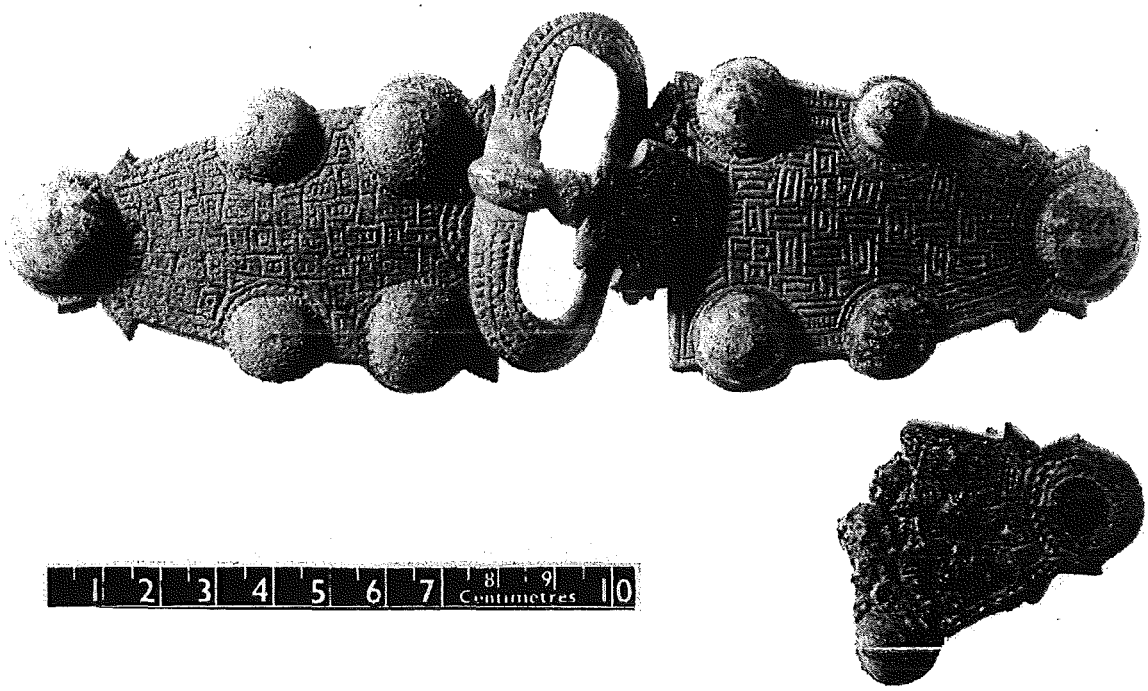
ern France is suggested by the presence in it of two gold filigree beads of a type (reg. no. 1902,11-8, 145) known from only one other Merovingian collection, that of C. Boulanger. The identical beads in this collection are mounted on a matching pin and earring from Corbie, near Amiens, and also on similar items, including a necklace, from Marchélepot, dép. Aisne (Boulanger 1902-5, pl. 39, 7 and 14; von Jenny 1940, pl. 41 centre). These gold beads are not certainly Merovingian, and are perhaps modern additions. It is also of interest here to note that a miniature square-headed brooch of Anglo-Saxon type, with no recorded provenance, in the Museum für Kunst und Gewerbe, Hamburg (inv.no. 1919. 305; Erä-Esko 1965, fig. 37) was acquired by that museum from Reiling. It appears to form a matching pair with a brooch now in the Pierpont Morgan Collection in the Metropolitan Museum of Art, New York, registered as found in northern France (de Ricci 1911, pl. 4, 49). The Delamain Collection contains ten such brooches (nos. 195-200 and 229-32). Of these it can be said, on the basis of somewhat uncertain documentary and photographic evidence, that only seven could be from Herpes, while the other three are effectively unprovenanced in the light of what has been said above (i.e. reg.nos. 1905,5-20,197, 200 and 231) A further two brooches of the type, with the provenance of Herpes, were among the objects in the Museum für Vor- und Frühgeschichte, Berlin, lost or destroyed during the Second World War (inventory nos. 1551-2; Haith 1988, 76, pl. Va). Among the Metropolitan Museum's group of these brooches said to be from northern France, two in fact appear on photographs of Delamain's marked "Mars 1893 - Herpes" and so could possibly also be from Herpes (Haith 1988, 76). In the same American collection there are a further five miniature square-headed brooches (including the one matching the Hamburg piece) where there is no reason at present to doubt their northern French origin, unless they too can be linked with Delamain (de Ricci 1911, pl. 4, 44-45 and 47-49). The type is occasionally found in that region.

On present evidence it thus appears that two objects from the Delamain Collection, said to be from Herpes, are probably from the Amiens region and at least one other may be, while three or four others could more generally be from northern France. The Reiling acquisition, which has one demonstrable connection with the Delamain Collection, may also have contained material from the Amiens region. It may be the source, too, for at least one miniature square-headed brooch in the Metropolitan Museum with the provenance of northern France, though Herpes is perhaps not to be excluded.

Although the number of correspondences is not high, it is quite clear that blanket provenances of "Herpes", for what is now known as the Delamain Collection, and "the Rhine/Moselle District", for the Reiling acquisition, are untenable. But how far they are fabrications is difficult to assess on current evidence. It is essential, therefore, that the findspots for these two groups of material are confirmed wherever possible from sources other than the museum registration, and that those stated in works of reference and other derivative publications in the past are checked for validity against the entries in the museum's Summary Catalogue currently under preparation. Pending further research, it would seem advisable, to avoid exaggerating the importance of the cemetery of Herpes, to say that only objects illustrated by Delamain as from Herpes (in print or the photographs referred to above) may be accepted as deriving from the site, though with reservations, or else are from Biron if so labelled. Apart from those objects from the Amiens region noted above, the bulk of what is known as the Delamain Collection is therefore of uncertain French provenance. Meanwhile a better idea of the true size and relative importance of the cemeteries of Herpes and Biron is perhaps only to be gained from geophysical surveys of the burial areas.

Research on the museum's other main collection of Merovingian antiquities has been more straightforward and has produced findspots, forgotten for almost a century, for a significant number of objects in it. This is the collection of Léon Morel, predominantly from the region of the Marne, which was acquired in 1901, but regrettably without any original documentation by Morel himself. Painstaking work in the past by my colleagues Cathy Haith and Dafydd Kidd has had many notable successes in identifying provenances from archival material, the scant publications, and the labels which were found on much of the pottery, but hardly at all on the metalwork. It is a pleasure, therefore, to record here the most unexpected discovery recently, by Mr Charles Poulain, president of the Société Archéologique Champenoise, of two manuscript albums prepared by Morel of important parts of his collection. The albums are in the Carnegie Library, Reims (Morel & Gastebois, n.d.) and were originally given to the municipal library by Morel's widow, in 1909, but they were never published or referred to in print by Morel or his contemporaries, hence their later neglect. Now, thanks to the friendly and timely notification of their existence by Mr Poulain, it has been possible, from the excellent illustrations the albums contain, to identify findspots for at least one-hundred-and-sixty objects (mostly from Album no. 1) and to confirm those of a

Fig. 3. - *a-b: Bronze buckle and non-matching counter-plate said to be from Herpes; and c: fragment of buckle-plate said to be from the Rhine/Moselle district (scale 2/3). Copyright British Museum.*



number of others that have been published. The items of jewellery and belt-fittings shown are mostly quite distinctive and have proved relatively easy to match with the extant objects. However, pottery vessels, and weapons and knives especially, have been more difficult to identify successfully, though still with some notable exceptions. The albums must be treated with a little caution as they appear to include one or two items from other collections, in the prehistoric period at least, and give dual provenances for three Merovingian objects which appear on plates for both St.-Loup and Le Meix-Tiercelin, dép. Marne. In some cases the plates illustrate objects which do not form part of the museum's Morel Collection either, but may have been acquired by French or German museums before the First World War.

Finally, as just one example of the results that research in the museum's own archives can still yield on its old collections, a closer provenance can now be given for an early-5th-century, garnet-inlaid gold buckle, of mainly middle Danubian/northeast Pannonian distribution, in the bequest of Sir Augustus Wollaston Franks, made in 1897 (reg. no. AF 510; cf. Bóna 1991, 252-4, fig. 39). The register states simply that it was found in Spain. This is the very general provenance repeated in Zeiss's early standard work on Visigothic Spain (1934, 31-1, 194, pl. 7,3). However, the discovery of an entry for the buckle in a manuscript slip catalogue for miscellaneous objects forming a small part of the bequest reveals that the buckle was, in fact, found near Córdoba. This new information makes it possible to suggest a historical context for the buckle, either in connection with the Vandal and Alan occupations of the countryside of Baetica, from 411/12-416/18 and 420-429, or perhaps with the Visigothic military action against them, on behalf of Rome, in 416-418.

The examples given above show that there can be danger in placing too much reliance on the original registration details when assigning provenances to old museum collections. They also show that the findspots given in subsequent publications, long accepted as authoritative, may in fact be derived from such potentially misleading information. This clearly underlines the need for more modern, scientific excavations, both to yield well-recorded data that can be relied on and, if possible, to re-examine the sources of these collections. On the other hand, there is still very much a positive side to continuing or initiating research on the latter themselves, as they may yet reveal a substantial quantity of important, but long-forgotten, evidence[2].

[2] I wish to thank my colleague Dafydd Kidd for his invaluable assistance and advice at all stages in the preparation of this paper, but he cannot be held responsible for the views expressed.

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Light and the Culture of Colour in Medieval Pottery

Light is something we take for granted, that we create through the movement of a switch. Light is not something archaeologists can recover or record and consequently its importance is rarely considered in interpretations of past ways of living. Light is something that we, as students of the past, need to understand, for the introduction or the creation of light, and its use, facilitated the activities, rituals and lives of our ancestor societies. Light is fundamentally important, yet at present it is rarely considered as a medium for comprehending how people behaved or how they perceived their environment. The hard archaeological evidence is unrevealing. Windows remain as evidence for the way of introducing light; lamps, lanterns and candlesticks for the means of its creation. Yet there is a more subtle way of approaching this problem and that is to look at the objects we find, the clues to the ways in which buildings were decorated, in an effort to understand what sort of environment past peoples created for themselves. Their perceptions can be revealed by the appearance of the objects they used.

This paper is specifically concerned with medieval pottery because that is my particular specialism but the philosophy behind this discussion should lend itself to the study of any type of object of any date. The basic premise is that the colours of medieval pots are related to the lighting conditions that medieval people were accustomed to. Some pots are brightly coloured and highly decorated, others are dull. This is related in part to vessel function but must also reflect the intended place of use and thus variations in lighting conditions. Furthermore, pottery colours may actually reflect a typical *absence*, rather than presence of light, or at least lighting at much lower levels than we are used to. This short paper therefore considers the ways in which medieval interiors were illuminated and how lighting conditions might affect the ways in which objects were perceived and designed. The basis of this discussion is a computer science research project which places medieval pots into simulated environments and introduces different types of illumination. This project is in its early stages but this is seen as an opportunity to show how even these preliminary developments can lead to new lines of enquiry of medieval ceramics. This paper therefore presents a philosophical discussion rather than hard evidence but in doing so hopefully suggests new lines of enquiry and thought.

Medieval lighting

As has already been inferred, archaeological evidence for the creation of light is relatively rare. The ceramic evidence is perhaps most commonplace on excavations and a variety of lamps and candleholders are known throughout the medieval period. These are generally portable types and are consequently small in size. It is difficult to envisage such objects being used to illuminate whole rooms. It is known, of course, that torches were extensively used and wall-brackets for these survive. Another source of light, and possibly a very important one, must have been the fires and braziers that were used to heat rooms. On this evidence it seems that the medieval interior must have been a flickering, smoke-beset world and perhaps this explains the bright colours used to decorate medieval objects and indeed rooms. The evidence for those is drawn primarily from manuscript illuminations and paintings, where furniture is often shown brightly painted, and walls display rich hangings.

It may, however, be the case that most of these things were not meant to be seen at their best in artificial light. The hours of daylight regulated preindustrial life and provided the fundamental means of illumination. In the present day, sunlight is almost irrelevant to the conducting of our lives; houses, offices, shops, factories are almost all permanently lit by artificial means. In the medieval period the sun was probably viewed as the only constant source of light and it is in the architecture that the best evidence for lighting can be found. Big windows provided lots of light but given the limited availability of window-glass they also brought draughts. Windows also

created a security risk, as is shown most obviously in castles. Indeed the largest windows may be found in ecclesiastical buildings, those which one might presume to have been least threatened. This provokes the thought that the provision of light on through such grand openings was as much a signal of devotion to God as the building of the entire edifice. Light and holiness seem almost to be related. The way light was used within a church or cathedral may also, perhaps, reflect the controlling aspects of ecclesiastical architecture. Medieval pottery, however, was used more frequently in a domestic environment and the windows in houses are therefore more pertinent to this discussion. Here, window size might be related to status. The windows in surviving English peasant houses are generally small, leading to the conclusion that warmth was more important than light, perhaps because the rural lifestyle was in any case governed by the rising and the setting of the sun. Rural manor houses, and the homes of late medieval yeomen farmers exhibited larger windows, as did medieval town houses. In all instances the window provided light for the carrying out of daily activities such as weaving and sewing. In towns, where jettying of upper stories often brought houses within a few feet of each other, windows had to be larger but they also allowed those sitting at them to communicate with their neighbours, as well as people in the street. The window therefore played an important social role as well as a domestic one. It is clear that different dwellings gave different lighting conditions. One might therefore expect the most brightly coloured objects to bee associated with the best lit settings and this is, to some extent true. The most highly decorated types of pottery, for instance, are not found at sites of the lowest status. However, that does not tell us how such objects were perceived by those who used them but simply how much light might have been available to see them by. It is an understanding of medieval perception that is being sought here and the next section considers ways of looking for that, if not necessarily finding it.

Light and colour

It was in the thirteenth and fourteenth centuries, the high medieval period, that English pottery was most elaborately decorated and given the brightest colours. There were dark grey pots, brown, red-brown, brick red, orange, pink and white ones, and those were not glazed. Medieval lead glazes tend either to draw their own colour from that of the clay beneath, thus a clear glaze on a white body appears bright yellow; or are themselves coloured by means of additives, so a bright green is created with the addition of copper. External glazing was almost certainly a form of decoration and it is hard to find any symbolic distinctions between colours in a medium which is inherently prosaic. At the same time, pottery played an increasingly important role in domestic life from the 12th century onwards and it seems to have been consumed at a high rate. The exuberant ceramic forms of the high medieval period coincided with many other cultural developments and at present it is the intention to concentrate on those types. The purpose is to examine the relationship between lighting conditions and the consumption of pots of a particular appearance by means of trying to find out how those pots might have looked in different settings.

Photo-realistic visualisation

Those settings are being created on a computer at the University of Bristol. A selection of pots of different shapes and colours are being computer-modelled and different environments and lighting conditions are being computer-simulated. The value of using a computer is the speed at which one can alter environments. Initially, it is necessary to simulate and measure the optical environment prevailing at the time. This will be achieved by using a controlled test environment, and simulating different conditions by filling it with smoke and dust. Optical measurements of the scene will be made, including replicas of medieval pots, under these murky conditions, using a hyper-spectral camera system developed at Bristol University for the purpose of scene analysis. Similar measurements will also be made of a restored medieval house in Southampton. The next goal is to be able to represent the scene on a high-quality stereoscopic computer display device. This will allow convenient inspection of the likely appearance of artefacts under conditions prevailing at their time of use, and it will be possible to examine the scene from different viewpoints. The fidelity of the reproduction process will be assessed by comparing human visual performance both in the original room and on the computer screen; if the optic arrays are similar in both cases then visual perception and discrimination would follow identical functions. Thus, it will be possible to use an operational measure of human vision to ensure the computer is representing the original scene with accuracy. Finally, the computer-based virtual environment will be used to assess the effects of smoke, dust and other particles on the appearance of a pot.

It is essential that any system for reconstructing and visualising ancient environments must be as

accurate as possible and flexible, allowing archaeologists to alter the scene parameters in order to investigate different hypotheses concerning the structure and contents of a site (Chalmers & Stoddart 1994). Over the last decade, computer graphics techniques have shown an astonishing increase in functionality and performance. Real-time generation of images has been made possible by implementing projective display algorithms in specialised hardware. With the latest graphical hardware systems it is now possible to walk through virtual environments and scenes and perform tasks within these environments. Although the image quality of projective methods is good enough for spatial impressions and for interaction in a virtual environment, it is not sophisticated enough for realistic lighting simulation. Only by simulating the physical propagation of light in the environment can something approaching photo-realism be achieved.

In computer graphics, the illumination at any point in a scene can be determined by solution of the *rendering equation* (Kayija 1986). Unfortunately, the general form of this equation involves a complex integral over the entire environment and, as such, photo-realistic computer graphics techniques are only able to approximate the solution. Of those currently in use, the particle tracing method is able to approximate most closely all the lighting effects in a closed environment (Pattanaik 1993). The particle tracing model follows the path of photons as they are emitted from the surface of the light sources and uses the reflected particle flux given by a large number of these particles pre unit time as a measure of the illumination of points in the environment. In this way, the particle tracing method is able to simulate direct as well as indirect reflection, diffuse and specular reflection, and the effects of participating media such as flame, smoke, dust and fog (Lafortune & Williams 1996). All these effects are essential for a physically accurate lighting simulation.

Conclusion

It may seem that computer-simulation will never approach the authenticity of finding a medieval house, filling it with pottery and lighting fires, torches and lamps. However, the time and resources needed for doing that are very restrictive. On a computer it is possible to change the shape of a room, the colours of the walls, the colours of the pots, and the quantity of light and smoke, with relative ease. That facility will open up new lines of enquiry. The project is in its early stages but it is revealing that so far observation shows that the appearance of the objects in a room changes with the colours of the walls and the angle of the light source. The constancy of the light source will also have an effect, hence the development of a flickering light and the introduction of smoke and dust particles.

This project is an attractive mix of archaeological intuition and philosophy together with hard science. The proposition is even more exciting when viewed as a voyage of discovery which is bound to open up new lines of enquiry and thought.

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Première réflexion a propos d'archéologie judiciaire dans le territoire de Basse-Silesie

La Basse Silésie est le terme géographique définissant la région située dans le sud de la Pologne, constituée par la vallée moyenne de l'Oder, avec la capitale à Wroclaw (env. 800.000 habitants). L'histoire de cette region est tres complexe; à l'époque du haut Moyen Age les terres de Basse Silesie étaient très liées à la nationalité polonaise naissante, bien qu'ils ont gardé, malgré le démembrement territorial (morcellement féodal) de la Pologne jusqu'au milieu du XIV[e] siécle, lorsque la Silésie s'est retrouvée sous domination tchèque et ensuite autrichienne. Elle est restée sous le règne de l'Autriche jusqu'au déclenchement de la guerre austro-prussienne en 1740. Après quelques dizaines d'années de guerre elle resta sous domination prussienne jusqu'à la fin de la deuxième guerre mondiale, en 1945, lorsque, suite à la restitution des frontières, la Silésie et la Poméranie de l'Ouest ont été récupérées par la Pologne.

Actuellement, la Basse Silésie est partagée administrativement en trois voivodies et Wroclaw demeure invariablement sa capitale depuis des siécles.

Mon intérêt pour l'archéologie judiciaire concerne précisement cette region de la Pologne en raison de sa spécificité, car s'est précisément dans les régions de Basse Silésie que l'on peut retrouver le plus grand nombre de vestiges liés a cette discipline de la science.

Cette science, classifiée en général comme science supplémentaire de l'histoire politique et judiciaire, est en effet un domaine très vaste et en constant développement

Le terme "archéologie judiciaire" (all.: *Rechtsarchäologie*) a été utilisé pour la première fois en 1889 par Charles von Amira, que l'on considère être l'inventeur et fondateur de cette discipline, et il s'est consolidé dans le monde des sciences en prenant une dimension internationale, ce qui a été à juste titre accentué par le prof. W. Maisel (Maisel 1982, 11).

Je regrette toutefois de devoir constater que les traditions polonaises de l'archéologie judiciaire en tant que science sont très peu remarquables, bien que deux études monographiques du prof. W. Maisel: "*L'archéologie judiciaire en Pologne*" et "*L'archéologie judiciaire de l'Europe*" ont sûrement apporté une grande contribution à son développement. Je crois qu'il faut considérer comme injustes les objections qui essaient d'identifier le terme "archéologie" utilisé dans ce contexte précis, à l'archéologie *sensu stricto*, étant la science dont la méthode de recherche fondamentale mais non unique est constituée par les travaux de fouille. Ces objections concernent une certaine inexactitude de la nomenclature, où "archéologie judiciaire" peut apparemment désorienter à cause de la polysémie du terme "archéologie" qui, utilisé dans ce genre de juxtaposition, peut susciter une question embarrassante: comment comprendre cette définition, littéralement ou bien au sens figuré? En réalité, l'archéologie judiciaire dispose d'un ensemble de méthodes de recherche trés vaste, où il ne manque de place ni pour les recherches de fouille, ni pour les analyses pénétrantes des sources écrites, effectuées par un historien du droit. Ainsi donc, on peut approuver le choix de Charles von Amira qui, à la fin du XIX[e] siècle, a accordé ce nom universel à ce nouveau domaine de la science.

L'étendue objective de l'archéologie judiciaire est liée aux études des vestiges matériels qui autrefois assuraient l'établissement et la mise en oeuvre des normes judiciaires. Il est évident que ces vestiges différaient entre eux par la fonction qu'ils accomplissaient dans l'immense machine juridique. On peut alors nommer "vestige" aussi bien le code pénal qui décidait de l'obligation d'accepter un ordre constitué par les normes juridiques, qu'un gibet étant une manifestation directe du pouvoir qui non seulement établissait la loi, mais pouvait aussi l'exécuter. Entre ces deux genres de vestiges tout à fait différents nous trouvons la place pour un groupe très vaste d'attributs, d'emblèmes et de symboles de la loi qui, en somme, constituaient la machine de l'administration judiciaire.

Il est difficile de parler d'un développement perceptible de l'archéologie juridique. Déjà par égard au tres large éventail de vestiges auxquels elle s'intéresse, nous pouvons conclure qu'en effet cette science couvre un domaine interdisciplinaire. L'appa-

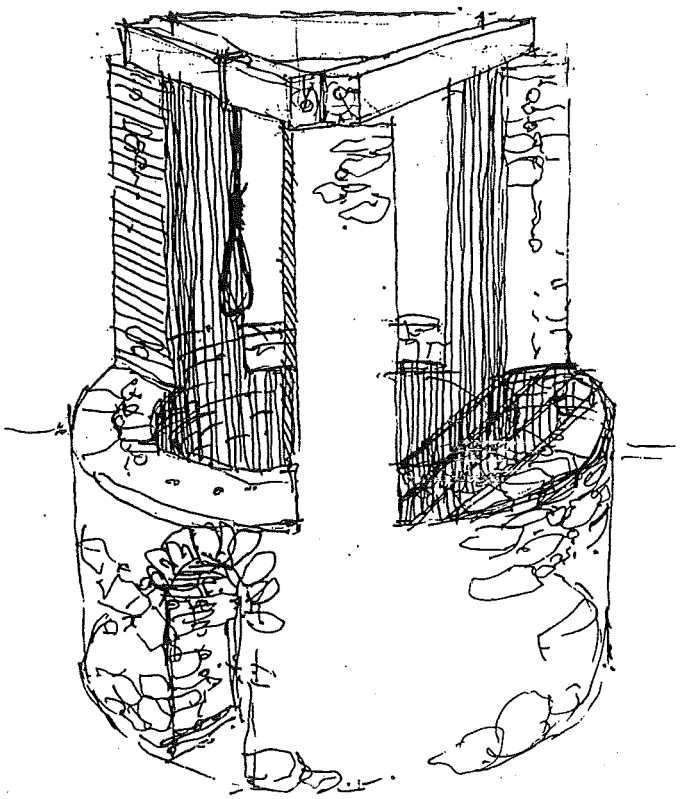


Fig. 1.

rition de vestiges de la juridiction ancienne était liée au caractère du droit pénal qui, dès le haut Moyen Age et jusqu'à la fin du XVIII[e] siècle, avait dans la majorité des pays européens un caractère décidemment féodal.

L'une des plus efficaces formes de manifestation du pouvoir au Moyen Age était le fait d'exécuter en public la plupart des châtiments, la peine capitale y inclus.

La diversité des châtiments corporels et la façon de les exécuter ont pris une dimension quasi rituelle. Dans la plupart des codes pénaux en Europe, depuis le Moyen Age jusqu'à la transition du XVIII[e] au XIX[e] siècle, la peine capitale était généralement mise en oeuvre et exécutée de différentes façons (le plus souvent par pendaison, décapitation ou par le supplice de la roue). La plupart des châtiments corporels étaient encore exécutés en public au début du XIX[e] siècle, lorsque par suite de la libéralisation du droit pénal on a aboli le caractère public de l'exécution.

Après plus de 500 ans d'hégémonie du droit pénal féodal, le législateur a finalement reconnu que les temps avaient changés, et initié une nouvelle ère d'établissements pénitentiaires, les prisons.

Comme réminiscences de l'ancien système pénal nous pouvons considérer les équipements et instruments retrouvables dans de nombreuses villes européennes et ayant servi à exécuter des châtiments corporels, tels que piloris et gibets que l'on rencontre parfois encore à leur emplacement original, et épées de justice et instruments de torture généralement conservés dans des collections publiques ou privées. Un nombre bien remarquable de vestiges de ce genre se maintient dans les villes qui ont été fondées en vertu de la loi allemande.

La Basse Silésie était soumise à la loi allemande depuis le début du XIII[e] siècle jusqu'à l'année 1945. Pendant des siècles se distingue la constance des normes de la loi allemande infligeant différentes sortes de châtiments corporels en conférant aux tribunaux municipaux des privilèges convenants. Cette régularité est confirmée par les sources juridiques originales, le *Sachsenspiegel* de 1225-1230, par le code pénal ultérieur de l'empereur Charles V, édité en 1532, ainsi que par le code de l'empereur Joseph I, édité en 1708. Considérant cette longue tradition dans la pratique des exécutions de châtiments corporels, il n'est pas étonnant que ce soit justement la région de la Basse Silésie qui abonde en vestiges de la juridiction ancienne, vestiges malheuresement gravement endommagés, surtout à l'époque d'apres-guerre.

Je m'intéresse beaucoup a cette question depuis quelques années. Le sujet de mon mémoire de maîtrise touchait au problème des gibets médiévaux et modernes conservés en Basse Silésie; apres avoir terminé mes études, j'ai décidé de continuer mes recherches en les élargissant aux deux groupes suivants de vestiges liés a l'archéologie judiciaire dans les régions de la Basse Silésie. Parmi les vestiges de la juridiction ancienne conservés en Silésie, j'ai choisi le groupe le plus nombreux et à mon avis le plus intéressant, groupant deux dispositifs très caractéristiques pour illustrer la législation médievale: le gibet et le pilori, ainsi qu'un attribut qui était non seulement un symbole de la justice mais aussi son exécuteur réel: l'épée de justice.

Gibets

Actuellement nous retrouvons en Basse Silésie les vestiges de six gibets en pierre. La conception des gibets en pierre apparaît, et ce non seulement en Silésie, à la transition des XIV[e] et XV[e] siècle et elle jouit d' une grande popularité surtout au XVI[e] siècle. L'histoire de cet instrument remonte évidemment à des temps aussi anciens que la peine capitale par pendaison, mais il est hors de propos d'en développer la genèse ici.

Suite à la consolidation des nationalités européennes à la transition des XII[e]/XIII[e] siècles, les villes ont commencé à jouer un rôle de plus en plus important. Un modèle tres spécifique pour cette nouvelle organisation de l'espace était le modèle de

la ville basé sur la loi allemande, connu à l'origine en Pologne par le droit de Magdegurg. Justement, ce modèle de la loi municipale organisait la structure de la ville en jalonnant le marché central et en partageant le quartier suivant ses fonctions en secteurs artisanaux, édifices d'utilité publique, églises etc. Dans cette conception de la ville bien ordonnée une place pour le tribunal et une place pour les exécutions ne pouvaient manquer.

En principe, le privilège de fondation d'une ville décidait de l'emplacement d'un espace destiné à l'exécution des châtiments. Dans de nombreux exemples de villes silésiennes (p.ex. à Wroclaw) cet emplacement était situé sur la place jouxtant directement à l'Hôtel de Ville.

Au Moyen Age il était très fréquent de rendre la justice en plein air et les lieux d'exécution se trouvaient dans le plus proche voisinage. Le fait de prononcer le jugement et d'infliger le châtiment en public résultait de la volonté du législateur d'influencer la société et de manifester son pouvoir en tablant sur les effets préventifs du spectacle, c'est à dire d'une action en justice non seulement intentée, mais également exécutée à la vue de tous.

Dès lors, la plupart des dispositifs servant à infliger les châtiments corporels étaient placés au centre de la ville, une constante qui concernait également les piloris et un certain groupe de gibets.

Dans la ville médiévale, le gibet était le plus souvent placé hors des murs, sur les collines visibles de la route menant à la ville. Cet usage de placer un gibet *extra muros* résultait de conditions sanitaires, car il était fréquent d'y laisser le corps jusqu'à sa putréfaction compléte – ce qui servait à effrayer et à avertir.

Il existait aussi de nombreuses villes qui possédaient deux ou trois dispositifs de ce genre, dont l'un, comme dans le cas de Wroclaw, se trouvait au centre de la ville: néanmoins, sur ce type de gibets *inter muros* on exécutait uniquement la peine, sans toutefois y exposer la cadavre de peur d'une épidémie.

Les six gibets ne sont malheuresement conservés que très fragmentairement. Ce sont des constructions en pierre, sur fondations circulaires de forme cylindrique (fig. 1). Le diamètre du puits d'un gibet de ce genre oscille entre 4 et 6 mètres, la hauteur de la couronne de murailles entre 2,5 et 3,5 m. Sur le couronnement de cette construction on installait 3 ou 4 piliers en pierre, entre lesquels étaient disposés des solives d'exécution ou bien des chaînes. La hauteur totale du gibet s'élevait généralement à 4,5-7 m.

On accédait à l'intérieur du puits par une seule entrée, fermée par une porte en bois.

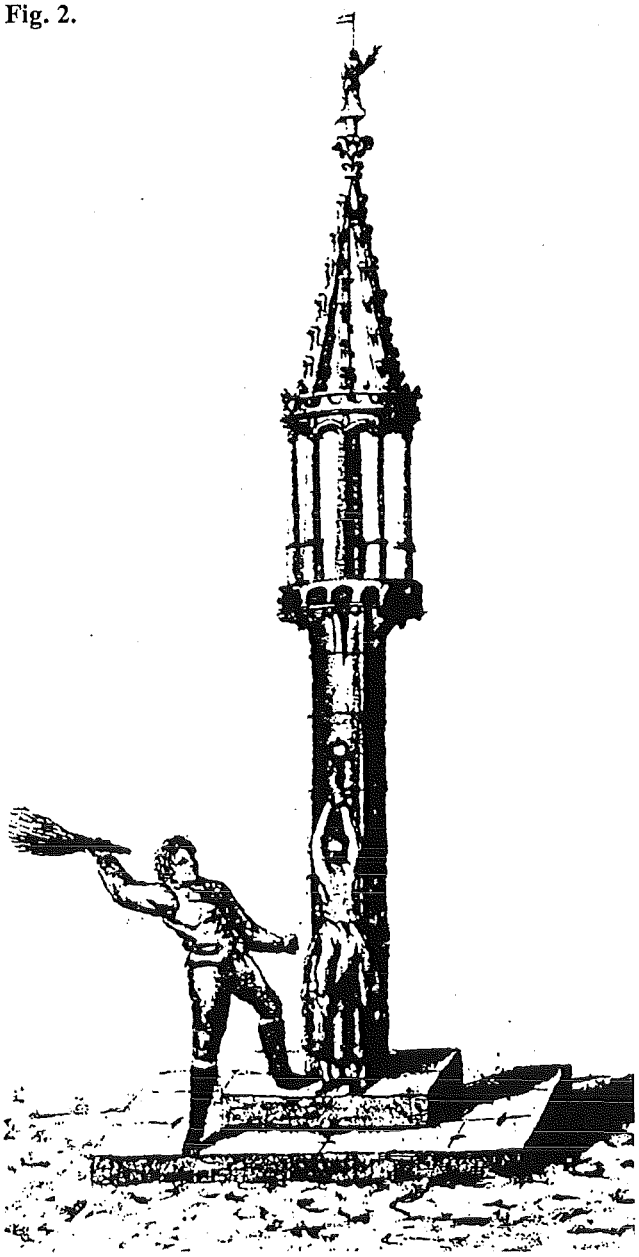
La peine capitale était exécutée à hauteur des murailles du puits, où se trouvait probablement un palier en bois (j'essaie de confirmer cette hypothèse, toutefois sans résultat jusqu'à présent). Sans doute le châtiment était-il exécuté à l'aide d'une échelle, ce que nous prouve la nombreuse iconographie.

Ce type de gibet en pierre permettait d'exécuter plusieurs criminels en même temps, tout comme le fameux gibet parisien – le gibet de Montfoucon.

La construction du gibets garantissait par sa hauteur et par l'entrée protégée le déroulement de toute l'exécution: elle protégait la personne du bourreau et plus tard, le corps du condamné contre un pillage ou contre une profanation.

Le caractère monumental de ces gibets ainsi que leur localisation sur les collines déboisées qu'on appelle jusqu'à aujourd'hui "les collines de potence" influençaient fort la société.

Fig. 2.



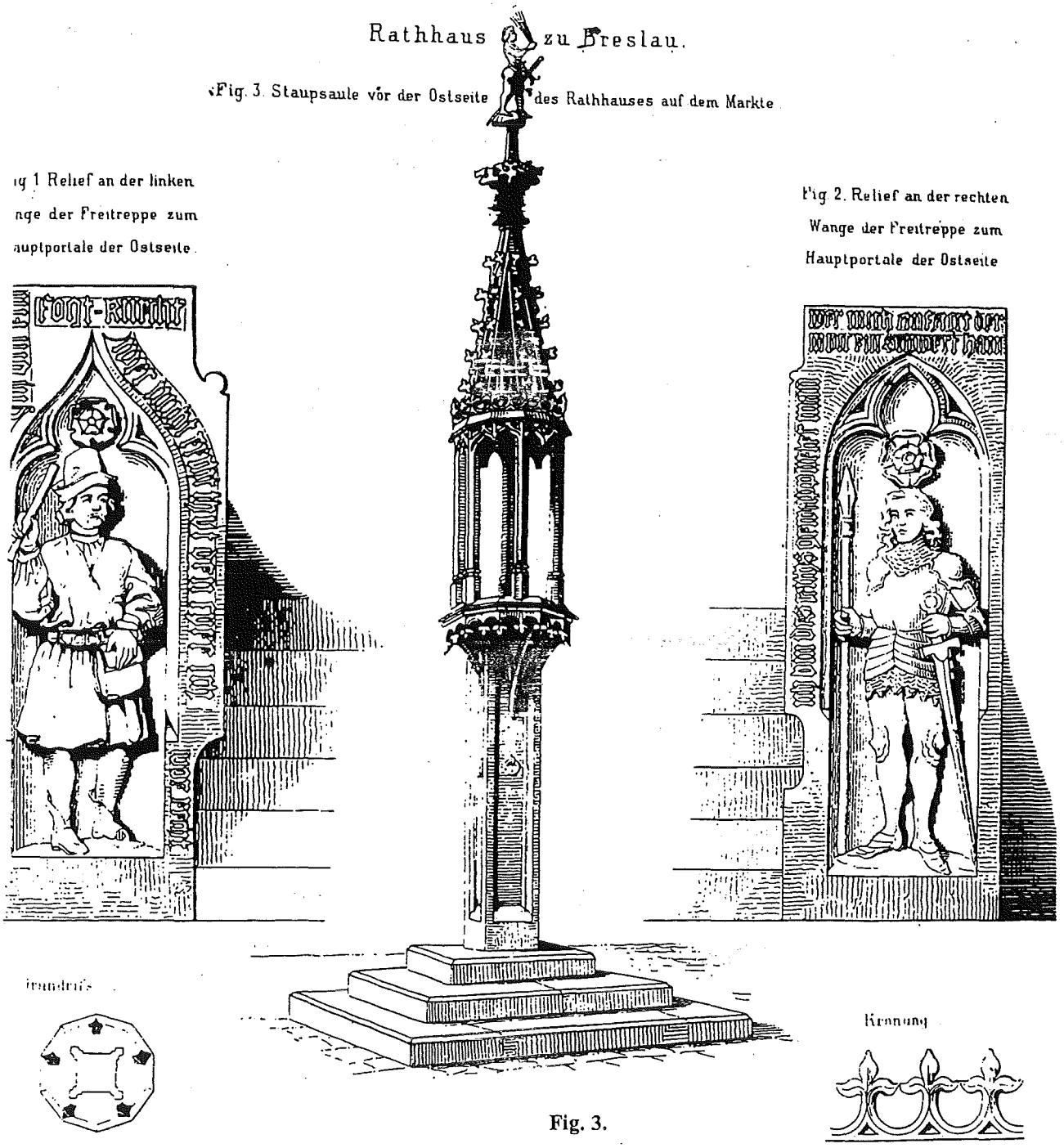


Fig. 3.

Dans deux de ces gibets j'ai exécuté des fouilles à l'intérieur du puits et quelques fouilles de sondage dans leur plus proche voisinage. Ces recherches avaient pour but de vérifier l'hypothèse d'un des chercheurs qui avait constaté que l'intérieur du gibet à Milków avait servi de tombeau pour les dépouilles des condamnés. Les recherches archéologiques ne confirment pas dans ce cas précis ce type de destination du lieu sous le gibet, mais peut-être les recherches dans d'autres gibets nous apporteront de meilleurs résultats.

Il est évident que, conformément au droit coutumier, les corps des condamnés de même que ceux des personnes décédées pendant une épidémie étaient enterrés dans des cimetières particuliers – quelques fouilles de sondage réalisées dans le voisinage de deux gibets y ont démontré la présence d'ossements humains.

Je suis certain que des cimetières particuliers étaient établis pour les condamnés à proximité des gibets, des cimetières très primitifs et non marqués. Leur découverte et étude exigent une reconnaissance du terrain, ainsi que de minutieux travaux archéologiques, ce que j'espère pouvoir réaliser dans l'avenir.

Les gibets en pierre apparaissent en Basse Silésie au XVI^{e} siècle, remplaçant les gibets en bois; ils sont restaurés au cours du XVII^{e} siècle et ne subissent une destruction qu'à la fin du XVIII^{e} siècle.

Au début du XIX[e] siècle les matériaux récupérés par le démontage de certains gibets silésiens (pierre, bois) ont été réutilisés pour la construction de ponts ou pour la rénovation d'édifices. Les vestiges de six gibets conservés jusqu'à aujourd'hui sont très endommagés. Malheuresement, les services de restauration ne s'y intéressent point et un touriste moyen ne se rend pas compte qu'il regarde les ruines d'un gibet historique.

Dans un seul cas on peut parler de protection partielle d'un gibet. Ailleurs, un café fut installée à l'intérieur d'un gibet, après exécution de changements convenables (fig. 7).

Depuis quelques années, je travaille sur la documentation des gibets silésiens en espérant de pouvoir la confronter avec des vestiges pareils dans d'autres parties de l'Europe.

Piloris

Le groupe suivant de vestiges liés a l'archéologie judiciaire en Basse Silésie, est constitué par les piloris en pierre, dont 16 exemples ont été inventoriés.

Le pilori servait a exécuter la plupart des châtiments corporels plus légers, ainsi que les peines de mutilation. Outre le supplice du fouet, on y infligeait les peines de stigmatisation, de privation des mains, des oreilles, des cheveux ou du nez. Ces peines étaient en plus aggravées d'une peine de relégation.

Le pilori servait également de lieu où l'on présentait en public les preuves de culpabilité en y suspendant les mesures et les balances fausses, en brulant des documents falsifiés, en versant du vin dilué. Aux piloris on attachait des criminels qui attendaient l'exécution de la peine capitale (Groicki 1954, 141), car la peine du pilori constituait elle-même une forme d'humiliation supplémentaire d'un condamné.

Les délits suivants étaient infligés d'un châtiment corporel exécuté au pilori: vol léger (stigmatisation et supplice du fouet), proxénétisme, prostitution (supplice du fouet), falsification des mesures et des poids, falsification de la marchandise (privation d'une main et supplice du fouet). Le plus souvent on prononçait des peines complexes où une peine de mutilation telle que la privation d'une main ou du nez était aggravée d'un supplice au fouet et d'une relégation.

La plupart des mentions concernant les piloris en Europe Centrale apparaissent dans les sources avec l'instauration du droit allemand au début du XIII[e] siècle. Ils sont construits en bois dur (chêne). Malgré restaurations et réparations, la durée de vie des piloris en bois ne dépassait guère quelques dizaines d'années. Déjà à partir de la moitié du XIV[e] siècle on peut observer dans les régions de Basse Silésie une sub-

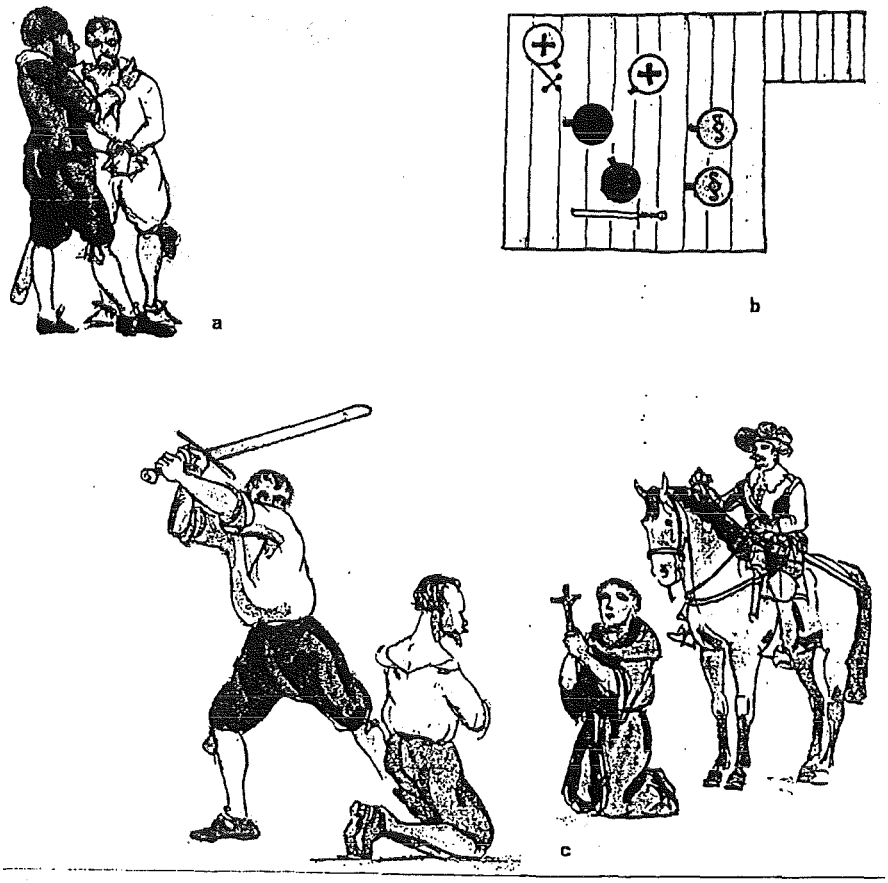


Fig. 4.

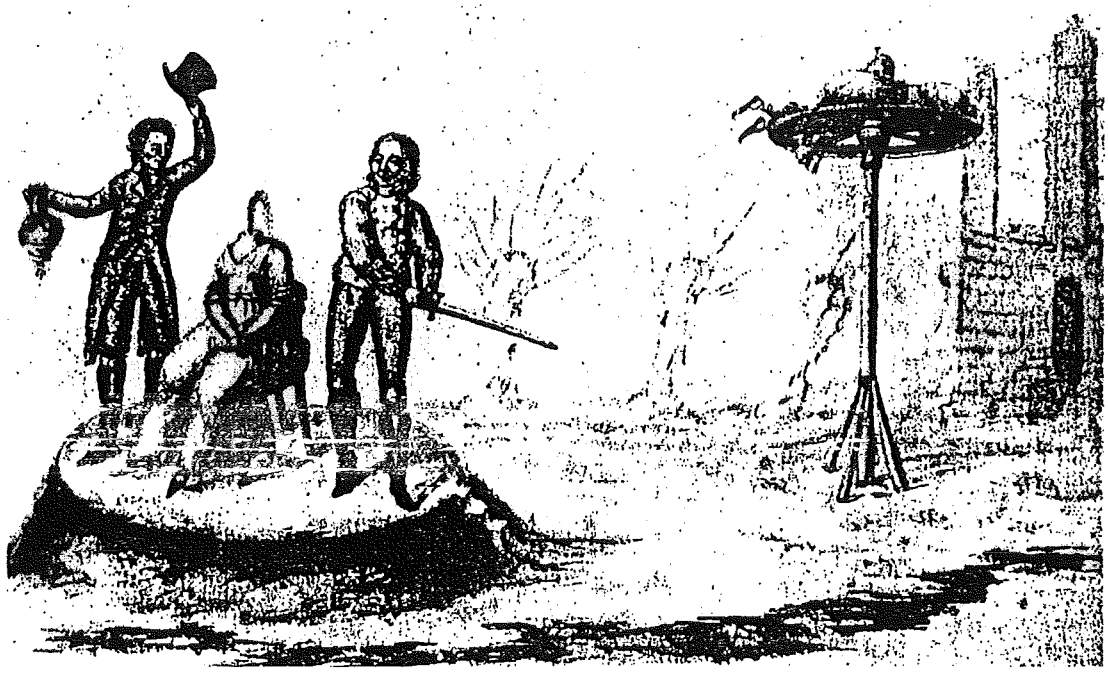


Fig. 5.

stitution de plus en plus fréquente des piloris en bois par des somptueux piloris en pierre, construits – comme c'était le cas à Wroclaw en 1492 – par les mêmes tailleurs de pierre qui travaillaient à la construction de l'Hôtel de ville (fig. 2 et 3). Une très remarquable augmentation de la qualité des piloris en pierre en Basse Silésie est visible surtout au XVI[e] siècle. Il est significatif que les piloris en pierre étaient construits dans la plupart des villes de l'Europe Centrale à partir du XV[e] jusqu'au XVII[e] siècles. La plus grande intensité de ce phénomène se situe à la transition des XV[e]/XVI[e] siècles. Il faut lier cette régularité au fait que les villes à cette époque, et surtout leur patriciat, s'enrichissaient beaucoup, et aussi à un désir de manifester la position du conseil municipal.

En Basse Silésie nous retrouvons encore 16 piloris en pierre, conservés dans un état très variable et datant le plus souvent des XVI[e]-XVII[e] siècles.

L'exemple le plus remarquable est une copie d'un pilori de Wroclaw qui, après sa reconstruction, se trouve à son emplacement original devant l'Hôtel de Ville.

Les piloris silésiens étaient le plus fréquemment liés au droit municipal et on les plaçait au centre de la ville, mais il est nécessaire de mentionner qu'on peut également rencontrer des piloris moins remarquables aussi bien dans des villages que près des châteaux (p.ex. le château de Chojnik à Karkonosze).

Epées de justice

Tout aussi représentatifs, non seulement pour l'archéologie judiciaire mais également pour tout le système ancien et moderne de la juridiction, sont les épées de justice (*gladius iusticiae*). A ce groupe appartiennent les épées de juge (étant seulement un attribut de l'administration de la justice et du pouvoir) et les épées de bourreau qui étaient les instruments servant a exécuter la peine de décapitation (fig. 4 et 6).

Ces épées sont à tort déterminées par un nom commun, comme épées de bourreau, tandis que juste une seule de ces deux catégories d'épées mérite une telle dénomination.

L'épée de bourreau était pointue et beaucoup plus lourde que celle d'un juge, elle aussi très souvent ornée sur la lame d'inscriptions qui proclamaient des sentences du bourreau ou du condamné. Très souvent on y plaçait une image du gibet ou de la roue d'exécution.

Le tranchant pointu et le poids de l'épée, qui variait entre 1,6 et 1,9 kg, devaient rendre un coup infaillible. Le bourreau qui n'avait pas réussi à décapiter un condamné d'un seul coup, était souvent lapidé, car l'exécution mal réussie prouvait apparemment l'erreur d'un juge et l'innocence d'un condamné (fig. 5).

En raison de leur caractère uniquement cérémonial, les épées de juge avaient une forme ressemblant à celle de l'épée de combat avec tranchant pointu. Elles étaient richement ornées (souvent avec des quillons et des pommeaux dorés) et les inscriptions sur la lame avaient un caractère tout à fait différent – elles présentaient le nom d'un fondateur, soit celui du conseil municipal, soit celui du juge.

En tant qu'instruments spécialisés, les épées de bourreau classiques apparaissent au moment où le

Fig. 6.

métier de bourreau subit une professionalisation, ce qui est lié à l'introduction de procédures de l'inquisition dans les tribunaux à la fin du XV[e] siècle, lorsque les tortures sont de plus en plus fréquentes et les dépositions forcées aussi bien que les dépositions d'un bourreau deviennent des procédés essentiels pendant une enquete.

Les dessins et les inscriptions placés sur les épées de justice nous procurent des informations iconographiques très intéressantes.

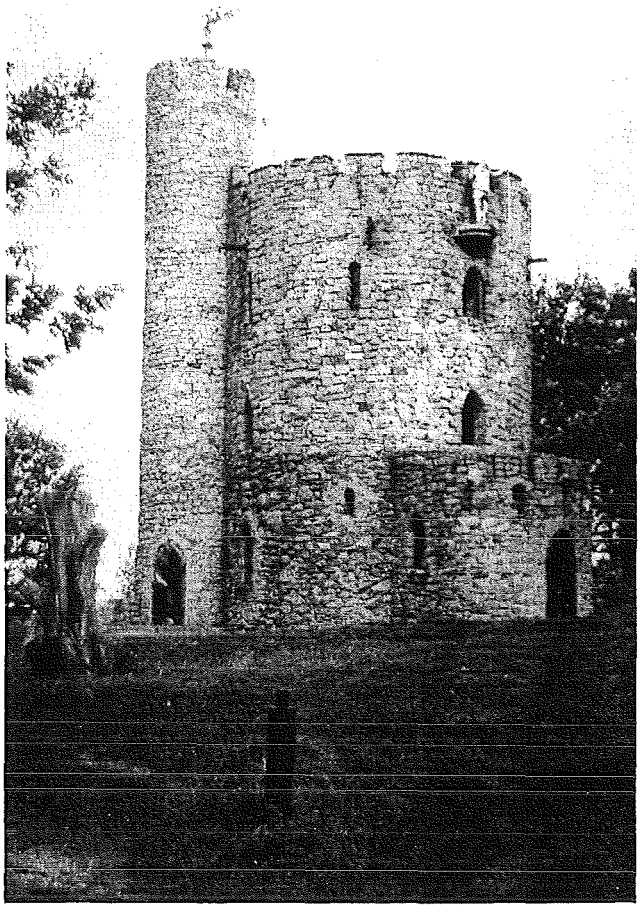
J'ai réussi à inventorier 23 épées de bourreau et 3 épées de juge en Basse Silésie. Malheureusement la majorité de ces vestiges ont disparu en 1945 et il ne me sont plus accessibles qu'en photo et par les descriptions publiées.

Je suis persuadé que les groupes de vestiges mentionnés ci-dessus, dont je poursuis l'inventorisation depuis quelques années, peuvent contribuer à une meilleure connaissance de l'histoire de la culture matérielle en Basse Silésie. L'études des gibets et des piloris nous permet de saisir une autre image de la ville médievale où les deux dispositifs, non seulement en Silésie, étaient inséparables et jouaient un rôle fort important.

D'autre part, l'étude des épées de bourreau nous procure de tres rares informations sur un des plus caractéristiques métiers médiévaux, celui de bourreau.

Dans la perspective de longues recherches je dois constater avec pleine conviction que l'archéologie judiciaire est une science interdisciplinaire. A plu-

Fig. 7.



sieurs reprises, en réalisant une reconnaisance de terrain afin de localiser les gibets, je puisais dans les méthodes de l'archéologie en effectuant des travaux de fouille et en documentant des vestiges.

Dans le cas des piloris, les sources écrites et iconographiques se sont avérées très utiles, tandis que dans la recherche des épées de bourreau, il était nécessaire d'accèder aux collections privées et à celles de musée, où on peut trouver encore des vestiges sauvés. Bien évidemment, la source essentielle de mes recherches était la reconnaissance de la littérature, où j'ai commencé mes investigations.

J'espère que la continuation de mes recherches me permettra de me consacrer aussi à d'autres groupes de vestiges liés à l'archéologie judiciaire et surtout de confronter la documentation recueillie avec des vestiges similaires dans d'autres parties de l'Europe, afin d'établir des analogies et divergences éventuelles.

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Les bassins scaldien et mosan durant la période mérovingienne
Bilans et perspectives
Résumé

1 Bilan

Le vieil archéologue posa sa brosse à dents et releva la tête.
Il avait tout essayé, les pinceaux,
les chiffons, les grattoirs...[1]

Les connaissances relatives à l'archéologie mérovingienne sur le territoire belge, ont beaucoup évolué depuis les années cinquante. La multiplication des sites étudiés, d'une part, et la réalisation de quelques études thématiques d'autre part, ont permis à l'archéologue de renouveler largement notre image de la Belgique mérovingienne[2]. Cette considération anachronique nous a cependant convaincu d'englober ce territoire politique contemporain dans une plus large zone, qui comprend le sud du territoire néerlandais (au sud du Waal) et les départements du Nord, du Pas-de-Calais ainsi qu'une partie de l'Oise et des Ardennes (au nord de l'Authie et du Chiers).

Les lacunes en matière d'étude synthétique régionale sont particulièrement perceptibles au regard de la distribution des études de ce type menées dans les régions contiguës[3] (fig. 1).

On peut considérer qu'aucune synthèse d'envergure n'a été menée très récemment, notamment selon les perspectives les plus attrayantes qu'induisent nos bassins mosan et scaldien: en vertu de leurs évolutions et caractéristiques propres comparées notamment. Il manque un travail qui allierait un état de la question général et exhaustif[4], à une "édition" systématique de sites détaillée[5]. En l'absence de répertoire exhaustif, les informations ne fut-ce que partiellement inédites échappent par exemple au lecteur dans les bilans synthétiques.

D'importants travaux ont cependant balisé les dernières décennies de recherche, et permettent aujourd'hui de mieux apprécier, voire de guider la mise à jour de nos connaissances. On compte parmi eux les synthèses de Germaine Faider-Feytmans 1953 et 1964, de Héli Roosens[6], de Jozef Mertens[7], d'André Van Doorselaer[8], de Jeanine Alénus-Lecerf enfin[9].

Les recherches thématiques constituent donc autant de bilans généraux mais partiels à la fois, du point de vue de l'occupation des territoires. Ils aident à une meilleure interprétation de chacun des phénomènes et sites recensés[10].

De même, les études consacrées à des catégories d'objets particulières ont permis de reconsidérer les systèmes typologiques et les catégories chronologiques les sériant jusqu'alors. Quelques inventaires typologiques ont été réalisés, relatifs aux boucles et plaques-boucles[11], aux fibules, aux céramiques mosanes[12]. Ils sont autant de mémoires édités, auxquels il convient d'ajouter de nombreux travaux de fin d'études inédits[13]. Concernant certains types d'ob-

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1 ORSENNA E., avec la collaboration de T. ARNOULT, *Histoire du monde en neuf guitares*, Paris, 1996, 9.

2 Introduction critique à l'archéologie funéraire de nos régions dans Dierkens 1981; introduction plus générale mais plus récente, en relation avec la révision de sites dans une étude régionale récente (Lorraine, France) notamment: Halsall 1995.

3 Voir, par exemple, les travaux de Böhner 1958 et l'évolution des études de Périn 1967, 1971 et, en particulier, 1980: *Analyse chronologique relative d'un groupe régional de nécropoles: un exemple dans le nord-est de la France*, 205-282; pour les études régionales plus récentes qui nous concernent, voir *supra*.

4 Voir les études de Theuws 1991, et de Verwers 1987 pour le sud des Pays-Bas; Faider-Feytmans 1953, 1964 et 1971 pour la Belgique.

5 Voir les exemple de Bellanger & Seillier 1982, Roosens 1949, Henderickx 1987; la série d'articles de W.J.H. Verwers, North Brabant in Roman and Early Medieval Times, *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek*, parmi d'autres.

6 Roosens 1949, 1968 e.a.

7 Mertens 1976, 1981 e.a.

8 Van Doorselaer 1981, 1985 e.a.

9 Alénus-Lecerf 1995 e.a.

10 Consulter Périn 1980 e.a., *La chronologie des sépultures mérovingiennes de ses origines à nos jours*, 5-93; le bilan plus récent opéré lors des XVe Journées internationales d'archéologie mérovingienne. Rouen (4-6 février 1994), in *Bulletin de liaison de l'Association française d'archéologie mérovingienne* 17, 1993; ainsi que les Actes des mêmes Journées, à paraître en 1997.

11 Plumier-Torfs 1986.

12 Tilkin-Peters 1986.

13 En ce qui concerne la céramique, de nombreuses citations

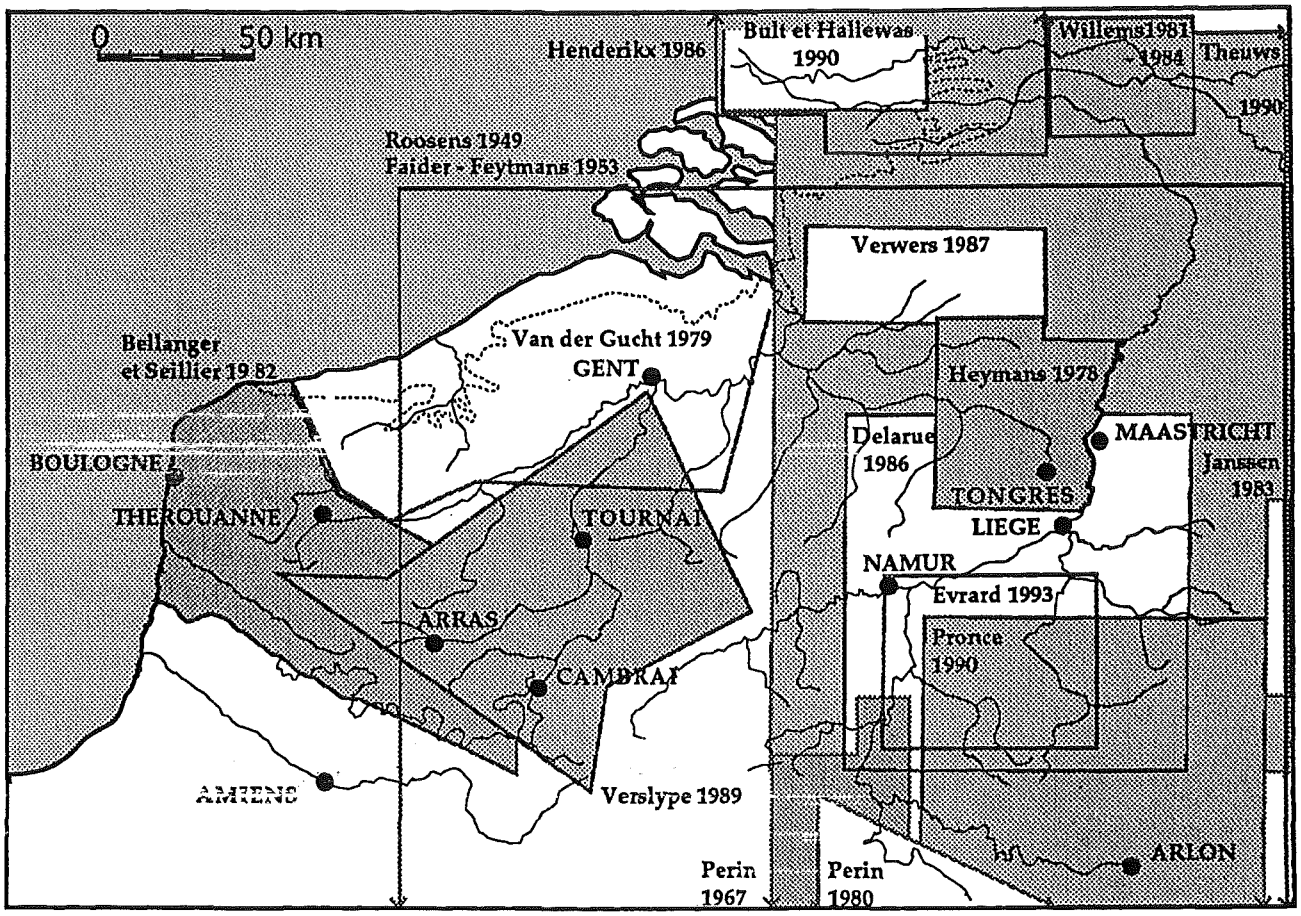

Fig. 1. - *Zones de notre territoire d'étude couvertes par les principales études régionales, le plus souvent éditées.*

jets, des contributions internationales ont incorporé nos territoires dans un traitement très large de l'information. Ces approches sont très inégales en fonction des chercheurs et de l'accès à l'information inédite (inventaires de collections par exemple) et des publications locales. Ils intègrent néanmoins nos informations dans de riches ensembles chronologiques et interprétatifs.

Les recensions régionales de sites au sein de catalogues alliant notices, bibliographie et approche régionale, sont plus nombreuses. Les inventaires locaux sont nombreux en Flandre à l'initiative de l'Université de Gent, dans la cadre des séries de la collection *Archeologisch Inventaris Vlaanderen*. Commune par commune, ils ajoutent la dimension des prospections pédestres aux inventaires bibliographiques généralement déjà connus bien que vieillis, pour l'ensemble de nos provinces cette fois. Il s'agit des répertoires bibliographiques de l'ex-Centre national de recherches archéologiques en Belgique.

Les mémoires de fin d'études universitaires sont plusieurs à approcher une région particulière, sur l'ensemble du pays (Antwerpen, Oost-Vlaanderen, Limburg, Luxembourg, Namur, Haut-Escaut, diocèse de Cambrai, dans les universités de Gent, Louvain-la-Neuve, Leuven et Lille). Leur désavantage majeur est la différence des critères selon lesquels le territoire étudié est circonscrit: territoires ecclésiastique, politique, hydrographique... Cela les rend donc difficilement complémentaires à l'inverse des études de communes.

Les catalogues d'exposition sont tout aussi importants. La partie wallonne du pays est principalement concernée pour les territoires ardennais et gaumais[14]. Les territoires flamands le sont plus ponctuellement, mais ont l'avantage de la précision, et d'être récents[15]. De plus amples contributions du même genre à pointer, telle l'exposition célébrant l'anniversaire du décès de Childéric[16]. Le nord de la France[17] fait encore l'objet d'initiatives d'envergure en la matière[18].

utiles en ont été faites dans Demolon & Verhaeghe 1993.

14 Lambert 1991; Périn 1987.

15 Deux exemples récents à Sint-Niklaas et Velzeke: Van Roeyen 1996 ; Lamarcq & Rogge 1996.

16 Coulon & Vlaeminck 1983.

17 Seillier & Demolon 1983.

18 Un catalogue important est attendu pour l'exposition de Valenciennes 1997.

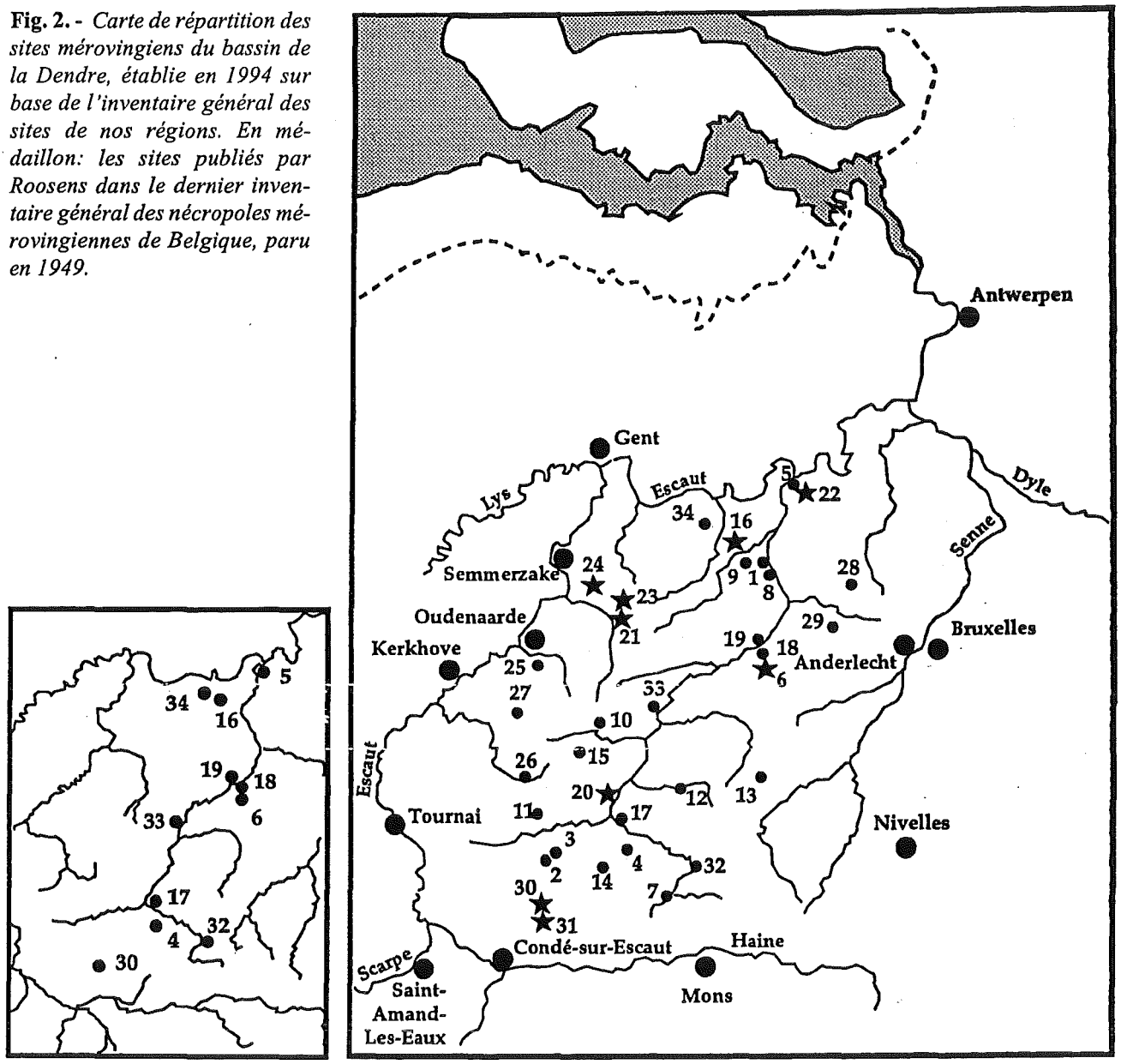

Fig. 2. - *Carte de répartition des sites mérovingiens du bassin de la Dendre, établie en 1994 sur base de l'inventaire général des sites de nos régions. En médaillon: les sites publiés par Roosens dans le dernier inventaire général des nécropoles mérovingiennes de Belgique, paru en 1949.*

Dendre:
1. Aalst
2. Aubechies
3. Blicquy
4. Chièvres
5. Dendermonde
6. Denderwindeke
7. Erbaut
8. Erembodegem
9. Erondegem
10. Flobecq
11. Grandmetz
12. Hellebecq
13. Hoves
14. Ladeuze
15. Lahamaide
16. Lede
17. Maffle
18. Meerbeke
32. Montignies-lez-Lens
19. Ninove
33. Overboelare
20. Rebaix
34. Serskamp
21. Strijpen
22. Sint-Gillis-bij-Dendermonde
23. Velzeke-Ruddershove

Entre Dendre et Haine
(sites non riverains de la rivière)
30. Basècles
31. Blaton

Entre Dendre et Senne
28. Asse
29. Wambeek

Entre Dendre et Escaut
(sites non riverains du fleuve)
24. Beerlegem
25. Etikhove
26. Frasnes-lez-Buissenal
27. Ronse

L'exposition qui fut consacrée à la verrerie mérovingienne en Wallonie, en 1993, figure au nombre des présentations de types de mobilier "privilégié", c'est-à-dire fréquemment exposés[19].

En matière éditoriale encore, deux Congrès ont respectivement fait le point sur les situations dans la région mosane et dans le bassin scaldien, à Kortrijk et à Amay[20].

A la confluence de ces genres éditoriaux, nombreuses sont les publications et les expositions

[19] Citons la réalisation récente d'Alénus-Lecerf 1993, malheureusement réduite à la seule Wallonie mais que complètent des initiatives analogues aux Pays-Bas, dans l'Ouest de la France et dans le département des Ardennes.

[20] Cfr Van Doorselaer 1981 et Otte & Willems 1986.

reflétant l'activité des nombreuses associations et institutions locales que comptent nos régions[21]. La diffusion, la qualité, l'exhaustivité inégales de la production scientifique ou exploitable n'occulte en rien l'avantage que procure bien souvent une excellente connaissance du terrain. C'est ici que l'on rencontre théoriquement l'actualité de la recherche de terrain. Les activités de cercles archéologiques (en Hesbaye-Condroz ou en West-Vlaanderen pour ne citer que ces exemples parmi d'autres[22]), de musées locaux (Zuid-Oost Vlaanderen, à Velzeke[23] et Musée Gaumais, à Virton[24] par exemple), d'institutions procédant à des recherches en milieu urbain particulier sont nombreuses (service propre de la ville à Gent, Direction des Fouilles à Namur, Université de Louvain-la-Neuve à Tournai, Musées Royaux d'Art et d'Histoire à Bruxelles, Musée provincial de Tongeren, etc), outre les recherches de programme et de sauvetage menées par les grandes institutions régionales de l'archéologie[25].

2 Perspectives

Mais, pour nettoyer les squelettes de nos ancêtres, rien, décidément, ne valait une bonne Butler à manche court et soie de porc douces.[1]

En dépit de la multiplication des données brutes[26], on peut considérer que les progrès enregistrés relèvent principalement du domaine des méthodes de traitement des informations plus que d'une augmentation de cette matière première. Les découvertes de sites nouveaux ont, à cet égard, un poids qualitatif accru et ne complètent pas seulement la trame d'occupation de nos territoires. C'est ici que les perspectives de la recherche nous promettent un véritable renouvellement des connaissances (fig. 2).

Le paysage nous semble donc connu. Il reste à le réinterpréter en mettant à profit ces connaissances acquises, progressivement augmentées des recherches en cours: c'est l'intérêt évident des inventaires et des chroniques [27].

Du strict point de vue de l'archéologue, le traitement de la masse des informations relatives aux mobiliers par des voies statistiques et informatiques, constitue le progrès le plus significatif des vingt dernières années[28]. La sériation de critères codifiés par la méthode de la permutation matricielle, étroitement identifiés à la logique des typologies archéologiques, a aujourd'hui révélé l'ensemble de ses défauts. C'est effectivement plus dans ses limites que dans ses possibilités, connues de longue date, qu'il faut chercher le fondement d'une critique efficiente. Les interprétations topochronologiques dépendent effectivement du bon usage des résultats enregistrés, après combinaison avec tous les critères observables[29]. Le renouvellement des possibilités d'interprétation des vestiges et de définition de ces critères d'approche est issu de recherches régionales et thématiques d'envergure, menées récemment en associant les données archéologiques et historiques.

Un autre progrès majeur qui marque les possibilités nouvelles d'interprétation de la société mérovingienne, néanmoins plus récent dans nos régions, touche à l'archéologie urbaine d'une part[30], et à

[21] Citons quelques exemples touchant notamment à l'archéologie funéraire: *Les sépultures, miroir du passé. Etude réalisée dans le cadre des manifestations «Hesbaye-Condroz. Pays de terre et de pierre». Musée d'Amay*, Amay, 1994. (Dossier 2); *Les premiers rites funéraires dans la Province de Luxembourg. De la Préhistoire au Moyen Age*, extrait de *Les vivants et leurs morts. Art, croyances et rites funéraires dans l'Ardenne d'autrefois. Musée en Piconrue, Bastogne, 1989*, Libramont, 1989; *Au temps des Mérovingiens. Place du Marché, Wéris. 3 avril-30 octobre 1988. Musée de Wéris*, Wéris, 1988; Evrard 1993, etc.

[22] Publiant régulièrement les *Bulletin du Cercle Archéologique Hesbaye-Condroz*, Amay et *Westvlaamse Archeologica*, jaarboek du Vereniging voor Oudheidkundig Bodemonderzoek in West-Vlaanderen, Kortrijk.

[23] Voir *Terug naar de bron. Kruishoutem archeologisch doorgelicht*, Archeologiche Inventaris Vlaanderen. Buitengewone reeks 2, Gent, 1993 et note 15.

[24] Publications de sites tels Torgny dans *Ardennes et Gaume...* et note 14.

[25] Voir e.a. les séries *Chroniques de l'archéologie wallonne* et *Archeologie* de l'Instituut voor het Archeologisch Patrimonium ainsi que les congrès annuels spécialisés ou provinciaux, en Flandre et en Wallonie.

[26] Tant de la part des institutions que des associations, cela est surtout dû aux nouvelles dispositions législatives nées de la régionalisation de l'archéologie nationale, qui ont accentué l'attention portée à la gestion quotidienne opérée au niveau local, naguère apanage des associations locales et de services plus ou moins éphémères tel l'ex-SOS Fouilles de la Communauté Française de Belgique.

[27] Cfr e.a. les chroniques spécialisées bien connues: dans *Archéologie médiévale* pour la partie française, et *Archaeologia Mediaevalis* en Belgique. Aux chroniques wallonnes déjà citées, ajoutons par exemple les publications de *Bilans scientifiques. Directions régionales des affaires culturelles. Services régionaux de l'archéologie* français synthétisant les activités de l'Association pour les Fouilles Archéologiques Nationales, des services urbains ou locaux; ainsi que les *Archeologische kronieken* néerlandaises dans diverses revues provinciales (Zeeland, Limburg, Noord-Brabant...).

[28] Lire Périn & Legoux 1993 ; et les nombreuses applications de R. Legoux en Picardie et dans le Nord.

[29] Nous attendons, cette année, la publication des *Actes des XVe Journées d'Archéologie mérovingienne. Rouen. 4-6 février 1994* qui firent le point sur les chronologies mérovingiennes: cfr *Bulletin de liaison de l'Association d'Archéologie Mérovingienne* 17, 1993.

[30] Voir Brulet 1990 ; Plumier 1996 ; les séries *Archeo-Brugge*

l'archéologie de l'habitat d'autre part[31]. Les perspectives nous sont désormais offertes d'aborder les statuts des sites, et d'affiner l'interprétation des structures en présence. Les recherches historiques avaient quelques longueurs d'avance sur ces points. La traditionnelle confrontation histoire-archéologie est aujourd'hui dépassée, tout autant que les simplistes corrélations d'antan, tentantes et attrayantes, mais souvent dénuées de sens critique aux yeux des historiens. On procède aujourd'hui à la relecture des sources historiques, et on accède à un meilleur examen des sites archéologiques, exceptionnels sous de nouveaux angles. La complémentarité des disciplines de l'Histoire n'a sans doute jamais autant été concrètement et sainement exploitée[32]. En outre, ces perspectives de recherches complètent l'approfondissement de thèmes spécifiques, qui offrent de réviser de grands objets d'étude telle l'archéologie funéraire ou la topographie religieuse[33].

Dans cette perspective, les périodes de transition drainent à nouveau l'attention, notamment par la mise sur pieds de programmes spécifiques de recherche (Bas-Empire, matériel dit germanique...), bénéficiant du renouvellement de nos corpus en la matière (habitats ruraux carolingiens, habitats romains tardifs, stratigraphies urbaines...).

Deux champs d'investigation complémentaires sont donc à présent renouvelés des points de vue de la matière même (sites nouveaux et publications), et des interprétations qui nourissent les hypothèses à leur égard: les milieux rural tant qu'urbain permettent effectivement de reconsidérer les modalités d'occupation de nos territoires, dont le long terme aboutit au tournant de l'an mil.

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31 Les contributions les plus novatrices nous viennent d'Ile-de-France et de Picardie notamment, des Pays-Bas également: Petit & Depraetère-Dargery 1993 et les contributions de F. Theuws ou H.A. Heidinga.

32 Demolon, Galinié & Verhaeghe 1994 et Lorren & Périn 1995.

33 Fixot & Zadora-Rio 1994 et Galinié & Zadora-Rio 1996.

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Jutes in Kent? Considerations on the Problem of Ethnicity in southern Scandinavia and Kent in the Migration Period

A short passage in book 1, chapter 15, in Bede's *The Ecclesiastical History of the English People,* AD 731, has long been central to historians' and archaeologists' interpretations of the origins of Anglo-Saxon England. In this paper I will introduce the problem of identifying archaeologically one of the peoples named in that passage, namely the Jutes. I will initially present the documentary evidence for the Jutes, as this continues to have a tremendous influence on archaeological interpretations. Secondly, the evidence for ethnicity in the early medieval period is discussed, and finally, I will present a predictive model of what a "Jutish" grave ought to look like. While the Jutes are recorded as settling in Kent, the Isle of Wight and the coast of Hampshire, I will here restrict my considerations to Kent, where the evidence from burials is most abundant.

Documentary Evidence for the Jutes

Only a small number of early documents name the Germanic peoples believed to have settled in Britain; the sources include Tacitus' *Germania* (late 1st century AD), Ptolemy's *Geography* (2nd century AD), Gildas' *The Ruin of Britain* (mid 6th century AD) and Bede's *The Ecclesiastical History of the English People* (mid 8th century AD). The Germanic peoples mentioned in these documents are mainly the Angles and the Saxons, and it is their roles as *foederati* or pillaging barbarians which are primarily recorded.

Of these sources, only Bede's *Ecclesiastical History* mentions the Jutes as a distinct ethnic group settling Kent:

> "They came from three very powerful Germanic tribes, the Saxons, Angles, and Jutes. The people of Kent and the inhabitants of the Isle of Wight are of Jutish origin and also those opposite the Isle of Wight, that part of the kingdom of Wessex which is still today called the nation of the Jutes. From the Saxon country, that is, the district now known as Old Saxony, came the East Saxons, the South Saxons, and the West Saxons. Besides this, from the country of the Angles, that is, the land between the kingdoms of the Jutes and the Saxons, which is called *Angulus*, came the East Angles, the Middle Angles, the Mercians, and all the Northumbrian race (that is those who dwell north of the river Humber) as well as other Anglian tribes. *Angulus* is said to have remained deserted from that day to this. Their first leaders are said to have been two brothers, Hengist and Horsa" (1, 15).

As this passage shows, Bede gives only vague indications of the geographical areas from which the three Germanic peoples originated, i.e. Saxons came from Old Saxony (or rather, "the region of the Old Saxons"), and the Angles from an area between the kingdoms of the Saxons and the Jutes. Even if we accept that these peoples existed in the 5th century, we still do not know what the ethnic terms imply. The people from Old Saxony split into three groups in England – the East Saxons, the South Saxons and the West Saxons; yet these may have been primarily political alliances formed around a king/war lord which were held together by a notion of common ancestry; this notion may or may not be based on fact.

Bede mentions Hengist and Horsa as the first Germanic leaders in Kent, and they are central figures in the Kentish invasion legend. S. C. Hawkes' suggestion that Hengist's brother Horsa should probably be seen as a later accretion to the story of Hengist; Hengist means "stallion" in Old English, and Horsa "horse" is generally accepted, but she argues that the traditional account of Hengist should not be dismissed as a myth on the basis of this later deification of Hengist and Horsa (S. C. Hawkes 1982, 65). Allegedly Hengist was a Jutish hero and leader of the group of federates invited to a "certain part" of Britain by the British "tyrant" Vortigern, according to Bede, *c.* 450 (I.14-15). Hengist is also mentioned in the Kentish chronicle in the *Historia Brittonum*, and features in the genealogy of Ethelbert.

The idea of a Jutish leader in Kent seems to fit in well with the archaeology since we see southern

Scandinavian *Prachtfibeln* and gold bracteates in Kentish cemeteries such as Bifrons, Finglesham and Sarre. According to S. C. Hawkes, "there can be little doubt that these were the burial places of some of Kent's ancient Jutlandic families who had come over in the 5th century and kept up their northern connections at a high social level for several generations" (1982, 70). The most recent archaeological work on this material from southern Scandinavia, however, dates it not to the beginnings of Hengist & Horsa's dynasty in the mid 5th century, but two to three generations later (see below).

Finglesham grave D3 is one of the few Kentish grave groups containing southern Scandinavian imports which can be dated securely. The square-headed brooch from Finglesham is a typical example of a relief brooch decorated in Style I ornament with its rhomboidal foot-plate decorated with two roundels and one animal head, and a border of *Tiermenschen*. The head-plate is decorated with geometrical and spiral patterns; the geometrical patterns reveal its relationship to late Roman art, and the spiral patterns are familiar from the early Sjörup Style, the predecessor of Style I (Haseloff 1981, 34-36). The close affinities to the late Roman art style and the Sjörup Style spiral patterns indicate that this brooch is early, and belongs to Haseloff's *jütländische Fibelgruppe*, group B, dated by Haseloff to AD 480-500 (Haseloff 1981, 173); three bracteates from the same grave are given similar dates (based on their metallurgical content) by Hawkes & Pollard (1981, 339). A date for the Finglesham grave D3 as a whole of *c.* 525 has been suggested by Haseloff (Haseloff 1981, 173). Another example of southern Scandinavia metalwork in a Kentish grave is the relief-brooch from grave 41 in the cemetery of Bifrons which has been given a date of manufacture of AD 500-520; the burial is suggested by Haseloff to have taken place in the mid 6th century (Haseloff 1981, 173). The dates of the Bifrons grave hinge on the relief-brooch which belongs to Haseloff's *jütländische Fibelgruppe*, group C – a more developed stage of Style 1. Group C is characterised by zoomorphic designs, in particular a human mask set between *Tiermenschen* or animals on the head-plate.

The recent study of gold bracteates in Kent by Hawkes & Pollard (1981) demonstrates that most of the bracteates were manufactured in the late 5th or early 6th century, and that the Kentish examples belonging to Mackeprang's Jutlandic Group 1 all are made from very similar alloys; some of the bracteates were even made from the same die. None of the D-bracteates, however, dates earlier than *c.* 475, which is a generation later than the alleged arrival of Hengist & Horsa, and many of them are buried at a much later date (Hawkes & Pollard 1981, 342-351).

The fact that a number of the D-bracteates share the same die is interesting and needs further comment. Two examples come from the Finglesham cemetery, graves D3 and 203. Grave D3 contained three D-bracteates belonging to Mackeprang Jutlandic Group 1, of which two were made from the same die; it also contained brooches which were very worn. The date of production of the bracteates is, as already mentioned, AD 475-500, and the date of burial is suggested to be AD 525-530 (Hawkes & Pollard 1981, 339). In other words, the D3 bracteates were between 25 and 55 years old when they were buried, and they were very worn. Another richly furnished woman's grave, grave 203, contained a pair of bracteates made from the same die as the pair from grave D3. But contrary to the D3 bracteates, this pair was only slightly worn, and the date of burial is suggested to be 550 at the earliest, i.e. the bracteates were at least 50-75 years old when buried. There is in other words a difference of about a generation between the burial of the two rich women's graves, and it is tempting to see these as the graves of mother and daughter (Hawkes & Pollard 1981, 339). That two bracteates, struck from the same die, were buried with a gap of about 25 years precludes explaining the presence of Scandinavian bracteates in Kent as a result of trade alone.

It is a much more likely explanation that we are dealing with heirlooms – antique indicators of status belonging to one family. It seems likely that the lady in grave D3 had been wearing her bracteates all her adult life – they were very worn and had been repaired (Hawkes & Pollard 1981, 356-7). The bracteates in Grave 203 were much less worn, and the woman could only have been wearing the bracteates for a short period of time when she died, aged 25-30 (Hawkes & Pollard 1981, 158 and 333). These bracteates were, however, manufactured at the same time and in the same workshop as the bracteates from Grave D3; this strongly indicates that all four bracteates were acquired by one family, and kept for the next female generation.

Ethnicity in the Early Medieval Period

The second part of this paper is intended to introduce some theoretical considerations of ethnicity and migrations in the early medieval period, and to discern the key characteristics of southern Scandinavian burials.

Documentary, material and skeletal evidence can arguably be used to help to clarify ethnicity in the

migration period. I will first address the main arguments of scholars in the field who have dealt with questions related to ethnic identity in the early medieval period in different, but related ways. Geary and Pohl belong to the so-called Vienna School of historians who have reassessed the question of ethnicity and treated it systematically in its own right; the Danish archaeologist Hedeager focuses on state formation and the role of the elite for creating symbols of national identity, while Härke introduces the biological aspect to the discussion of ethnic identity. The following review of the works of these (and other) scholars is discussed with particular reference to southern Scandinavia.

Following this "theoretical" introduction, I will turn my attention to Jutland as a specific area in which the evidence for ethnic groups has been evaluated. This second section is partly based on studies by Ringtved (1986) and Høilund Nielsen (1991), and partly on my own research into the cemeteries of Hjemsted and Sejlflod.

The concluding, third section is intended to provide a predictive model of the kinds of features the grave of a Jutlandic immigrant in 5th-century Kent might display. Issues concerning ethnicity, such as assimilation, are also discussed in this section.

Documentary Sources

There is general agreement that ethnicity in Migration Period Europe cannot be understood as an objective category with set criteria or content (Geary 1983; Pohl forthcoming; Hedeager 1992, 1993; Härke forthcoming). In the words of Geary, ethnicity in the migration period "should be viewed as a subjective process by which individuals and groups identified themselves or others within specific situations and for specific purposes" (Geary 1983, 16).

Ancient written accounts such as Tacitus' *Germania* (late 1st century AD), Ptolemy's *Geography* (mid 2nd century AD), Gildas' *The Ruin of Britain* (mid 6th century AD), Gregory of Tours' *History of the Franks* (late 6th century AD), Bede's *The Ecclesiastical History of the English People* (mid 8th century AD), and Regino of Prüm's *Chronicle* and *Epistula ad Hathonem* (early 10th century AD) mention peoples, titles, geographical location, customs and laws of various groups of people. These sources, however, are vague and inconsistent and do not define the terms used and the peoples presented. Furthermore, there is the familiar problem that the sources on the whole are much later than the events which they describe; this fact makes the information which the written sources provide on Migration Period peoples dubious.

Pohl argues that the lists of ethnic groups which appear in the early sources served a different purpose than has generally been appreciated (Pohl forthcoming). These authors, he argues, did not make objective observations about peoples, customs, laws etc., but put together a text or narrative in order to create a certain impression – "their aim was not ethnographic but atmospheric" (Pohl forthcoming, 8). Pohl notes how the names of peoples "corresponded to the image these peoples had among contemporary writers", such as linking greed and avarice with the Avars (Pohl forthcoming, 10). The names of peoples should probably be understood in the same way as other narratives, such as epics, histories, and myths (see below). Taking Bede as an example, Pohl wonders whether the names listed in the *Ecclesiastical History* (1.14, 1.15 and 5.9) "reflect contemporary self-perceptions and identities, or are... influenced by classical traditions" (Pohl forthcoming, 9). According to Pohl, the names of these peoples must be understood in a classical context because it was in this tradition that the early writers wrote: the terms known and used by ancient authors to describe barbarian peoples belong to a post-Roman and Christian universe and can therefore hardly "adequately describe ethnogenetic processes" (Pohl forthcoming, 9).

Geary argues that the fact that these early sources name peoples at all suggests some degree of ethnic consciousness. Geary sets out to examine the circumstances in which the ethnic identity was relevant, and argues that four criteria – origin, customs, law and language – were picked out by early authors as fields in which peoples differed. Geary argues that these categories are "fluid and in a sense arbitrary" (Geary 1983, 19). The main source for Geary's discussion of ethnic identity in the early Middle Ages is a passage in Regino of Prüm's *Epistula ad Hathonem*[1]. In this letter, however, Regino does not specify the *nationes popularum*, nor does he explain in any detail in what ways these peoples differ. Indeed, Regino of Prüm has a poor reputation as a historian, and is a particularly problematic source for the early Medieval Period, especially for the time preceding 813. Much of his work was copied from known sources like Bede (Rau 1975).

Geary concludes that there is one situation in which ethnic names and terms consistently occurred in the migration period, namely warfare (Geary 1983, 22). Considering that Regino of Prüm is Geary's primary source, we need no attach any particular weight to this conclusion. Regino's book II of his

1 *Diversae nationes popularum inter se discrepant genere moribus lingua legibus.*

Chronicle is a history of the Frankish kings and of the development of the Frankish kingdom(s). It is therefore hardly surprising that when peoples are mentioned, it is in connection with warfare. Geary argues further that peoples in the migration period "acquired their ethnic identity through the royal or ducal families alongside whom they fought" (Geary 1983, 22), and that this adherence to a certain king/war lord continued long after territorialisation. In this respect Geary follows some of the points raised by Wenskus in *Stammesbildung und Verfassung* (1961) in which Wenskus argues that the political community, which must imply affinity to a king/war lord, was a very important aspect of the ethnic identity of a Germanic people, and he suggests that settlements were primarily political communities (Wenskus 1961, 45-46).

This idea has been developed by Hedeager for southern Scandinavia (Hedeager 1992; 1993). Hedeager's studies of state formation in southern Scandinavia focus on the importance of the king and of political alliances in the creation of a Germanic identity in the Migration Period (1987; 1992; 1993). The emerging warrior elite in *Germania* was according to Hedeager, "not only based on the old kinship systems but also on personal alliances and political friendship" (Hedeager 1993, 122). She argues, that this development took place all over free Germany, and that Germanic identity was based on a Scandinavian, pagan origin myth which legitimised the social status of the warrior groups and warrior kings, including the system of loyalty and gift-giving (Hedeager 1992, 281; 1993, 121-123).

Hedeager argues that the development of this Germanic identity began in the 3rd and 4th centuries AD in southern Scandinavia when the warrior elite displayed its position of power with Roman imports, such as drinking sets (Hedeager 1987; 1993, 123). In the migration period there appears to have been a need for a more subtle, national power "language", and the Germanic animal art style which developed in the areas of the new elites, such as the area of the Danes, seems to have been part of this language (Hedeager 1993, 123). The zoomorphic ornamentation identifies the warrior elite in a similar way as the Roman imports had done. Similarly, the Germanic art style apparently also took on an identity creating function by acting as a symbol of the new "nations". In this way, material culture illustrated a new political (and "ethnic") consciousness which centred on the warrior king (Hedeager 1993, 123). The influence of late Roman art styles on Germanic zoomorphic designs has already been noted above. Another example of Roman symbols being taken over in Germanic contexts is that of the gold bracteates (believed to be typical of Jutish regions) which were imitations of Roman medallions or coins featuring the Emperor's head, and which developed into true Germanic design through time.

Hedeager's theory about the elite actively using the symbolism of Germanic animal art finds support in the work of Høilund Nielsen (1991). Høilund Nielsen has studied the elements of Germanic animal ornament in the 6th-8th centuries AD (i.e. Sahlin's Style II) with particular attention to the distribution of style elements, and what this suggests concerning the social and political organisation of different regions in Scandinavia. She argues that Style II elements should not be seen as ethnic markers since these elements are not defined geographically, but only chronologically; instead they reflect social development and contacts between regions (Høilund Nielsen 1991, 135). Høilund Nielsen's assumption is that the fact that Style II was only used on high status objects suggests a socially mobile society in which the claim to power was not generally secured, but had to be achieved; status was expressed through conspicuous use of wealth and imports in, for example, the burial rite (Høilund Nielsen 1991, 128). In the opposite case, where wealth is not displayed and where Style II was no longer limited to the elite, social mobility was limited, the elite firmly established, and there was no need to "confirm" the social hierarchy in the burial rite (Høilund Nielsen 1991, 128). This latter type of society characterises southern Scandinavia in the 7th century where the elite has established its claim to power, and the former elite symbols have become widely available to the population (Høilund Nielsen 1991, 146). Following Hedeager's theory, the Germanic animal art style became a medium through which the Germanic identity myth is expressed.

According to Hedeager, the majority of Germanic peoples adopted some form of a Scandinavian migration myth to explain the origins of their people (Hedeager 1993, 124). Perhaps the Kentish origin myth should be understood within this framework. The myth of Hengist as it is expressed in later sources features a Jutish war-lord, the people adopt certain Scandinavian dress items and they are called Jutes by later writers such as Bede. While it is possible that the story of Hengist is a constructed origin myth without any factual roots, it seems most unlikely that this story does not have some kernel of truth. That southern Scandinavian gold D-bracteates and *Prachtfibeln* occur in some of the early graves does not, however, prove the ethnicity of the deceased. As discussed above, political alliance to a war-lord must have been essential for successful group formation in the migration period. What we could be seeing in southern Scandinavian objects, therefore, is not a

reflection of an actual ethnic origin, but rather an attempt to "confirm" such allegiance to the king and the according origin myth.

This discussion of ethnic identity in the early medieval period has so far focused on ethnicity as a purely cultural phenomenon. Härke's work on the skeletal material from early Anglo-Saxon inhumation cemeteries in southern England complements the cultural discussion (1992; 1995; forthcoming). Härke's work focuses on the processes of ethnic interaction and assimilation in Migration Period England – processes which have not generally been included in the debate on English ethnogenesis. This debate has been hampered by the dispute about the size of the immigration (such as whether it was elite transfer or folk migration) without regarding other aspects of migration processes. Härke encourages a renewed debate about skeletal material as a guide to demographic history. While recognising that the ethnic identity of an individual is defined culturally rather than biologically, and that material evidence can reveal what Härke calls "a *cultural* statement of *perceived* group affiliation" (Härke forthcoming, 2) a problem arises when one considers the ethnicity of a people whose burial rite does not include grave goods, for example. This is exactly the case in post-Roman Britain. The Roman retreat left a gap in the archaeological record which was subsequently filled by immigrating Germanic groups. The indigenous, surviving Britons, however, are difficult to find archaeologically.

Härke's study of the weapon burials of southern England shows that the inclusion of weapons in nearly 50% of 5th and 6th-century inhumation burials in Anglo-Saxon England was not determined by the ability to fight or the experience of fighting (Härke 1992; forthcoming, 4). Instead the main difference between weapon burials and non-weapon burials appears to have been one of stature, as the men buried with weapons are on average 2-5 cm taller than men buried without; this suggests that the interpretation of burial rites should include biological, as well as social and environmental factors (Härke 1992; forthcoming).

The chief implications of Härke's work are that weapon burials do not equal warrior burials, and that the men buried with weapons were primarily of Germanic stock while substantial numbers of native Britons were buried in Anglo-Saxon cemeteries. Furthermore, if he is correct, Härke's analyses of the 5th and 6th-century weapon burials indicate that the immigration into southern England was not uniform. Judging from the different proportions of weapon burials, Härke suggests that the number of immigrants varied and that there are (at least) three different ways in which the Germanic immigrants would have settled in Britain: co-existence, war-band, and elite transfer (Härke forthcoming, 5-8).

The inclusion of skeletal evidence in interpretations of burial rite is welcome, but unfortunately the number of Anglo-Saxon cemeteries which are available for analysis is too small to provide statistically valid observations concerning demography (cf. Hamerow 1994b). In addition, the difference in height of 2-5 cm between men buried with and without weapons could be explained by diet, rather than ancestry, or by the treatment of the skeletal material. There are several ways of calculating the height of an individual depending on which bones are available for study, and it must be stressed that the estimation of height of a given individual can easily vary by 5 cm depending on which bones were preserved (Brothwell 1981, table 5).

In conclusion, there is general agreement among recent researchers that ethnic identity in the early medieval period was a flexible concept which was both subjective and situational, but not random. Wenskus, Geary and Hedeager argue that ethnic identity was centred on allegiance to a king/war-lord, and in this way ethnicity can be understood as one element of a social strategy which creates traditions and a sense of unity. The ethnic practices which took place according to a certain "migration period grammar" may not make sense to us today. Ethnicity appears as a code which needs to be cracked in order to understand the period. Both Hedeager and Høilund Nielsen suggest that burial rite in the establishment phase of an elite or dynasty is often very rich in order to strengthen and legitimate the elite's position, and that a burial rite characterised by conspicuous consumption of wealth ultimately reflects social stress. Perhaps the rich burials from Kentish inhumation cemeteries with many imports and prestige goods dating to the late 5th and 6th centuries AD can be interpreted as founder graves of a new social group which tried to establish itself in this period. This is echoed in Anthony's model based on ethnographic data of *migration streams* which suggests that people typically migrate along familiar routes toward a well-defined destination: "Stream Migration will carry regionally defined artifact types from a circumscribed home region to a specified destination. Innovation in the new home might then lead to a sort of artifactual 'founder's effect'" (Anthony 1990, 903).

Migration Period Culture in Southern Scandinavia

In this section, 5th-century inhumations from Jutland are considered for the purpose of identifying

their key characteristics. The premise for this discussion is that parallels between objects or groups of objects need not imply a migration of a people. Other mechanisms such as trade could produce similar parallels in the material culture between two areas. To postulate a migration, we need to demonstrate similarities in burial rite, in its widest sense, not only in terms of dress style, but also grave type, cemetery lay-out, building styles, land use etc.; the following work is based on cemetery evidence which is abundant. We need to find burials whose features, body position and grave furnishing correspond to what we would expect of a burial from Migration Period Jutland. Until we have identified this in a reasonable number of cases, we cannot speak of a "Bedian" migration of Jutes from Jutland to Kent.

This section is based mainly on Ringtved's work to identify regional groupings in Jutland in the Iron Age, *c.* AD 150-550 (Ringtved 1986; 1988) and on my own studies of the cemeteries of Sejlflod[2] and Hjemsted. In her work, Ringtved has postulated two distinct regions in Jutland based on differences in burial rite – a northern and a southern region – and her results are central to the consideration of the ethnicity of the peoples inhabiting Jutland, and to the question, whether there was a distinct group viz. "the Jutes" in Jutland in the Germanic Iron Age. The two regions, she argues, can be distinguished in a range of spheres such as burial rite, grave assemblage, building tradition, pottery types and decoration, brooch types, and hoarding practice; these regional differences persist throughout the period.

My analyses of the 5th-century graves from the cemeteries of Sejlflod in northern Jutland and Hjemsted suggest difficulties in maintaining Ringtved's north-south division of Migration Period Jutland. Each "region" is largely represented by a single cemetery which may be atypical, and – based on the mortuary remains alone – I am not convinced that the suggested regional differences are significant. The most striking difference between the two cemeteries is the choice of coffin. In both cemeteries, the vast majority of bodies were buried in coffins; at Sejlflod a plank coffin was chosen in almost all cases, whereas a trunk coffin was preferred at Hjemsted. Other minor differences can be seen in the distribution of clasps: Hines Class A occur in both north and south, while Class B is found only in northern Jutland. At both cemeteries, the majority of the graves contained at least one piece of pottery (73% at Sejlflod and 86% at Hjemsted), and both cemeteries had an iron knife as the second most common object. However, at Sejlflod iron knives were found in 66% of the graves, as opposed to only 36% of the graves at Hjemsted; also the percentage of brooches in the graves differs, being 15% at Sejlflod and 31% at Hjemsted. The differences indicated by the percentages, however, may be more apparent than real, as it must be remembered that the two sites vary enormously in size – Sejlflod had 151 and Hjemsted 36 5th-century inhumations. The as yet limited evidence for major differences in burial rite between Sejlflod and Hjemsted is insufficient to suggest actual differences in burial rite between northern and southern Jutland which could indicate different ethnic affiliations. The two cemeteries share the same general characteristics regarding grave goods and burial rite, and until demonstrated otherwise, we should treat Jutland as one cultural area.

Assuming that Sejlflod and Hjemsted are representative of the burial rite in Jutland in the 5th century AD, I will suggest a predictive model of what a "Jutish" grave in Kent would look like; I will argue that it is possible to suggest which features a "typical" grave would and would not display.

The two cemeteries have certain features in common and, when minor details are ignored, Sejlflod and Hjemsted have similar overall profiles. First of all, the body would be within a coffin (plank or trunk) and be oriented roughly west-east (WNW-ESE) with the head towards west. It is very difficult to be specific about the position of the corpse since only the trace of the skeleton was preserved in the two cemeteries. It would appear that supine burial, or buried on one side is most common, but the degree of flexure is hard to determine; there is no positive evidence for prone burials, but this would be extremely difficult to pick out due to the lack of bone preservation.

Secondly, a typical "Jutish" grave is furnished, and contains at least one piece of pottery. In both the northern and southern region this is most likely to be a decorated vessel with a dark brown burnished finish. The decoration normally consists of grooves and lines on the neck, and a symmetrical decoration of the body consisting of angles, and bundles of grooves and lines; if there is more than one piece of pottery, they are likely to differ in form and decoration. At Sejlflod, the pottery is usually set inside the coffin but there are no clear preference regarding which end. At Hjemsted, more pots are buried outside than inside the coffin, and the western end seems to be preferred to the southern; however, neither eastern end nor positioning of the pottery inside the coffin is uncommon. The placement of pottery inside or outside the coffin appears to relate to the type of coffin. A plank coffin, as at Sejlflod, is more spacious

[2] I am grateful to Jens Nielsen, Ålborg Museum, for making the as yet unpublished material from Sejlflod available to me.

and leaves plenty of room for grave goods set inside it; a tree-trunk coffin, on the other hand, can be quite small, and the choice of leaving the pottery outside the coffin may reflect lack of space inside it.

It is furthermore possible to point to a few types of objects which are common, but not universal, to the burial rite. These include an iron knife, generally placed at the waist or in the eastern end of the coffin (this is particularly clear at Sejlflod), some sort of dress accessory such as silver clasps (Hines Classes A and/or B), a bronze brooch, a bronze or iron pin and a bronze or iron buckle, and a bone comb (of which only the iron rivets are left). Rivets were found in many of the graves and have generally been interpreted as those of a bone comb. However, Ringtved has recently suggested that some of these rivets may instead be parts of clasps of Hines Class B (Ethelberg, pers. comm.); the implication is that the distribution of Hines Classes A and B clasps in northern and southern Jutland is more uniform than has previously been recognised.

While one must be careful not to argue from the absence of objects or features, a number of "negative" characteristics can nevertheless be suggested. Neither northern nor southern graves have internal features such as ledges, sockets or postholes; a minority of the graves at Sejlflod showed evidence for slabs marking the graves but this is far from being standard practice, and does not seem to be the case at Hjemsted. None of the Hjemsted graves contained weapons, but a few burials at Sejlflod contained arrows and spears; none of the graves contained swords, spears, axes, shields or other weapons. Precious metal is extremely uncommon in both cemeteries. Silver objects include clasps, beads and three brooches, whereas gold only occurs in the form of gilded objects, and only in very few graves at Sejlflod. Sejlflod is also the only cemetery where the occasional import (such as the glass beaker in grave SA) has been found.

Summing up, the typical Jutish grave, whether from northern or southern Jutland, would be west-east oriented, contain a coffin and produce few, rather mundane grave goods such as a ceramic vessel, an iron knife and simple dress accessories. It is, however, questionable whether objects such as these can be regarded as ethnic signifiers.

Having presented a predictive model of what a "Jutish" grave in Kent would look like were it to mirror closely southern Scandinavian practice, a few observations on the more theoretical issues concerning ethnicity, such as assimilation and acculturation processes, are appropriate. The predictive model above should be used with caution as it is applicable only to the first or the first few generations of immigrant settlers. Migration is a process during which social status can be negotiated or changed, but only within the social framework. According to Anthony (1990), migrations are "typically performed by defined subgroups (often kin-recruited) with specific goals, targeted on known destinations" (Anthony 1990, 895-6). These sub-groups take with them their social organisation to the new area of settlement, and it should therefore be expected that immigrant groups mirror their parent societies in important aspects such as social structure, rites etc. (cf. Scull 1995).

After an initial settlement and period of transition, however, this pattern is likely to change and we will witness a degree of cultural assimilation. The degree and direction of assimilation would vary depending on the power dynamics between immigrant and native societies, but also on economy. Scull suggests for East Anglia that some "Anglo-Saxon" graves represent "the continuation of a native tradition of inhumation rendered visible by the adoption of Germanic material culture types and the practice of burying them with the dead" (Scull 1995, 77). The implication is that we should draw distinctions between Germanic/Germanised and indigenous, rather than between "immigrant" and "native" (Scull 1995, 78).

With regard to Kent, it is significant that the majority of known "Jutish" cemeteries were established in the later 5th or early 6th centuries, and that overtly southern Scandinavian objects such as relief brooches *(Prachtfibeln)* and gold D-bracteates were included in graves which date two to three generations after the recorded date of initial immigration by Bede around AD 450. This pattern suggests two possibilities, which are not necessarily incompatible. First, the initial immigrants could be a different social group from the subsequent settlers. This would accord well with Anthony's "scouts" who are sent ahead to collect information for the community "back home"; the feed-back from these scouts to the homeland determines to a large extent whether the migration takes place (Anthony 1990, 902-903). Secondly, the prestige objects whose blatant southern Scandinavian signals would have been understood by everyone, could have been used to "confirm" the Hengist myth and the origins of the people.

Future work on Kentish cemeteries will seek to determine whether elements of my predictive model are present in Kent; if no identifiable immigrant element is present, other explanations for the construction of a "Jutish" identity must be sought.

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After Postan: English medieval archaeology and the growth of commerce before the Black Death

In this paper I will address aspects of economic growth in the Middle Ages before the Black Death. In particular, I wish to summarise some of the recent work by medieval historians on commercialisation in England and to highlight aspects of particular relevance to archaeologists.

Historiography

The study of growth has long been a central concern for economic historians. Specifically, there has been a series of long-standing debates on whether phases of growth are led by supply-side factors such as currency, investment and innovation or by demand (consumption). In the medieval period debate has tended rather more to centre on the relative roles of lords and peasants, both of whom were simultaneously producers and consumers.

A related debate over the role of money and commerce in economic growth has also taken place. The key role of these factors in the growth of the 11th to 13th centuries was stressed by the Belgian historian, Henry Pirenne (1928 and 1939). Pirenne's ideas on urban origins and his reliance on the revival of long-distance trade as a prime mover have been long since revised (Havighurst 1969 and Verhulst 1989). Nevertheless, his interest in the commercialisation of medieval society left an important legacy in French and Belgian history. In contrast, the next generation of historians were concerned to emphasise the connections between agrarian and urban expansion (e.g. Duby 1974; Fossier 1982; Verhulst 1992).

An important theoretical contribution was made by the French historian George Duby (1974) who linked the processes of commercialisation with the growth of banal ('feudal') lordship in the countryside. He argued that seigneurial exaction was an important factor behind increased peasant productivity and innovation in the 11th and 12th centuries. He saw lordly consumption of luxury goods as the driving force behind urban growth in this period. Duby also stressed the role of secular and ecclesiastical courts as centres for the concentration and redistribution of wealth through gifts, hospitality and display. He even argued for an awareness of fashion by lords in the 12th century.

England had its own contemporary tradition of commercial and municipal history, though less theoretical in nature and often reflecting a national preoccupation with constitutional history (e.g. Gros 1890; Gras 1915; Salzman 1931; Tait 1936). However, this approach was overshadowed from the late 1930s to the 1970s by the dominance of the neo-malthusian school led by Sir Michael Postan (1966 and 1972). The influential 'Postan thesis' argued that a rising population and lack of manure led to decreased fertility of soils in the 13th and early 14th centuries. This was seen as leading to falling crop yields and the threat of demographic collapse from starvation, a catastrophe only averted by the advent of the plague. The contrast with more positive evidence for increased urbanism and trade not surprisingly led Postan (1972, 212) to see towns as "non-feudal islands in a feudal sea". This view of urbanism has always had its critics, notably the Marxist Rodney Hilton (1979 and 1992), who stressed the economic, political and social inter-connections of town and countryside in feudal society. Despite this, Postan's thesis has proved influential among archaeologists. An alternative perspective to Postan was provided by the economist Ester Boserup (1965) who suggested that demographic pressure was the main force behind innovation in peasant economies.

Marxist historians have stressed the importance of the mode of production (i.e. its control by the feudal class) rather than exchange. They have differed, however, in the extent to which they see feudal class relations as a break on economic progress. The 'Brenner thesis' argued that the pattern of feudal exaction condemned peasants to live at subsistence level and shielded both lords and peasants from the market. Brenner, moreover, saw political (i.e. seigneurial) coercion as the root of all economic and social change in the Middle Ages. Brenner's work stimulated an extended debate, especially in the pages of the journal *Past and Present* (see Aston & Philpin

1985). Empirical critiques suggested that Brenner underestimated the role of the market in the peasant economy and exaggerated the degree to which lords actually wielded their power in economic life. One opposing theoretical view was that of the French Marxist historian Guy Bois (1978), who argued that the road to capitalism cannot be explained solely in terms of class conflict. He suggested that the 'economic' while linked to the 'political' is neither a totally dependant nor a passive phenomenon.

Also of relevance is the domination thesis, rooted in the work of the French structural Marxist, Louis Althusser, which sees culture as being purely manipulated by the elite for its own ends. This approach is especially associated with Mark Leone (1984) and the 'Annapolis' school of American colonial archaeologists. An exponent for the English Middle Ages was Tom Saunders (1990). Opponents would argue that there were ideologies of resistance as well as of domination (Beaudry *et al.* 1991; Hall 1992).

The Brenner debate also raised questions concerning the uniqueness of English agrarian society (Cooper 1985, 138-41). In 1978, Alan Macfarlane's *The Origins of English Individualism* put forward the particularly controversial thesis that the England peasantry was marked by a unique individualism rooted in its Saxon past. His 'individualism' thesis was enthusiastically adopted by the archaeologist Richard Hodges (1988 and 1989) for the late Saxon period, and by the historian H. E. Hallam (1981) for the post-conquest period, though it has failed to gain widespread support. In particular it should be noted that Macfarlane's thesis was based not on comparison between the English and any 'real' western European peasantry, but with a model derived from Eastern European conditions (White & Vann 1983; Smith 1984). It should further be noted that many areas of Europe had their own strata of acquisitive and consuming, literate, 'farmers' by the early-modern period, for instance, Northern France, north-west Germany, the Low Countries and Tuscany (De Vries 1976, 82-3).

The last two decades have seen the Postan thesis relegated to the background by English economic historians. Instead, they have tended to emphasise market forces rather than the environment as shapers of changing productivity. Associated with this trend has been greater emphasis on the role of peasants as active producers and consumers for the market. A major historiographic turning point has been the shift in emphasis from the single estate study to examination of agrarian patterns at a regional level. A more complex social and economic picture has emerged than that provided by the great ecclesiastical estates such as Winchester. English examples include the studies by the Birmingham school on the West Midlands (e.g. Hilton 1976) and Bruce Campbell's (e.g. 1983) work on Norfolk. The same trend can be seen on the Continent, for example, Robert Fossier's (1968) highly influential study of rural Picardy.

One of the most ambitious and influential studies has been John Langdon's (1986) monograph on the spread of horse traction across the whole of medieval England. Among his more intriguing conclusions is the suggestion that smaller peasant tenants were at the forefront of adapting horse (rather than ox) traction, a pattern at variance with that proposed by Brenner. Langdon found Duby's idea that heavy seigneurial demands may have actually encouraged peasant production and innovation a more realistic explanation. He also stressed the role of the rising market of the 12th and 13th centuries in both the chronology and distribution of innovation.

Kathleen Biddick's (1985 and 1987) statistical analysis of the 1297 Taxation for Bedfordshire has also stressed the impact of markets on the peasant economy. In particular she noted that distance from markets and communications was a key variable in the relative wealth of vills. Biddick's work also stressed the role of peasant production for the market, notably in sheep and malting grains, in promoting economic stratification. Among the new studies, Chris Dyer's (1989 and 1994) research on urban and rural consumption patterns is particularly notable for his use of archaeological evidence alongside the documentary sources. He has argued that, before the Black Death, improved standards of living can be seen among the richer strata of peasantry, as indicated by their buildings and other aspects of material culture (Dyer 1986 and 1989, 151-87). Nevertheless, Dyer's (1989, 109-50) analyses of peasant income and expenditure patterns have indicated, that while the wealthier peasants had surplus income to invest or consume, those with small holdings must have struggled to subsist. The latter group was augmented in some areas in the 13th and early 14th centuries by the fragmentation of standardised villein land-units under the pressures of demographic growth and an emerging land market.

The recent team study of London's food supply has shown how the capital stimulated agrarian specialisation across a wide area of eastern and southern England (Campbell *et al.* 1993). A particularly progressive feature of this market specialisation was the adoption on some demesnes, for example in Norfolk and Sussex, of new intensive methods of farming utilising nitrogen-giving legumes and intensive manuring to allow denser sowings and less fallowing (Brandon 1969 and Campbell 1983). Even recent studies of the great estates, the stock of the Postan school, are adding to the revisionist picture. Chris Thornton's (1991) analysis of a long series of manorial accounts for the

Glastonbury Abbey manor of Rimpton (Somerset) indicates that the market regulated the level of human inputs (e.g. weeding and manuring) on the demesne.

The Trends of Growth

The Norman Conquest of 1066, though not without its importance in reality, sometimes acts as a mental impediment to the study of continuities and long term change. The commercialisation of the period c.1180-1315 (the classic 'commercial revolution') can only be understood within a longer time-frame which takes account of a phase of transformation whose roots are in the long-term demographic and economic expansion of preceding centuries.

The period c.870-1000 appears to be as deserving of the term 'transformation' as any other in England before the industrial revolution. In these decades many of the underlying structures of medieval and later England appeared.

One can point to the imposition of a system of royal authority based on the hierarchy of county, hundred, vill and tithing, the foundation of boroughs and the laying out of villages and common fields, at least in many of the more fertile arable regions of the South and Midlands (Hinton 1990 and Sawyer 1978 are useful synopses). The period also sees a great increase in the amount of coin in circulation, a process spurred by the discovery of new sources of silver in the Harz mountains of Saxony in the 960s (Metcalf 1980 and 1986). The Viking invasions were one factor linking both political and economic change (Jones 1993). However, longer term processes such as demographic expansion and estate fragmentation must also have an explanatory role. The social and economic impact of 10th and 11th century monastic estate building, is best illustrated by the exceptional records of Cluny in the Mâconnais, but was probably paralleled elsewhere (Rosenwein 1989). Reorganisation of the rural landscape can be seen in a number of areas of western Europe though detailed chronologies may vary. For instance, archaeological excavations indicate that the process of village formation was well underway in the tenth century in the Pays de France, around Paris. The increase in iron objects in the final phases before abandonment of the Carolingian proto-villages suggest that trade was increasingly making itself felt (Guadagnin 1982 and 1988).

The evidence of urban archaeology and minting suggests a shift in wealth in the late tenth and eleventh centuries from the north (the Danelaw) to the south of England. This shift is usually explained by the impact of England's wool exports to the growing textile towns of Flanders (Jones 1993 and Astill 1991). However, it remains uncertain to what degree the earlier northern concentration of wealth lies in internal factors such as the social and political organisation of the Danelaw or in external trade links. Sawyer (1978, 204 & 230) has suggested (à la Duby) that the settlement nearby of wealthy Scandinavian immigrants may have promoted the growth of Lincoln and York.

Both the transformations of the long 10th and 13th centuries can be understood as part of the same growth curve, perhaps with a down-turn in the late 11th and early 12th centuries if the money supply is a guide (Spufford 1988, 97). One can point to infrastructure investment, for example in bridges such as the recently excavated bridge of the 1090s at Hemington (Leicestershire) on the Trent, which appears to have replaced a rare Domesday Book ferry (Courtney, forthcoming a; c.f. Duby 1974, 235). However, such investment could indicate merely sectoral growth, a response to set-back or a political act (in which category one might include piety).

Certainly the late 12th and 13th century saw unprecedented growth in the money supply (fed from central European silver mines), continued demographic growth and the spread of commercialism in all sectors of the medieval economy (Britnell & Campbell 1991; Britnell 1993; Spufford 1988, 109-266). In the countryside labour rents were increasingly commuted to money payments, a side-effect of which was to promote a land market in fragmented peasant holdings. The impact of commerce in this period on seigneurial and peasant agriculture is discussed above. A major feature of the 12th century, with long-term political and economic implications, was the emergence of urban patriarchies. The late medieval successors of this group were to play such an important role in the Italian and Low Countries Renaissances. The period of the 'commercial revolution' also saw the founding of many new towns and markets as a response to both growth and the fragmentation of seigneurial geography. The latter phenomenon can be clearly seen in marcher Wales where fragmentation of lordships was invariably accompanied by new town or market creation (Courtney 1992). Nevertheless the older towns do not seem to have suffered from this competition, though new markets to some extent promoted localised rural growth. What is clear, is that despite some contraction associated with the economic and demographic crises of the late medieval period, England entered the early modern period with a system of markets whose density was unparalleled in Europe (Britnell 1981 & 1993; Epstein 1994, 473-7). There was also a lasting legacy for many other aspects of the high medieval infrastructure, for example the system of bridges and new methods of conducting business such as bills of exchange (Harrison 1992; Spufford 1988,

251-8). Debate continues on the varying contributions of the money supply, long distance trade, demography and the dynamics of class conflict to growth.

Raunds: a case study in social dynamics

The Raunds area project in Northamptonshire, by combining a major programme of excavation with fieldwork and documentary research, was able to shed light on the process of landscape change in four adjacent parishes. In the 10th century scattered farmsteads were replaced by the modern village system. This seems to have been accompanied by a re-organisation of the field system. The high number of freemen and sokemen (perhaps slightly less free) in the area suggest that this change can only have been achieved with their co-operation. Indeed, a pattern of social segregation can be seen in this new 10th century landscape which it is argued reflects negotiation between individuals and communities with at least some power of action. For example both late Saxon manorial sites lay in the north end of a binary settlement at Raunds village. The village of Ringstead appears to have been entirely occupied by sokemen or freemen. Three high-status, but non-manorial, farmsteads (West, Mill and Mallow Cotton), appear to have existed on the boundary between the arable and riverine meadows (Courtney, forthcoming b).

This sort of re-organisation is best seen as a process aimed at intensifying production by integrating the arable and pasture. The process may have a different chronology in different areas, for instance, the clay ridge village of Faxton in the same county appears to have no evidence for pre-12th century settlement (L.A.S. Butler, pers. comm.). A number of factors may have driven this process: demographic pressure on resources, demands on peasants from lords and the church as well as the desire of both lords and peasants to increase surplus and consumption (see also Dyer 1996). Given that sheep were the chief livestock, one wonders whether there was an early export trade pre-dating that with Flanders in the 11th century (Sawyer 1974 and Verhulst 1991). Indeed the earliest suggested dates for village formation for England, in the late 9th century, come from Lincolnshire, a classic sheep county (Vince 1996). One aspect of transformation we still little understand is the transition from a society dominated by kinship to one governed by seigneurial power and community. This is presumably also linked to a shift along the spectrum from a 'gift' to a 'market' economy (Rosenwein 1989).

Conclusion

Archaeological evidence will no doubt continue to be used as an indicator of growth especially before the eleventh century. However, as has been here suggested, such features as urban foundation and bridge creation are often indirect indicators modified by political institutions. The economy interacted with the social and political worlds but not always in a smoothly linear form. It is in the areas of institutional change and in patterns of consumption that archaeology perhaps has most to offer the broad debate on European growth. The ceramics industry, for example, reflects broader patterns of economic change. In many areas it becomes more rurally based in the 12th-13th century, often with very localised market areas, reflecting the increased intensity of commercial relations in the countryside. In the same period, Frans Verhaeghe (1991 & 1996) has pointed to the emergence of highly decorated jugs in NW Europe as an indication of market segmentation and competition with metal-ware.

The world that peasants, lords and burgesses lived in was constrained and hierarchical. Despite evidence of co-operation, the thesis of some members of the 'Toronto' school that lords and peasants had no conflicting interests, or even shared identical interests, is not sustainable (Razi 1979). Yet the economic and social reality was far more complex and dynamic than the models devised by medieval lawyers and ecclesiastics suggest. One major area of interest, which interacted with the vertical world of power, was the world of horizontal ties, such as village and urban communalism (see Reynolds 1984). The village community, tied to a communal system of agriculture, was, after all, one of the longest lasting products of the Middle Ages. It was even transported to New England in the 17th century. In towns urban corporate identity found an expression in public buildings and spaces, most notably in the market-place with its town halls, guild houses and cloth halls. The development of dominant architecture is much more apparent in Flanders than England where public buildings were often small and tucked into corners or side-streets, until the 18th century (e.g. Courtney 1996). To some extent this may be reflection of relative wealth but factors related to municipal and communal independence and competition may also be at work.

I do not wish to suggest that the main function of medieval archaeology is to illustrate history. Nevertheless, archaeologists still have lessons to learn from the recent work of economic and social historians. Europe before the Black Death cannot be understood without frequent reference to the economic, social and political power of lords. However, the static

models of 'feudal' society used by many archaeologists bear little relation the complexity revealed by recent historical research. I would also argue that it is in the commercialisation of the high Middle Ages that many of the roots of modern economic structures and behaviour can be sought. Finally, I would suggest that we can all still learn much from the work of the great theorists of the Middle Ages such as Pirenne, Bloch and Duby. Our perspectives have changed but it was they who so often posed the central questions which we still endeavour to answer.

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Artisans and urban Elites

This paper will seek to describe the research aims and discuss the early results of a project currently underway in the Department of Archaeology and the Centre for Medieval Studies in the University of York. This interdisciplinary project, involving historians, art historians and literature specialists seeks to define the nature and agency of the medieval urban household. Approaches to the problem range across a gamut of evidence, from Books of Hours to wills to painted roundels. My own specific project is to investigate the physical setting of the household and to consider ways in which the space in houses was disposed to both reflect and structure the social group we call the household. Like many terms which seek to define and describe a complex phenomenon, 'household' is an elusive concept when we begin to subject it to close scrutiny. Even if we consider the concept simply as an heuristic device, we run the risk of expending energy on attempting to give reality to an abstract entity that we have predefined. Yet it seems clear that the 'household' is not merely a convenient grouping for modern scholars to focus upon the idea certainly had some currency in medieval thinking and in medieval social structures. It is likely to be multi-faceted, meaning different things to different people at different times. The aim of an interdisciplinary project is to address as many of those different aspects as we can.

It is almost a commonplace now to note that the use of space does not merely reflect social complexity but also helps to construct it. Much recent work has drawn upon the ideas of Giddens, Bourdieu and Lefebvre to theorise about the relationship of society and the space it inhabits and constructs. These ideas have led us to consider the use of space in a far more explicit and perhaps a less functional fashion. Space may be disposed consciously to impress, to intimidate or to reassure or unconsciously, to provide cues for social action that the players may not necessarily overtly recognise. Conscious manipulation of space in the form of statements of prestige and power through use of symbolism or control of access and sight-lines is often claimed in interpretation of the archaeological record. The construction of familiar spaces within which everyday social contact is played out has been studied in the ethnographic record, and to some extent (mainly in functional terms) in the interpretation of excavated domestic sites. It is less common in the investigation of standing domestic buildings, although the work of Matthew Johnson in England forms a notable exception. The aim of the current project is to re-investigate the medieval townhouses of York, already inventoried by the Royal Commission on the Historical Monuments of England to investigate surviving evidence for the use of space for domestic and commercial (and possibly industrial/craft) purposes.

The fieldwork will begin this summer. It is hoped to provide an interim report at the Bruges meeting which will discuss the methodology employed and its efficacy. It is hoped that close recording of such elements as nail and stain evidence for former partitions, as well as the grosser elements of the timber-frame and its infill will offer the potential for reconstructing circulation patterns. Efforts will be made to establish the relative status of different parts of the houses and difficulties of establishing absolute and relative chronologies will be addressed. This raw evidence may or may not provide an adequate basis on which to theorise about the physical construction of the late medieval urban household. Its more detailed analysis will certainly be dependent upon the outcome of other aspects of the interdisciplinary project undertaken by my colleagues, but the weight of the paper will address the archaeological methodologies and their efficacy.

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The Northern Periphery of Russia: archaeological and anthropological evidence of medieval colonization

The extensive and sparsely-inhabited forest territories lying to the north from the great watershed which separates the Volga and the Northern Dvina river-systems form a specific historical region of Russia. Though being peripheral to the Russian state, the area has preserved numerous remains of the past which constitute a significant part of Russia's national heritage: late medieval monasteries, unique collections of manuscripts and icon paintings, traditional peasant culture and Russian epic songs.

Since the second half of the 19th century, medieval colonization of the northern periphery has become an important research theme for Russian historians, who focused mainly on the late medieval and post-medieval periods. For various reasons, the early medieval archaeological monuments of this area drew very little attention and – apart from a few exceptions – remained undiscovered until recent decades. In the 1970s, however, growing interest for the medieval monuments of the northern territories emerged in connection with the general interest for the rural sites, settlement patterns and periphery of the medieval states. Large-scale field investigations of the 1970s to the late 90s resulted in the discovery of several hundreds of medieval sites on the territory between lake Onega and the Northern Urals and created a new source base for the study of the early medieval colonization.

Medieval chronicles and charters provide reliable evidence that in the 12th-13th centuries AD, the political domination of Novgorod and the princes of North-Eastern (Rostov-Suzdal) Russia extended up to the Northern Urals and to the Cola Peninsula. A. Nasonov, one of the most competent experts in Russian historical geography, came to the conclusion that the Novgorodian domains on the Vaga, the Onega, the Northern Dvina and the Pinega rivers as well as the Rostovian domains on the Beloozero (Beloe lake), the Kokshenga river, the Ustia river and the upper Northern Dvina were established as early as in the 11th-12th centuries. A considerable part of 'Novgorodian zone' – including the Vaga, the Pinega and the Northern Dvina basins – was covered with a network of parishes (the *pogosts*); farther areas (Perm, Pechora, Tersky bereg) were under control of the tax collectors, who came to these territories from Novgorod (Nasonov 1951, 97-116, 188-196). Recent finds from Novgorod – birch bark documents (Yanin 1993) and wooden cylinders with inscriptions (Rybina 1992, 163-164) – provide new evidence that the furs, taken as taxes in the far northern areas, including the tundra zone, were delivered directly to Novgorod under the strict control of the officials.

A preliminary survey of the newly discovered archaeological material originating from the territory between lake Onega and the Northern Urals gives grounds for two general observations. Archaeology indicates a considerable growth in terms of the number of dwelling sites, cemeteries, sacrificial sites and stray finds on vast territories of the North in the 11th-13th centuries. It also reflects the introduction of many significant innovations in material culture at that time and the expansion of the new elements of culture in a north-easterly direction. These changes can be treated as the archaeological evidence of colonization developing in various forms.

Let us now turn to the more detailed analysis of the situation in one local area: Beloozero. Beloozero is one of the most important historical regions of Northern Russia, with a town of the same name, mentioned in the earliest Russian chronicles (Golubeva 1973). This region lies just on the border between the Russian mainland and the zone of outland colonization. The river Sheksna, a left tributary of the Volga, served as a waterway connecting the Beloozero area with the metropolitan territories of North-Eastern Russia. Several portages connected small rivers of the Beloozero water-system with more distant and sparsely populated areas in the basins of the Northern Dvina river, the Onega river, and the Onega lake. According to the written sources, 12th- and 13th-century Beloozero was a part of the Rostovian principality and it seems probable that this domination goes back to the 10th-11th centuries, though certain political connections with Novgorod cannot be excluded either.

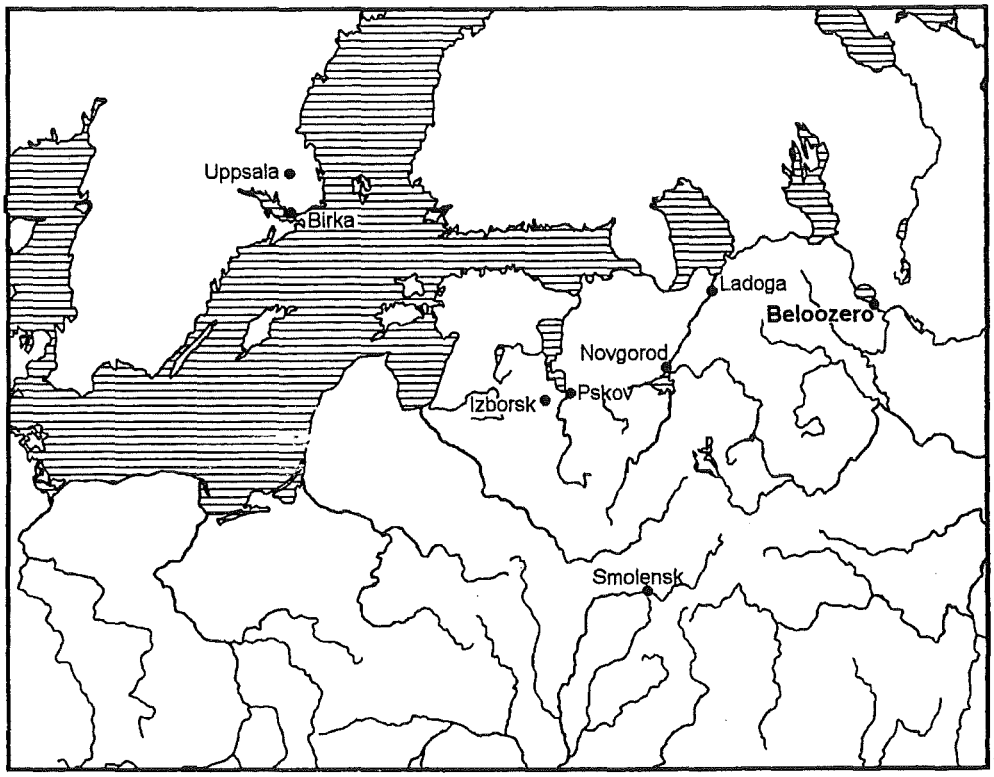

Fig. 1. - *Map of European Russia with the main medieval towns and the location of Beloozero.*

Since the beginning of the 1980s, the Beloozero region has become the subject of systematic field research conducted by the expedition of the Moscow Institute of Archaeology. Thorough examination of the area of about 8500 km² resulted in the registration of 144 dwelling sites and 15 burial sites dating from the 10th-13th centuries AD Although some sites could have been missed during the investigation or have been destroyed completely in earlier times, we obtained excellent source material for the reconstruction of the medieval settlement patterns and their development in the process of colonization.

Apart from only three exceptions, all the medieval sites discovered in the Beloozero region are unfortified settlements. The settlements are located near the large lakes and in the valleys of the large rivers, the majority of them close to the Beloe Lake, the Sheksna and the Kema rivers. The greater part of the territory lying along the largest lakes and rivers yielded no indication for sedentary settlement earlier than the 14th century. Almost all the early medieval settlements in Beloozero were founded on uninhabited sites, very often on the pieces of land which had been settled in the Neolithic, Bronze Age and Early Iron Age periods but had later been abandoned. No continuity can be detected between the settlements of the second half of the 1st millennium AD and the 10th-13th century villages. Normally, the sites are located on the low terraces close to the water, very often at the estuary of the river joining the lake or taking its source from the lake. Regulation of the water level in the Beloe lake and intensive agricultural activity caused serious damage to the cultural soil – on most of the sites it has been mixed completely – so remains of the constructions and stratified layers can be traced only in very rare cases. But ceramics and burned hearth stones accumulated in the soil usually give vivid indications for mapping the areas of the medieval villages and on many sites, the cultural layers, even though they have been mixed, contain find material which can determine the dating: pottery, knives, arrowheads, metal ornaments, glass beads.

The early medieval burial sites of the Beloozero region consist mainly of flat earth inhumation graves, though several spoke barrows, hemispherical barrow cemeteries and houses of the dead (log constructions with cremations) are also known in this area. A considerable number of grave monuments still remain undiscovered as the absence of any constructions marking the grave on the surface causes great difficulties when it comes to detecting them in the field. The burial sites are located very close to the settlements, but they have been less damaged by ploughing and therefore allow more easily for large-scale excavations. Ten cemeteries with almost 300 inhumation graves and 2 barrows with cremations were excavated in the Beloozero region. Three cemeteries have been excavated completely (Makarov 1990; Makarov 1990a; Makarov 1997). The finds from the burial sites is extremely rich – it includes numerous ornaments, pottery, certain tools and weapons. No

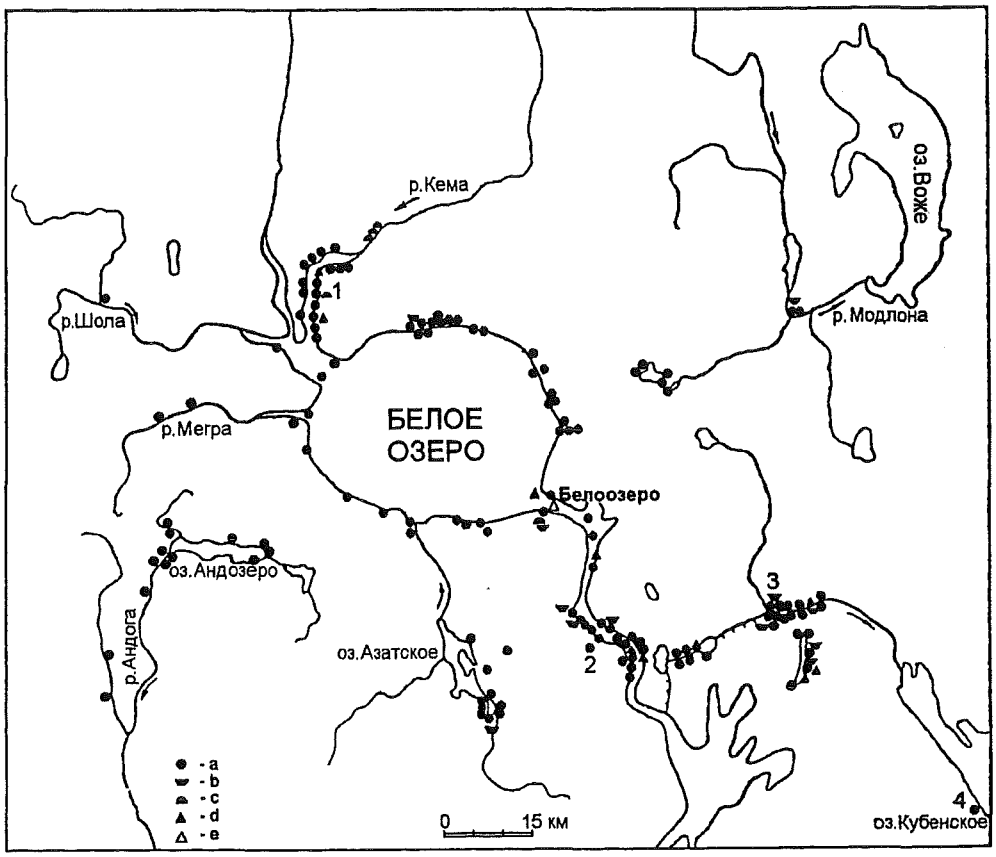

Fig. 2. - *The Beloozero region with the 10th-13th century archaeological sites.*
a: dwelling sites;
b: cemeteries with flat graves;
c: barrow cemeteries;
d: stray finds;
e: hoards.
1: Nikolskoe III;
2: Krutik;
3: Nefedievo;
4: Minino.

less important for the analysis is the complicated structure of the graves and the cemeteries. Well-preserved skeletal material from the graves opens broad perspectives for anthropological and palaeoecological studies.

In the settlement sites, the finds of the two chronological periods – the 10th or 10th-11th century and the second half of the 12th and 13th century – can easily be distinguished. This offers us the opportunity to compare the settlement patterns of the two chronological phases and to make certain observations concerning their development. The materials of the 11th-early 12th century are not so easily identifiable in the settlement sites, mostly because we have rather few artefact types which can serve as reliable chronological indicators for this period. However, 11th- to early 12th-century complexes are well represented in the cemeteries and this to a certain extent restores the connections between the materials of the earlier and later periods.

Materials dating from the 10th or 10th-11th centuries are present on the 42 dwelling sites. Settlements of this period usually were of a very small size, up to 2000 m². Villages were dispersed throughout the whole the region. Nevertheless we can point out a certain lack of balance between the eastern and the western parts of the region. The largest settlements – three of them fortified – were located to the west of lake Beloe, where the concentration of the sites is slightly higher. Villages were established at large distances from each other; most of them did not constitute local groups or agglomerations. Our observations point out that in that period colonization developed like the formation of small sole villages on the free lands, usually on those sites of special importance in terms of the exploitation of the wilderness resources and the river route communication. The town of Beloozero – which at the end of the 10th century covered and area of about 1.5-2 ha – was undoubtedly the centre of the expansion from the very beginning. The material culture of this period is a combination of Fenno-Ugric and Slavonic elements, but also includes various imports from the East and the West which to a certain degree form its specific character. The early cultural layers of Beloozero as well as the layers of the other dwelling sites and the cremation graves contain cufic coins, metal ornaments of Baltic and Scandinavian origin, Volga Bulgarian pottery and numerous glass beads.

Observations concerning the development of the settlement in the 11th to early 12th centuries can be made mainly on the basis of the material from the burial sites. Inhumation graves of this period were excavated in five cemeteries. Some of them are associated with the earlier settlements and burial sites (like Nikolskoe III on the Kema river or Krochinskie Peski near the town of Beloozero), the others mark colonization of the previously uninhabited territories

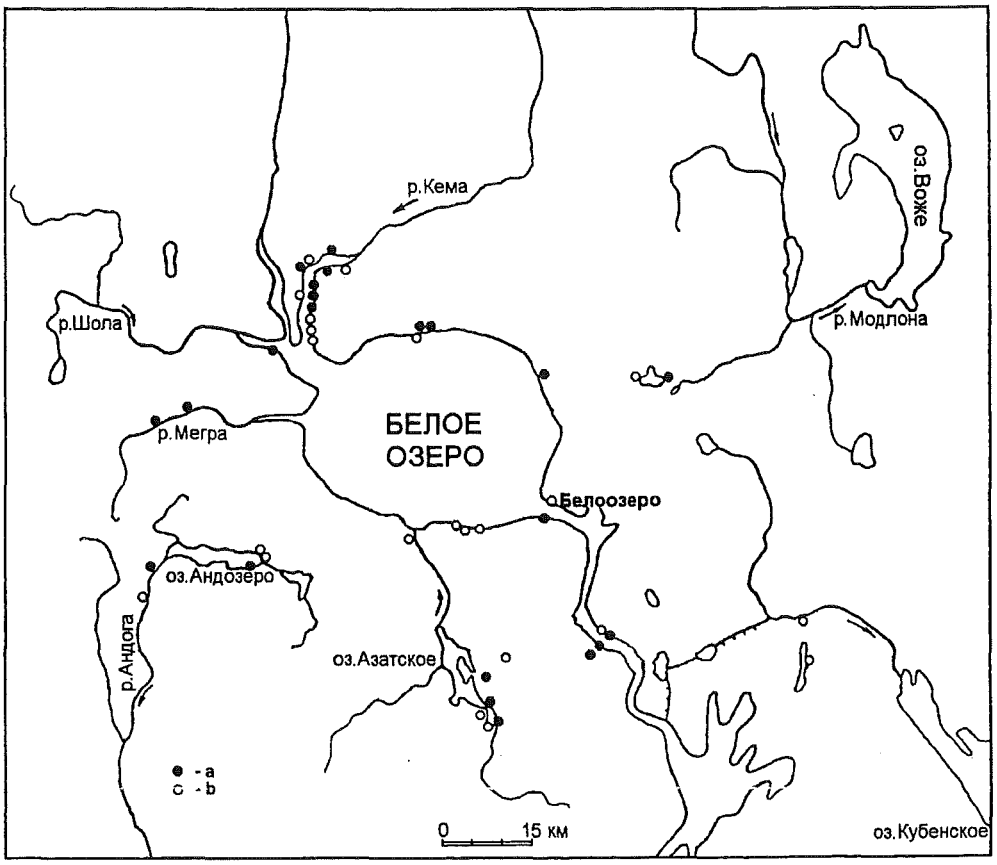

Fig. 3. - *Map of the 10th century dwelling sites.*
a: 10th century dwelling sites;
b: sites with broader chronological limits of 10th-11th century.

on the portages and the river routes (like Nefedievo in the Volok Slavensky district or Pogostische on the way to the Onega river region). The material suggests that the colonization spread into the new areas, especially in a north-eastern direction. It seems that single sites did not lose their predominating position at that time but that the size of the settlements increased. Grave goods indicate high prosperity and stable long-distance trade. Rich sets of glass beads and metal ornaments were registered in all the cemeteries. Two of these yielded extraordinary finds. Graves in Nikolskoe III contained about 80 Western coins – the largest series in the ancient Russian burial sites – and two unique enamelled cups of Eastern origin. The 11th-century female graves from the Nefedievo cemetery were furnished with hundreds of glass beads, cufic coin pendants, gotlandic buckles, eastern Baltic armrings and lots of metal ornaments of local production.

Colonization expanded rapidly in the second half of the 12th century. Materials dating from the second half of the 12th and the 13th century were found on more than 70 dwelling sites. The number of the villages increased significantly. Cemeteries indicate the same trend, among them Nefedievo burial site, where the late 12th- to early 13th-century graves outnumber the earlier burials by a factor of three. The eastern part of Beloozero region – sparsely populated in the previous period – yielded evidence for a most considerable settlement growth. Dwelling sites of the 12th-13th centuries are different from one another in terms of size, some of them being small like in the earlier times; but larger villages with an area over 1 ha appear as well. The largest site covers 11 hectares. Settlement patterns of this period are more compound, as local groups of sites develop in many places and single villages lose their predominant position. Local groups of settlements associated from 6 to 21 villages with a joint area of 3 to 16 ha. Most of them grew in the local areas which had been inhabited in the previous period and in many cases connections between the 10th-11th century single sites and later agglomerations seem very distinct. Extensive territories between the local agglomerations still had no traces of sedentary settlement or seasonal exploitation. Thus we have evidence for population growth, for the expansion of the settled areas and for the formation of the comparatively complicated village structures.

These processes correspond with the essential changes in the material culture, which became simpler and poorer, accumulated Slavonic and Volga-Fenno-Ugrian elements and lost the exotic artefacts imported from the West and the East. The gradual "impoverishment' of the female set of ornaments in the late 12th-century graves in Nefedievo vividly illustrates these trends.

Let us now have a somewhat closer look at the economic background of the colonization. Archaeological investigations do not yield an overabundance

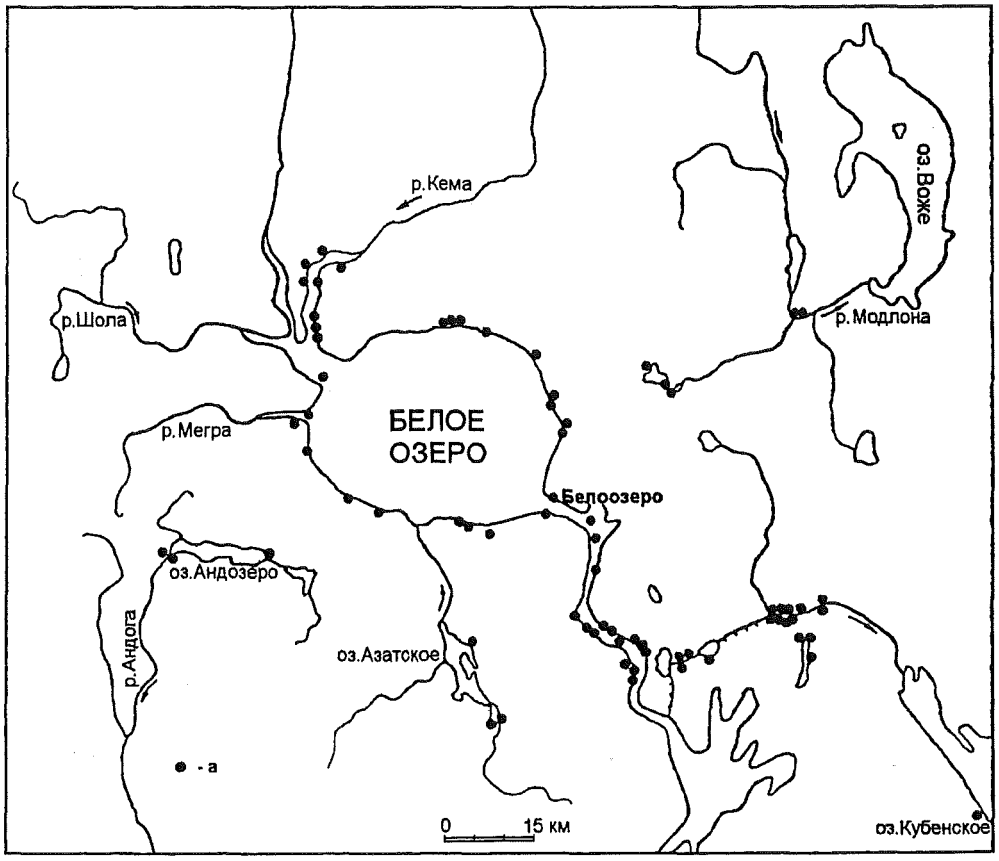

Fig. 4. - *The Beloozero region with the 12th-13th century dwelling sites.*
a: late 12th-13th century dwelling sites.

of source material directly related to the economy of the Beloozero region settlements Until recent times, the agricultural activities of the early medieval settlements in the Beloozero region were a matter of debate. However, in the beginning of the 1990s, grains of cereals (all in all about 2000 grains) were found in the floatated soil from the cultural layers of the dwelling sites. Samples were collected on 20 sites – *i.e.* on almost all the sites in the Beloozero region where undisturbed and stratified early medieval cultural layers are preserved. Samples from 19 sites contained palaeo-botanical remains: carbonized grains of barley, rye, wheat, oats and some other cereals. Some of these finds come from the largest settlements in the centre of the region (for instance, from the town Beloozero), some others were found on the small ordinary sites in the periphery, near the portages leading to the Northern Dvina and the Onega rivers. The earliest macrofossil remains are not later than 10th century. Six sites yielded finds dating from the 10th-11th centuries. In the samples of this period barley predominates; later, in the 12th-13th centuries, barley is replaced by rye.

The comparatively high concentration of grains in the samples taken from different places (and often from the ordinary dwelling sites) does not correspond with the hypothesis that grain was imported to Beloozero. The palaeobotanical material leads to the conclusion that the population of the Beloozero settlements practised agriculture from the initial stages of colonization onwards. Of course, this does not mean that agriculture was the main branch of economy in the region. But at present, the cereal remains from the Beloozero region dwelling sites do mark the north-eastern border of agriculture in early medieval Russia.

Poor preservation of the animal bones and the lack of the sites with bone remains in undisturbed layers leaves rather limited possibilities for osteological studies. Two archaeo-zoological collections are of major importance. One of them originated from the Krutik settlement – a well-known early medieval site, totally excavated in 1974-1981 and published by L.A. Golubeva (Golubeva & Kochkurkina 1991). Among the 7200 bone remains identified by E. Andreeva, only 34% belong to domestic animals: cattle, horse, sheep and pig. Wild animal remains belong mostly to the fur species such as beaver, marten, fox, hare and squirrel (though a small number of elk and deer bones is also present). Bones of beaver predominate, constituting about 52% of the whole collection (Andreeva 1991). It is obvious that fur-hunting connected with long-distance trade was of extraordinary importance for the economy of Krutik (though meat supply for the settlement was based mainly on breeding domestic animals). The rich find material from Krutik including 13 cufic coins points out that the settlement was founded in the late 9th

century and existed until the end of the 10th century. Perhaps it was abandoned because of the crisis of beaver hunting after the wilderness resources of the surrounding area had been exhausted.

Another archaeo-zoological collection comes from the Minino settlement which lies eastwards at a distance of about 70 km from the Krutik site. Minino is located near lake Kubenskoe, to the east from of the watershed which separates lake Volga-Beloe lake and the Northern Dvina water systems, and outside the Beloozero region. But the material culture of the site is very similar to that of the Beloozero area and we have conclusive evidence that the medieval settlers penetrated this region from the West passing Slavensky portage. Excavations were carried in 1996 on a limited area of 60 m². Unlike many other sites, Minino has preserved stratified cultural layers with the remains of the houses. Metal belt mounts, 4 western coins and about 80 glass beads as well as the C14 dates point out that the settlement was established at the end of the 10th or at the beginning of the 11th century; the cultural deposits date mainly from the 11th century. Of the 300 identified animal bones, remains of the domestic species (cattle-horse-sheep) constitute only 22%, wild mammal species 68%. Remains of fur animals (beavers, squirrels, martens foxes and hares) constitute 54% of the collection. Beaver predominates over the other species.

Osteological materials are not the only indication for the large-scale fur-hunting in the Beloozero region. Specific hunting weapons were found in the Nefedievo cemetery, which is located on the way from the Sheksna to lake Kubenskoe, just between the Krutik and the Minino settlements, as well as on some other sites of the same period. Eleven male graves in Nefedievo contained flat arrowheads for fur-hunting – perforated cylinders, made of horn or iron with remains of wood inside them. Together with the axes, knives, firesteels and arrowheads of common types, these objects belong among the most permanent and important components of the set of the male grave goods. Graves with arrowheads for fur-hunting constitute one third of the whole number of male graves in Nefedievo; an iron arrowhead of this type was found in the earliest male burial, dated to the beginning or the first half of the 11th century (Makarov 1994).

Two conclusions can be made on the basis of the materials and observations mentioned above. First, the economy of the villages, established in the outlying lands, was a combination of different branches and created specific forms of livelihood. It is obvious that the perspective of high incomes based on fur trade was the most powerful reason for settling outland territories and fur-hunting played a decisive role in the economy of the Northern Periphery. At the same, time the new settlers developed cattle breading and probably pioneered cereal cultivation in order to become self-sufficient as to food resources.

Second, we have certain evidence of the fur-hunting area moving from the west to the east. The Nefedievo and Minino sites were founded just at the time when Krutik was abandoned, probably because of the exhaustion of the wilderness resources on the western bank of the Sheksna river. These observations become more important in the broader context of Russian history, if we take into consideration the well-known phenomenon of the frontier hunting economy moving from the exhausted western lands to the east in the Urals and the Siberia in the 15th-17th centuries. It is probable that the Beloozero materials testify as to the initial stages of this process.

Well-preserved skeletal material from the Beloozero cemeteries offers an interesting opportunity to check the archaeological hypothesis on the basis of yet another type of source material. Anthropological analysis proves that almost all the cemeteries present a normal balance between male, female and infant graves. Archaeological sex determinations, based on the nature of the grave goods, and anthropological attributions correspond, and in some cases they are confirmed by the results of the DNA analysis.

With an adult sex ratio (M:F x 100%), males slightly predominate in the Beloozero skeletal series. Thus, the Nefedievo cemetery – with 39.5% male, 28.5% female and 32.0% infant graves – can be regarded as an example of a normal population necropolis. Only one burial site in the Beloozero region (Nikolskoe on the Kema river) shows a specific distribution with a strong predominance of male burials, which is probably linked to the specific character and military functions of this human group.

Mean age at death in medieval Russian groups varied within limits from 32.3 to 43.8 years (in male groups: 33.6 to 45.6 years, in female groups: 29.7 to 41.9 years) (Alexeeva 1973, 38) with the main concentration within the limits from 35 to 39 years. There is a low overall number of older individuals in the skeletal series from the Russian metropolis – Rostov Velikij and the Novgorod region. Population groups from the cemeteries of the Northern Periphery reveal a higher level of mean age at death. The Interval of limits of the indicator varies from 40 to 45 years (Buzhilova 1995). For example, in Nefedievo its value is 40.3 years for males and 43.5 years for females. It is worth noting that the coefficient of reproduction – an important demographical indicator that measures the reproductive ability – is also high in the Nefedievo's group (1.666) and its value increases in the late 12th-13th centuries (Makarov 1997, 132). In addition, the average life-span for males and

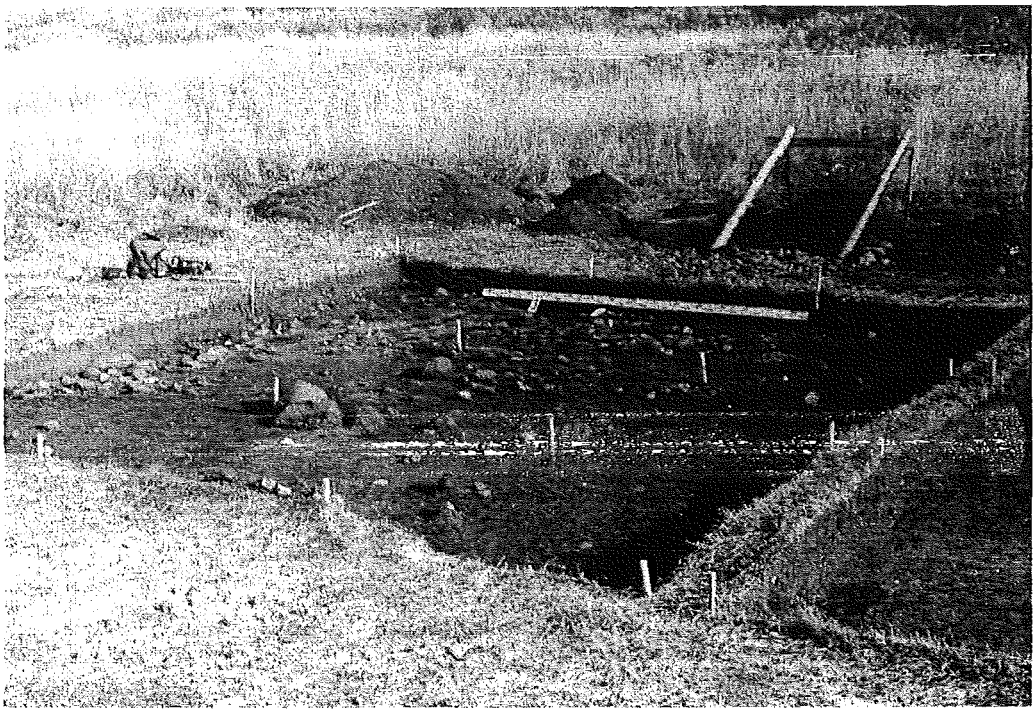

Fig. 5. - *Excavations on the Minino dwelling sites.*

females of Nefedievo is more favourable in the 12th-13th centuries than in the 11th-12th centuries. Thus, demographical parameters indicate possible stress a situation in the early period of adaptation of the settlers to the new environment.

On the other hand, the first colonists experienced new stresses in the new environment. As we know, stress is a product of three sets of factors: environmental constraints, cultural systems and host resistance. Cultural systems may act to buffer the impact of environmental factors but they may also produce new stresses. If stress is not adequately buffered by cultural systems, its effects may be buffered only by individual host resistance (Buzhilova 1995). In addition, when one population moves from the region to which it has become adjusted to another, it shows increased susceptibility to the diseases of the area into which it moves (Banks 1959). Physiological stress can be fixed by special indicators in bone and teeth. Goodman *et al.* (1984) proposed to divide them into tree groups. Each group includes indicators which mark special periods in the life of the individual: (1) its whole life; (2) its childhood; (3) certain limited periods of life from birth to death.

For example, growth disruptions in the childhood can be recorded by radiographs of long bones. It is the line and bands of increased radio-opacity that are essentially trabeculae oriented at right angles to the cartilaginous surface resulting in increased mineralization and mineral density (Garn *et al.* 1968). This phenomenon has different names but is usually referred to as 'Harris lines'. Harris lines appear to be caused by wide variety of stresses: vitamin deficiencies, pneumonia, measles, scarlet fever, protein-calorie malnutrition and others (Park 1964). Thus, the Harris lines are non-specific indicators of stress and can be the result of synergism of illness and nutritional deficiency. Preliminary results of the analysis of the distribution of this as a marker in ancient Russian groups points out that the frequency of transverse lines amounts to 70-89% in the males and females. In the Beloozero series, it is higher and amounts to 100%. However, this high level of 100% is a phenomenon specific for the 11th- to 12th-centuries Nefedievo group; in the 12th- to 13th-century group it is reduced to 60%.

Another skeletal indicator with characteristics similar to Harris lines is a dental defect – enamel hypoplasia. It is defined as a deficiency in enamel thickness due to a metabolic disturbance (Rose *et al.* 1985). Unlike Harris lines, enamel hypoplasia is not affected by later metabolic events and is not resorbed after formation. Thus, hypoplasia records accurately all incidents of stress severe enough to produce them (Storey 1992). Like transverse lines, hypoplasia also seems to be caused by many factors including nutritional deficiencies, infectious diseases and metabolic disruptions (Goodman & Armelagos 1985). The frequency of enamel hypoplasia in the medieval Russian groups varied within limits from 4 to 58.6%, in the Beloozero skeletal series it amounts to 31%. According to our observations, this defect appears in tooth crowns of the average age of about 1.5-2 years old and is possibly caused by the transition from mother milk food to adult diet. Dietary features of adult food can be reconstructed on the ground of the

dental diseases. The gross dental attrition and low frequency of caries of the Beloozero adults is related to culture and dietary habits. The chewing of fibrous plants, the consumption of food made with stone-ground flour and the chewing of tough meat are obvious causes of attrition.

Palaeo-nutritional analysis concerning the Nefedievo adults reveals a dietary complex based mainly on carbohydrates, but in some cases (as at Nikolskoe on the Kema river) it included a high level of proteins. It has been noted that there is a gradual increase of the vegetable part of the diet in the late 12th-13th centuries in the Beloozero groups. Males had certain advantages in the consumption of proteins as compared to females (Alexeeva *et al.* 1993, 55-65).

Indications of physiological stress on skeletal remains from Beloozero region point out that colonization could influence human ecology in different ways but in general, anthropology reveals a picture of the successful adaptation of the new settlers to the environment and of the high biological living standard in the outlying areas.

The anthropological data principally confirm the archaeological concept of the flourishing economy and rapid settlement development in the northern periphery. Still, when drawing this beautiful and optimistic picture, we must take into consideration that the network of early medieval settlements collapsed totally in the late 13th-early 14th century and thus proved to be less stable and prosperous.

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Stadtarchäologie im Dialog mit der Öffentlichkeit: Präsentation archäologischer Befunde im öffentlichen Raum, Beispiele aus Basel.

Im Laufe der Geschichte der Mittelalterarchäologie als eigenständiges Fachgebiet haben sich Zielsetzung und Sinnverständnis gewandelt.

Wesentliche Impulse für diesen Wandel kamen aus der Stadtarchäologie[1]. In den Städten wurden im Zuge der intensiven Bautätigkeit während der letzten Jahrzehnte Organisationsformen und Methoden entwickelt, die der äusserst komplexen Siedlungsgeschichte einer Stadt mit ihrer heterogenen Quellenlage gerecht werden mussten. Konkret geht es dabei um die Normierung des Grabungs- und Dokumentationssystems als unerlässliche Voraussetzung für die Organisation einer interinstitutionellen multidisziplinären Arbeitsweise[2].

Die multidisziplinäre Kommunikation ist ein Frage- und Antwortspiel, das von einem jeweils fachspezifisch gültigen Forschungsstand ausgehend in eine Sprache gekleidet werden muss, die interdisziplinär verstanden werden kann. Diese Forderung setzt unter anderem voraus, dass die archäologische Untersuchung nach Abschluss der Grabung ausgewertet, der Wissensstand kontinuierlich modifiziert beziehungsweise unter dem Gesichtspunkt der neuen Erkenntnisse hinterfragt und die Schlussfolgerungen veröffentlicht werden. So kann die Erkenntnis auf nachvollziehbare Weise gleich einer Spirale von bekannten Vorgaben ausgehend über weitere Grabungen zu neuen Ergebnissen und Fragestellungen führen, die ihrerseits wieder als Grundlage für nachfolgende Untersuchungen und einen interdisziplinären Dialog dienen.

Stadtarchäologie: Erforschung der Vergangenheit und Gegenwartsbezug

Standortbestimmungen und Theoriediskussionen wie sie 1995 von der Arbeitsgemeinschaft für Archäologie des Mittelalters und der Neuzeit in Tübingen inszeniert wurden, zeigen, dass heute neben dem üblichen Erfahrungsaustausch in fachlicher Hinsicht auch nach dem fachübergreifenden Sinn unserer Arbeit gefragt wird[3]. Damit wächst das Bewusstsein, dass Archäologie und Geschichte etwas mit der Gegenwart zu tun haben.

In der Jubiläumsschrift *„Archäologie in Basel"*, die aus Anlass des 25jährigen Bestehens der Archäologischen Bodenforschung Basel-Stadt 1988 herausgegeben wurde, hat der Schreibende den Sinn und Auftrag der Stadtarchäologie wie folgt umschrieben: „Das oberste Ziel und der Sinn eines Auftrages zur Stadtkernforschung liegen letztlich darin, ein ganzheitliches Bild von Umwelt, Lebensqualität und Lebenszuschnitt zu rekonstruieren, die Ergebnisse den Stadtbewohnern bewusst zu machen und sie den heute verantwortlichen Stadtplanern zur Verfügung zu stellen"[4]. Der Wert der Stadtarchäologie kommt letztlich nicht in der Quantität der geretteten Objekte, sondern in der Qualität der Informationen, die der Öffentlichkeit als Orientierungshilfe von hohem Identifikationswert zur Verfügung gestellt werden können, zum Ausdruck.

Der Auftrag der Archäologischen Bodenforschung des Kantons Basel-Stadt ist im Gesetz über den Denkmalschutz festgehalten[5]. Hier werden die ver-

[1] D'AUJOURD'HUI R. 1995: Zur archäologischen Stadtforschung im deutschsprachigen Gebiet Europas: Standortbestimmung und Zukunftsaufgaben, *Zeitschrift für Archäologie des Mittelalters*, Beiheft 9, 37-52, Köln.

[2] D'AUJOURD'HUI R. 1989: *Archäologie in Basel, Organisation und Arbeitsmethoden*, Scriptum zur Grabungstechnik, Basel.

[3] Internationales Kolloquium zum Thema „Theorien – Methoden – Arbeitsfelder" aus Anlass des 20jährigen Bestehens der Arbeitsgemeinschaft für Archäologie des Mittelalters und der Neuzeit bei den Deutschen Verbänden für Altertumsforschung, Tübingen, 3.–5. November 1995. D. GUTSCHER 1996: Vom Umgang mit Geschichte – Sinn und Grenzen der Archäologie, SA, *Arbeits- und Forschungsberichte zur Sächsischen Bodendenkmalpflege* 38, 381–390.

[4] D'AUJOURD'HUI R. 1988: *Archäologie in Basel*, Fundstellenregister und Literaturverzeichnis, Basel, 32 f.

[5] Gesetz über den Denkmalschutz vom 20. März 1980, Kanton Basel-Stadt: Systematische Gesetzessammlung. 497.100 und Verordnung zum Gesetz über den Denkmalschutz vom 14. April 1982, Kanton Basel-Stadt: Systematische Gesetzessammlung. 497.110. – Die einschlägigen Abschnitte sind bei d'Aujourd'hui 1988 (wie Anm. 4), 11–14 und d'Aujourd'hui 1989 (wie

schiedenen Arbeitsgänge, die zur Erfüllung der oben zitierten Zweckbestimmung erforderlich sind, umschrieben. Ferner wird die Zusammenarbeit mit den anderen an der Erforschung und Vermittlung der Stadtgeschichte beteiligten Institutionen geregelt. Dabei werden im wesentlichen folgende vier Ebenen beziehungsweise Arbeitsetappen unterschieden[6].

1. Ausgrabung, Bestandesaufnahme und Archivierung
2. Auswertung der Befunde, Inventarisation und Grobdatierung der Funde, Grabungsbericht
3. Rekonstruktion der Stadtgeschichte
4. Öffentlichkeitsarbeit: Vermittlung, Schutz, Erhaltung, Stadtplanung.

Alle vier Ebenen sind als gleichwertige Etappen einer archäologischen Untersuchung zu betrachten. Eine Ausgrabung ohne anschliessende Auswertung, Publikation und Vermittlung ist wertlos, die Absicht, die Grabung später einmal „in ruhigeren Zeiten" auswerten zu können, ist in der Stadtarchäologie eine Illusion. Die Grabungsberichte werden in den Jahresberichten der Archäologischen Bodenforschung veröffentlicht. Damit ist die regelmässige Berichterstattung gesichert[7].

„Die Rekonstruktion der Stadtgeschichte" – die dritte Ebene – erfordert eine fachübergreifende Zusammenarbeit aller an der Stadtgeschichtsforschung beteiligten Disziplinen und Institutionen.

So hat sich in Basel unter anderem eine effiziente Arbeitsteilung mit den Universitätsinstituten, dem Seminar für Ur- und Frühgeschichte sowie dem Historischen Seminar, im Hinblick auf die Auswertung und Publikation des Basler Fundmaterials eingespielt[8].

Für die vierte Ebene schliesslich, die Öffentlichkeitsarbeit, sind verschiedenartige Aktivitäten zu erwähnen, die in Basel teils gemeinsam mit anderen Institutionen (Denkmalpflege, Museen, Universität) – teils in eigener Regie durchgeführt werden. Letzteres gilt unter anderem für populäre Veröffentlichungen in Presse, Zeitschriften und Jahrbüchern[9], archäologische Führer, Zusammenfassungen über die Stadtgeschichte[10] sowie für Stadtführungen und Besichtigungen von Grabungen – Tage des „offenen Bodens" – für verschiedene Zielgruppen[11].

Den sogenannten „archäologischen Rundgängen" liegt ein Konzept zur Visualisierung stadtgeschichtlich bedeutsamer Befunde im öffentlichen Raum zugrunde. Der „Anschauungsunterricht" vor Ort fördert erfahrungsgemäss das Vorstellungsvermögen und erleichtert Stadtbewohnern und Touristen den Zugang zur Geschichte. Themenzentrierte Führungsblätter stehen zur Erläuterung und als Wegweiser für die in vier Stadtteilen angebotenen Rundgänge zur Verfügung.

Gesprächspartner bei Fragen, die den Schutz und die Erhaltung archäologischer Substanz betreffen, sind die Baudenkmalpflege beziehungsweise der Kantonsbaumeister, falls die Massnahmen stadtplanerische Entscheide erfordern, ferner das Amt für Bausubventionen.

Zur Rekonstruktion der Stadtgeschichte: Befunde zur mittelalterlichen Stadtbefestigung am Leonhardsgraben in Basel – ein Beispiel für ein Arbeitsfeld mit einer heterogenen Quellenlage und fachübergreifenden Fragestellungen

1982 kam am Leonhardsgraben 43, wenige Meter hinter der sogenannten „Inneren Stadtmauer" aus dem 13. Jh., eine ältere Wehrmauer zum Vorschein, die als Teilstück des Burkhardschen Festungswerks aus dem späten 11. Jahrhundert identifiziert werden konnte[12]. Der Verlauf der hier als Fassadenmauer noch 3 m hoch erhaltenen „Inneren" Stadtmauer war aufgrund der historischen Stadtansichten weitgehend bekannt (u.a. durch die Pläne von Matthäus Merian d.Ä.). Neu und überraschend war dagegen die Erkenntnis, dass die bereits im 11. Jahrhundert unter Bischof Burkhard von Fenis befestigte Stadt[13] annähernd dieselbe Ausdehnung hatte wie die Stadt des 13. Jahrhunderts.

Anm. 2), 8–9 wiedergegeben.

6 d'Aujourd'hui 1989 (wie Anm. 2).

7 Jahresbericht der Archäologischen Bodenforschung des Kantons Basel-Stadt (JbAB), herausgegeben von R. d'Aujourd'hui. Die Jahrgänge 1962–1987 erschienen in der Basler Zeitschrift für Geschichte und Altertumskunde (BZ) 62–88, 1962–1988; seit 1988 (Berichtsjahr) erscheint der Jahresbericht im Selbstverlag.

8 Die Arbeiten werden in der Reihe *Materialhefte zur Archäologie in Basel* veröffentlicht.

9 Unter anderem im Basler Stadtbuch.

10 d'Aujourd'hui R. ²1990: *Die Entwicklung Basels vom keltischen Oppidum zur hochmittelalterlichen Stadt, Überblick Forschungsstand 1989*. Scriptum zur Frühgeschichte Basels, Basel.

11 Siehe unter *Aktivitäten* im Tätigkeitsbericht des Kantonsarchäologen, *Jahresberichte der Archäologischen Bodenforschung des Kantons Basel-Stadt*, Teil I.

12 Rolf d'Aujourd'hui, Guido Helmig, Leonhardsgraben 43, 1982/25. *Basler Zeitschrift für Geschichte und Altertumskunde* 83, 1983, 250–270.

13 Im Gründungsbericht des Klosters St. Alban aus den Jahren 1101/1103 wird erwähnt, dass Bischof Burkhard die Stadt befestigt habe: „... *verum munitiones et castella que ipse ... construxit ... et murorum compagines ...* " (*Basler Urkundenbücher*, Band 1, 1890, Nr. 14).

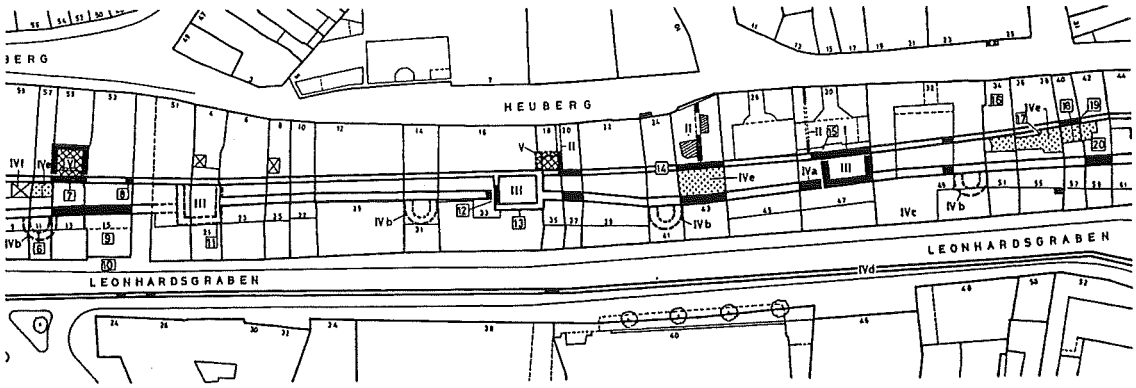


Abb. 1. - *Befunde zur hochmittelalterlichen Stadtbefestigung am Leonhardsgraben in Basel. Maßstab 1:1500. Legende:*

I	*Burkhardsche Stadtmauer, 11. Jh.*	*IVb*	*Mauertürme*
II	*Hof- und Parzellenmauern sowie Siedlungsstrukturen, 11./12. Jh., und Schwibbögen, um 1200*	*IVc*	*Stadtgraben*
		IVd	*Kontermauer*
		IVe	*Kieshinterschüttung, Rondenweg*
III	*Viereckttürme, 12. Jh.*	*IVf*	*Lichthöflein, Relikte des Rondenweges*
IV	*Innere Stadtmauer, 13. Jh.*	*V*	*Kernbauten an der Burkhardschen Stadtmauer, 13. Jh.*
IVa	*Wehrmauer*		

Ausgehend von dieser Schlüssel-Stelle wurden die Befunde zur Stadtbefestigung – ältere, nachträglich interpretierbare Aufschlüsse und aus neuen, gezielt angesetzten Untersuchungen resultierende Erkenntnisse – im Laufe der letzten Jahre systematisch inventarisiert, interpretiert und nach topographischen Gesichtspunkten gegliedert in den Jahresberichten der Archäologischen Bodenforschung und an anderer Stelle veröffentlicht[14].

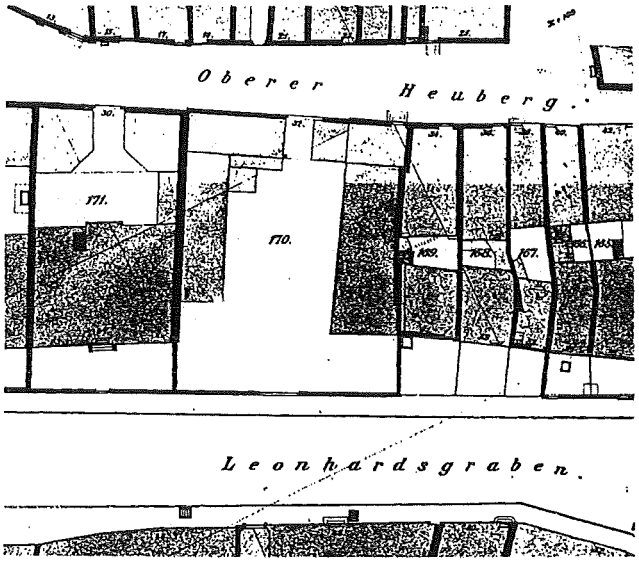
In dieser Synthese wurden Befunde unterschiedlicher Qualität und Quellengattungen berücksichtigt:

- Archäologische Befunde: Ausgrabungen oder Sondierungen mit einer Dokumentation der Befunde, Archiv Archäologische Bodenforschung
- Baugeschichtliche Befunde: Bauuntersuchungen oder Sondierungen mit Dokumentation der Befunde, Archiv Denkmalpflege und Staatsarchiv in Zusammenarbeit mit der Baudenkmalpflege.
- Baubegleitende Kontrollgänge: Beobachtungen von Archäologen oder Bauforschern und Bauleuten während der Bauarbeiten.
- Plangrundlagen: Staatsarchiv
- Hausbegehungen: Grundlagen bilden die Pläne der Geometer L.H. Löffel und R. Falkner aus dem letzten Jahrhundert sowie Architektenpläne.

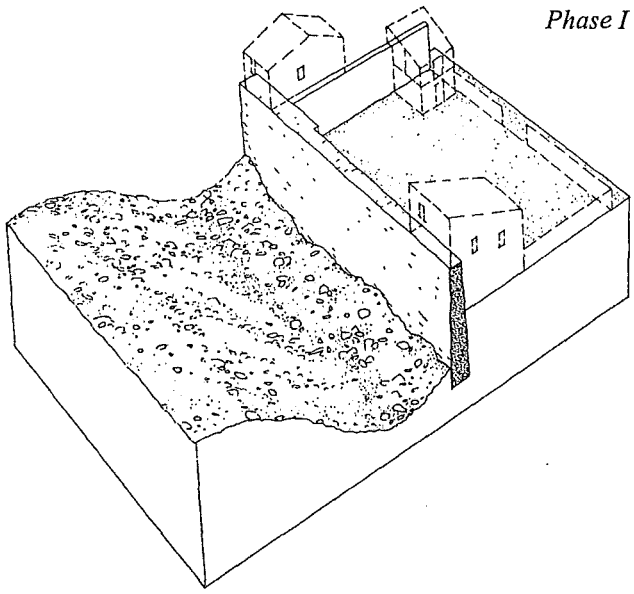
Die Kartierung der Befunde (Abb. 1) vermittelt eine Vorstellung der baugeschichtlichen Entwicklung und dient als Grundlage für die Interpretation älterer Übersichts- und Schnittpläne aus dem letzten Jahrhundert (Abb. 2). Damit können wir eine weitere Gattung äusserst wertvoller Dokumente, die den Stand der baulichen Entwicklung im Spätmittelalter und in der Neuzeit wiedergeben, in unsere Betrachtungen einbeziehen.

Das Ziel, ein „ganzheitliches Bild von Umwelt und Lebenszuschnitt zu rekonstruieren", erfordert einerseits eine allgemein verständliche, bildhafte Darstellung der Grabungsbefunde, andererseits eine Würdigung bzw. Übertragung der wissenschaftlichen Erkenntnisse in das Bild der Stadtentwicklung.

Abb. 2. - *Ausschnitt aus dem Plan von R. Falkner, aufgenommen 1865.*

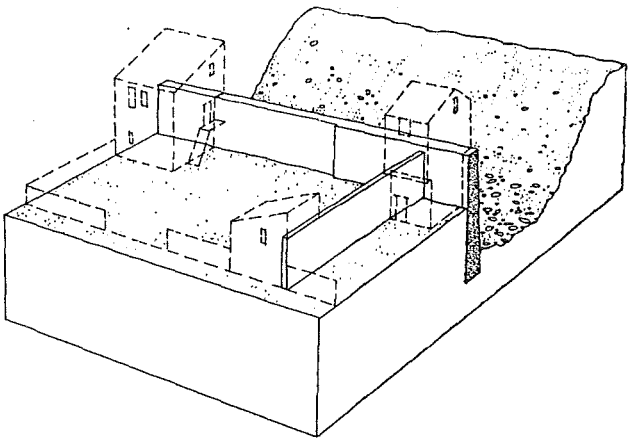


[14] D'AUJOURD'HUI R. & BING C. 1988: Hochmittelalterliche Stadtbefestigung und Entwicklung der Bebauung zwischen Leonhardsgraben und Spalenvorstadt/Heuberg, *Basler Zeitschrift für Geschichte und Altertumskunde* 88, 261–300.

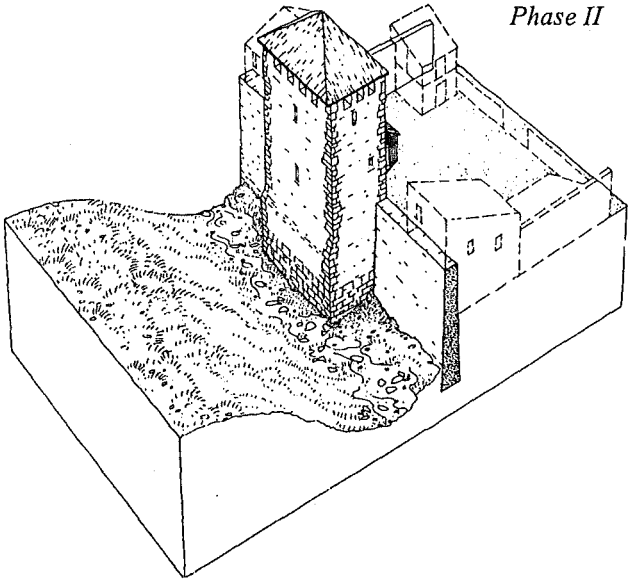


Phase I

Burkhardsche Stadtmauer mit Wehrgraben, spätes 11. Jh., Parzellen der wehrbeauftragten Adligen mit lockerer Überbauung (11./12. Jh.)

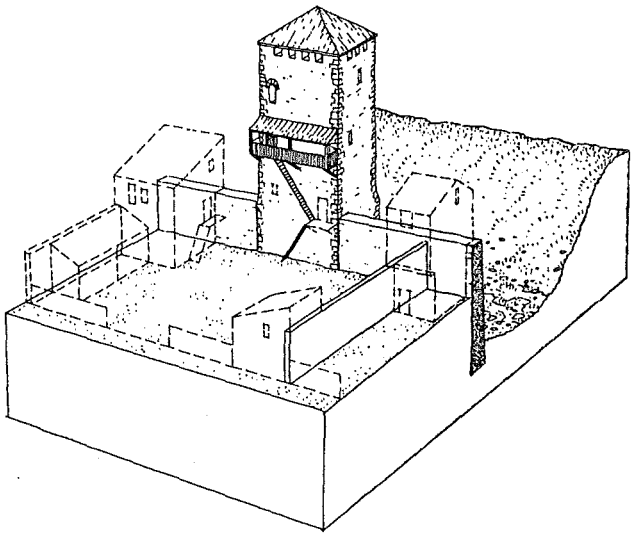


I

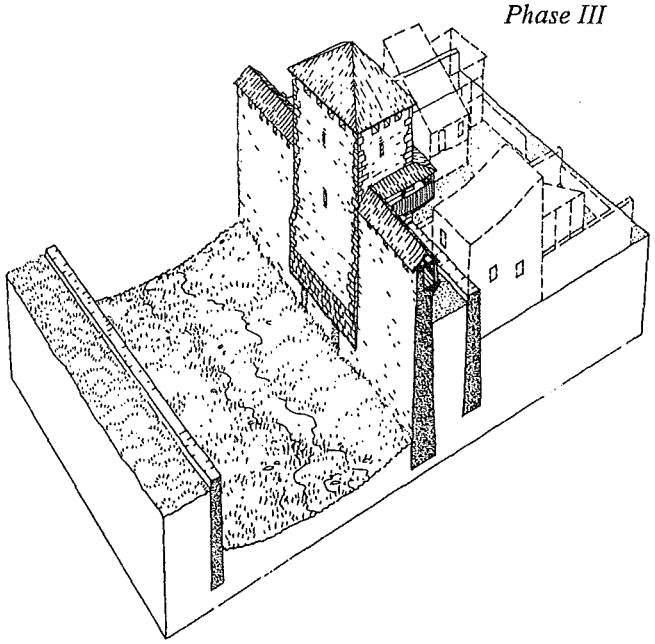


Phase II

Errichtung eines Viereckturmes mit Wehrfunktion, um 1200

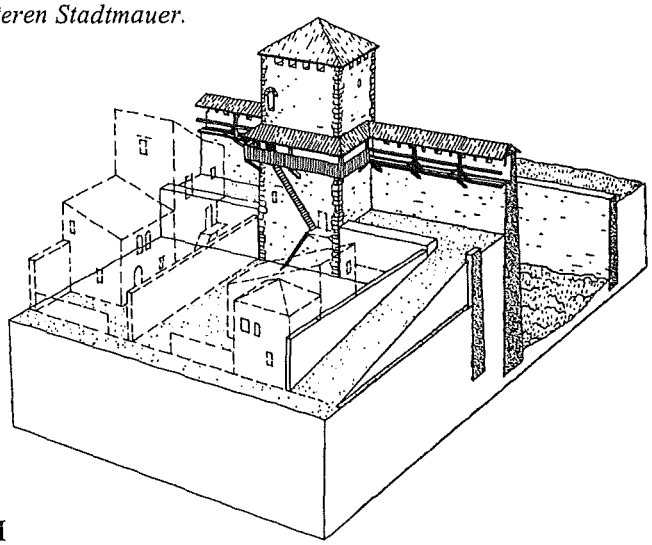


II



Phase III

Bau der Inneren Stadtmauer mit Wehrgang, Rondenweg und Rampen für die Stadtwache, Mitte 13. Jh. Teilweise Neuparzellierung und Errichtung von steinernen Kernbauten an der älteren Stadtmauer.



III

Abb. 3. - *Entwicklung der Stadtbefestigung am Leonhardsgraben 47. Rekonstruktionszeichnung auf archäologischer Grundlage. Linke Spalte: Feldseite, rechte Spalte: Stadtseite.*

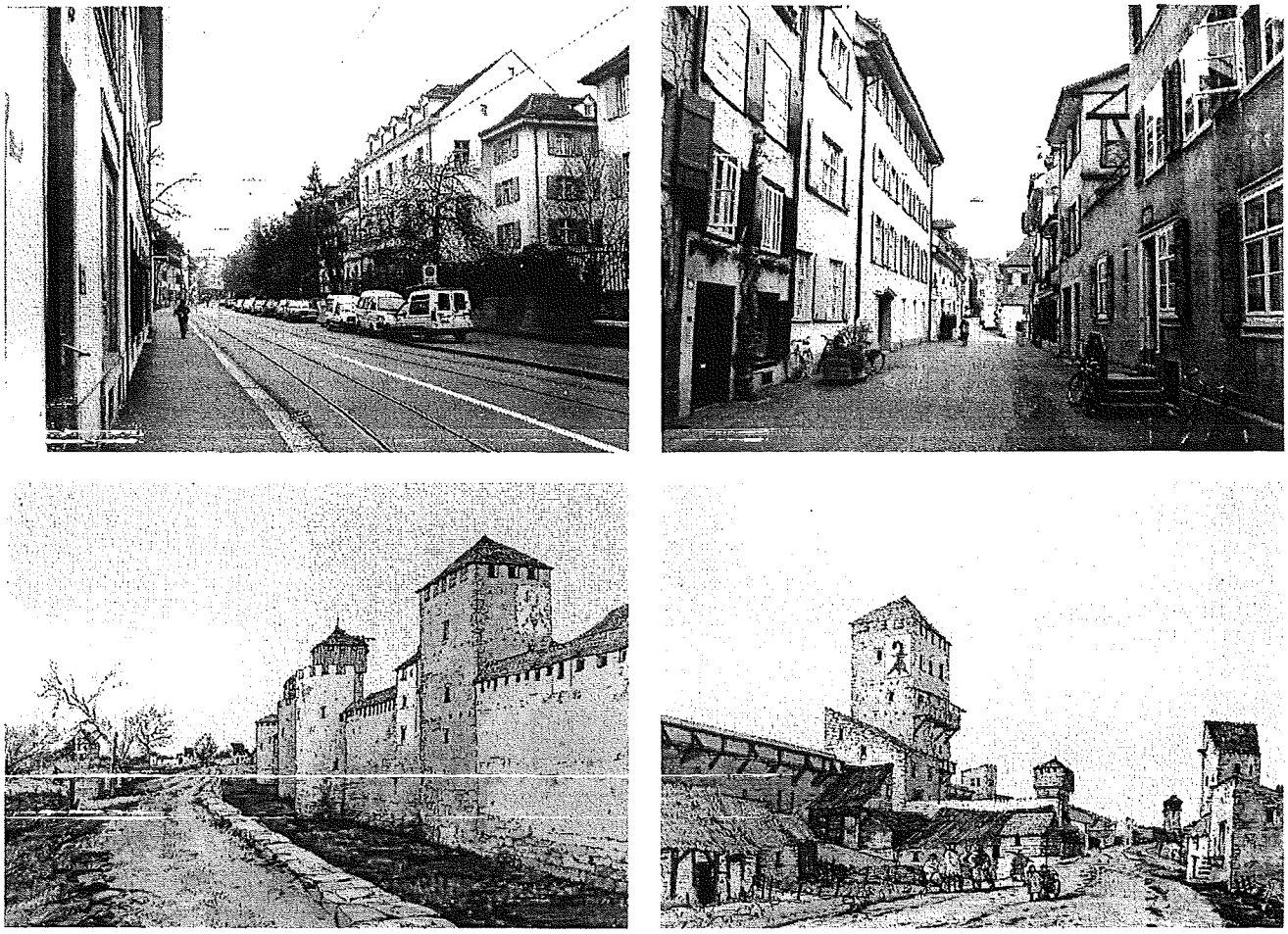


Abb. 4. - *Retrospektive. 4a. Der Leonhardsgraben: Situation nach der Errichtung der Inneren Stadtmauer um 1300. 4b. Der Heuberg: Situation mit Burkhardscher Stadtmauer und Turm um 1200.*

Modellzeichnungen, die anhand der Grabungsdokumente, Schnittprofile und Übersichtspläne nachvollziehbar sind (Abb. 3), veranschaulichen die baugeschichtliche Abfolge der Wehranlagen und Bebauungsstrukturen. Die Ursache, die dieser Entwicklung in stadtgeschichtlicher Hinsicht zugrunde liegt, kann mit dem Wandel in der politischen Organisation der mittelalterlichen Stadt erklärt werden.

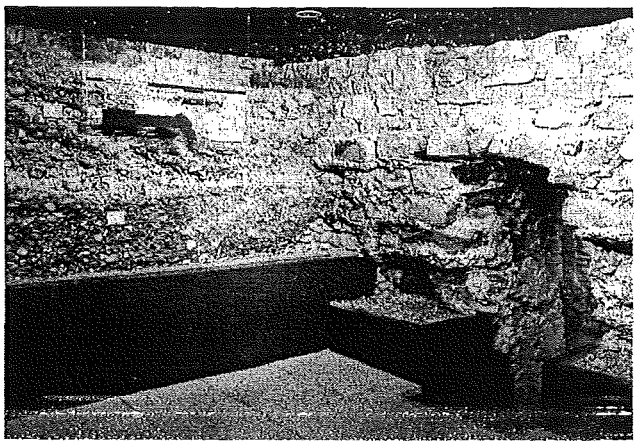
Während sich das Modell (Abb. 3) streng an die archäologischen und baugeschichtlichen Befunde anlehnt, wird in der Retrospektive (Abb. 4) ein Bild gezeichnet, das nur noch „stimmungsmässig" richtungsweisend sein will und mit diesem Anspruch in Einzelheiten wissenschaftlich nicht mehr überprüfbar sein kann.

Zur Visualisierung archäologischer Befunde im öffentlichen Raum

1985 wurden am Leonhardsgraben 47 drei Elemente der hochmittelalterlichen Stadtbefestigung, gut erhaltene Mauerzüge der beiden Stadtmauern und Mauerwerk des anstelle des Rondenwegs zwischen den Wehrmauern gelegenen Turmes, freigelegt (Abb. 3). Dieser interessante Befund konnte dank dem Verständnis der Bauherrschaft konserviert und im Keller des an dieser Stelle eingerichteten „Hotels Teufelhof" für die Öffentlichkeit frei zugänglich ausgestellt werden (Abb. 5 6)[15]. Die Informationsstelle entspricht dem eingangs erwähnten Konzept zur Visualisierung archäologischer Befunde im öffentlichen Raum. Neben diesem viel besuchten Ort gibt es in Basel weitere teils öffentlich, teils nur in geführten Gruppen zugängliche Informationsstellen beziehungsweise konservierte Befunde in Schutzbauten[16].

[15] D'AUJOURD'HUI R. 1990: Mittelalterliche Stadtmauern im Teufelhof – eine archäologische Informationsstelle am Leonhardsgraben 47, in: *Basler Stadtbuch* 1989, 156–163, Basel. D'AUJOURD'HUI R., Basel, Leonhardsgraben 47: Eine Informationsstelle über die mittelalterliche Stadtbefestigung im Teufelhof, *Unsere Kunstdenkmäler* 41/1990.2, 169–180.

[16] Weitere Informationsstellen: Pfalz: „Aussenkrypta" Münster, siehe BERGER L. 1981: Archäologischer Rundgang durch Basel, *Archäologischer Führer der Schweiz* 16, Basel. – Münsterplatz 15, Mücke: spätrömische Kastellmauer (Lapidarium und Hofmarkierung), siehe Berger (ebda.). – Schneidergasse 6–



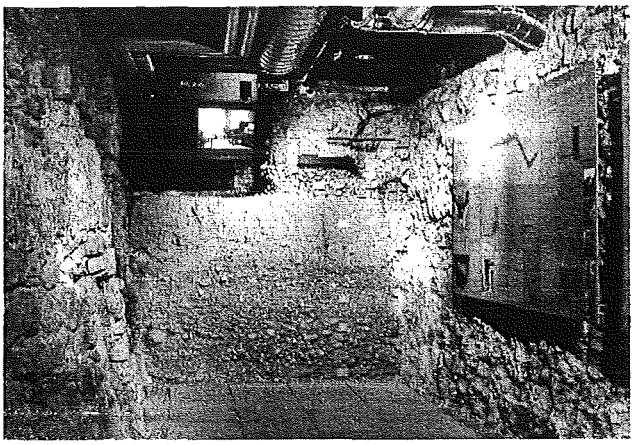


Abb. 5 & 6. - *Der archäologische Keller am Leonhardsgraben 47.*

Eine andere Möglichkeit der Kennzeichnung archäologischer Objekte, die in Basel ebenfalls angewendet wird, ist die Markierung von Grund-

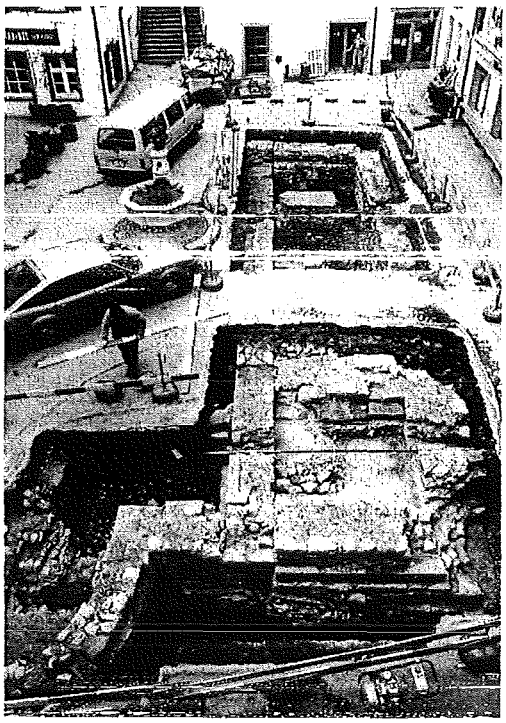
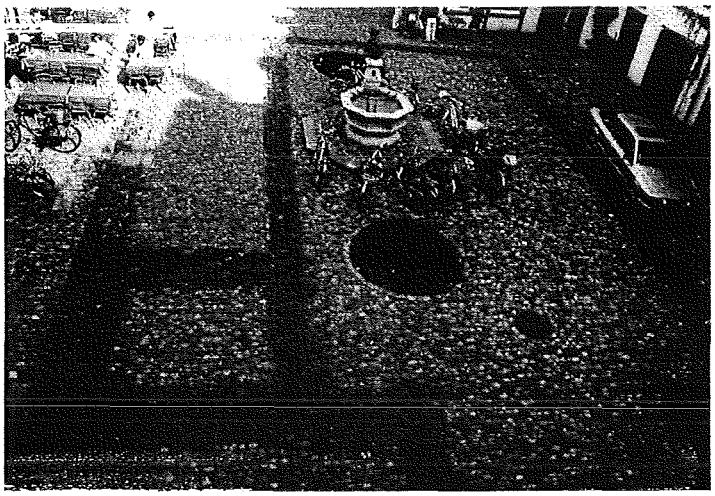


Abb. 7 & 8. - *Fundamentreste und in der Pflästerung markierter Grundriss der Andreaskirche.*



12: Kernbauten, Wohn- und Wehrturm, siehe D'AUJOURD'HUI R. & MATT Chr.Ph. 1985: Mittelalterliche Adelstürme und Steinbauten an der Schneidergasse, in: *Basler Stadtbuch* 1984, 219–230, Basel. – St. Alban-Graben 5–7 (Antikenmuseum): römische Keller, Stadtmauer, Ausstellung über den römischen Vicus, siehe HELMIG G. 1989: Schaufenster zur Stadtgeschichte, in: *Basler Stadtbuch* 1988, 255–268, Basel. – Leonhardsgraben 43: Stadtmauern 11. und 13. Jh., SIEHE D'AUJOURD'HUI R. & HELMIG G. 1984: Die Burkhardsche Stadtmauer aus dem späten 11. Jahrhundert, in: *Basler Stadtbuch* 1983, 233–242, Basel. – Steinengraben 22: Kontermauer, Stadtgraben, Äusserer Mauerring, siehe MATT Chr.Ph., Steinengraben 22/Leonhardsstrasse 22/24, Zum Neufund der spätmittelalterlichen Kontermauer, *Jahresbericht der Archäologischen Bodenforschung des Kantons Basel-Stadt* 1989, 46–53. – St. Johanns-Park, Elsässerstrasse 2a: Ruine, festes Haus (13. Jh.) und Ökonomiegebäude (Neuzeit), siehe AEBI TH., D'AUJOURD'HUI R. & ETTER H.F., Ausgrabungen in der Alten Stadtgärtnerei, Elsässerstrasse 2a (St. Johanns-Park), *Jahresbericht der Archäologischen Bodenforschung des Kantons Basel-Stadt* 1989, 206–249; ETTER H. 1991: Der äussere St. Johann-Gottesacker in Basel: ein Spitalfriedhof des 19. Jahrhunderts, in: *Basler Stadtbuch* 1990, 200–208, Basel. – St. Alban-Tal: Tor, Mauer, Wehrgraben, Äusserer Mauerring, siehe HELMIG G. & MATT Chr.Ph., *Inventar der Basler Stadtbefestigungen* – Planvorlage und Katalog, 2. Die rheinseitigen Grossbasler Stadtbefestigungen, *Jahresbericht der Archäologischen Bodenforschung des Kantons Basel-Stadt* 1990, 153–222.

Ausser diesen für die Öffentlichkeit konservierten und kommentierten Objekten gibt es einige weitere Monumente, die baugeschichtlich/archäologisch untersucht und durch eine öffentliche Nutzung erschlossen sind, so u.a. das „Schöne Haus", Nadelberg 6: gotischer Palast mit Deckengemälden, 13. Jh., siehe MATT Chr.Ph. 1993: Archäologische Untersuchungen im Engelhof (Nadelberg 4/Stiftsgasse 1, 1987/6), Zum Beginn der Besiedlung am Nadelberg, *Jahresbericht der Archäologischen Bodenforschung des Kantons Basel-Stadt* 59 mit Anm. 43 (Literatur zum „Schönen Haus"), der „Spalenhof", Spalenberg 12: romanischer „Palast", siehe MATT Chr.Ph. 1989: Spalenberg 12, Mittelalterliche Parzellen- und Terrassierungsmauern beim Spalenhof, *Jahresbericht der Archäologischen Bodenforschung des Kantons Basel-Stadt* 54–58, sowie die drei erhaltenen Stadttore.

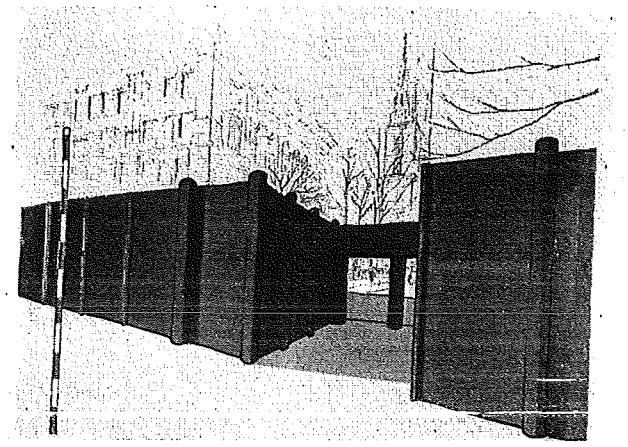
rissen und anderen Strukturen im Strassenbelag, wie das Beispiel der Andreaskirche zeigt (Abb. 7-8)[17].

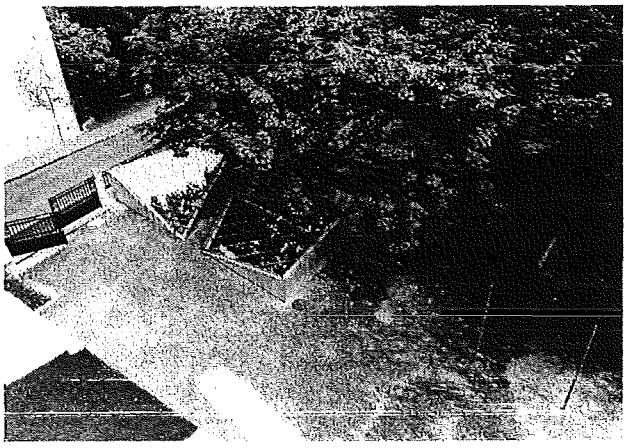
Eine nicht ganz unproblematische Form der Visualisierung ist schliesslich die Übernahme beziehungsweise Reinterpretation historischer Strukturen im modernen Städtebau, wie sie beispielsweise der Überbauung des Rosshofareals in Basel zugrunde liegt. Hier lautete die im Ideenwettbewerb für die Gestaltung ausgeschriebene Aufgabe: „Das Rosshofareal wieder harmonisch ins städtische Gefüge einzubringen". Es bestand die bindende Auflage „Lösungen zu finden für heutiges Bauen in historischer Umgebung"[18]. Die längs des Petersgrabens vor den langgestreckten Bauten errichtete „Schildmauer" (Abb. 9) erinnert an die in ihren Grössendimensionen vergleichbare „Innere" Stadtmauer, die an dieser Stelle einst die mittelalterliche Kernstadt begrenzte. In dieser Funktion – als Formensprache moderner Stadtplaner – kommt der Gegenwartsbezug stadtgeschichtlicher Befunde besonders deutlich zum Ausdruck.

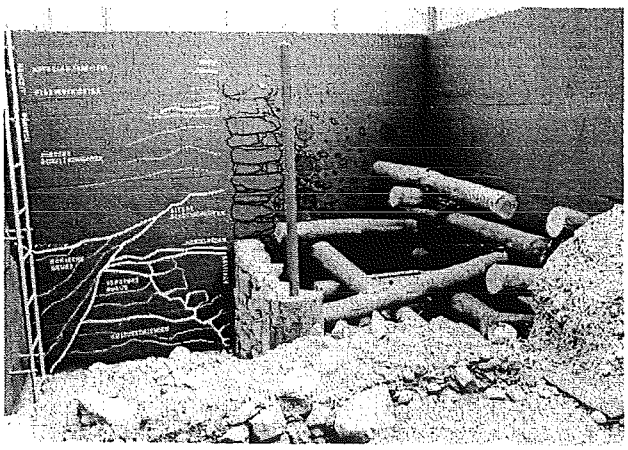
Die jüngste Installation im öffentlichen Raum ist der Archäologische Park an der Rittergasse[19] (Abb.

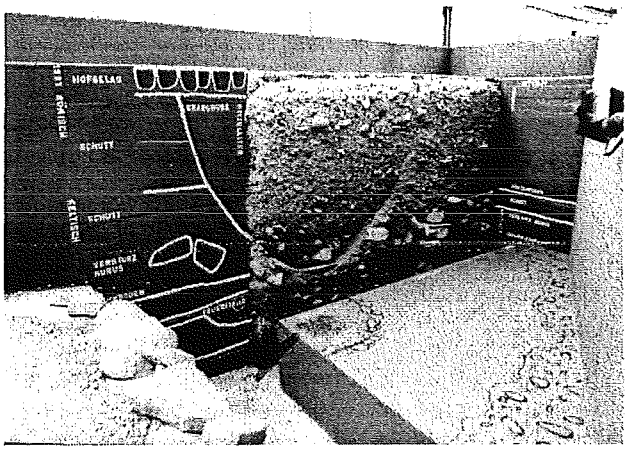
Abb. 9. - *Moderne Überbauung des Rosshofareales: „Schildmauer" am Petersgraben.*

Abb. 10. - *„Schaufenster in die Vergangenheit": Der Archäologische Park am Murus Gallicus an der Rittergasse. a: Orientierungstafel Rittergasse; b: Aufsicht Park mit Glashäusern; c: Einblick in Glashaus mit Rekonstruktion Murus Gallicus; die originalen, umgekippten Steine wurden wieder in die ursprüngliche Lage zurückversetzt; d: Einblick in Glashaus mit Murusklotz, Profil und gezeichneter Feuerstelle.*









[17] D'AUJOURD'HUI R. & SCHÖN U. 1988: Ausgrabungen auf dem Andreasplatz, Archäologische Aufschlüsse zur Kirche St. Andreas, *Basler Zeitschrift für Geschichte und Altertumskunde* 88, 212–249.

[18] FINGERHUTH C. & VETTER W. 1988: *Bauten für Basel*, Basel.

[19] D'AUJOURD'HUI R. 1994: Der Archäologische Park am Murus Gallicus. Führer durch die Ausstellung an der Rittergasse in Basel, Sd aus *Basler Stadtbuch* 1993, 196–204, Basel.

10). Hier wurde 1971 die älteste Basler Stadtbefestigung, der Murus Gallicus, entdeckt. In den Jahren 1991–1993 hatte die Archäologische Bodenforschung Gelegenheit und finanzielle Mittel im Rahmen der Aktivitäten zur 700-Jahr-Feier der Eidgenossenschaft weitere Grabungen durchzuführen, unter anderem mit dem Ziel, die Befunde im öffentlichen Raum sichtbar zu machen. Unter dem Motto „archäologisch denken im Park" liegt der Ausstellung die Absicht zugrunde, den Besucher mit der archäologischen Denkweise und Arbeitsmethode vertraut zu machen. Zentrale Bedeutung kommt den konservierten Originalbefunden zu, die mit didaktischen Mitteln, Zeichnungen, Beschriftung und Modellen, zurückhaltend erläutert werden. Die in den beleuchteten Schaufenstern bereit gestellten Puzzleteile wurden auf dem Mergelbelag des Parks symbolisch markiert und in einen grösseren Zusammenhang gestellt. Die Architektur und Parkgestaltung dient somit der Vermittlung stadtgeschichtlicher Erkenntnisse. Rote Markierungsstangen zeigen den Verlauf der Murusfront an und stecken die Ausdehnung der archäologisch untersuchten Flächen ab. Sie stehen an der Stelle senkrechter Pfosten, die einst in regelmässigen Abständen in die Verblendung der Trockenmauer eingelassen waren. Rot-weisse Messjalons bezeichnen den Verlauf der Grabenkante, die Tiefe und Breite der Grabensohle sowie die Neigung der Grabenböschung. Mit festen Platten wurde schliesslich auch die hinter der Murusfront verlaufende römische Kastellmauer markiert. Der Bogen der Geschichte wird über die Antike hinaus bis in die Gegenwart gespannt. Gräber eines mittelalterlichen Friedhofs, frühneuzeitliche Baustrukturen, moderne Leitungsbauten und als jüngstes Relikt ein Rest der 1991 entfernten Pflästerung des ehemaligen Schulhofs werden als Indizien für die Kontinuität der menschlichen Aktivitäten vor Ort hervorgehoben. Als Wegleitung für die anspruchsvolle Entdeckungsreise im Park werden die für das Verständnis notwendigen Grundlagen auf Informationstafeln mit Text und Illustrationen erläutert[20].

Die Konservierung des Schulhofbelags macht deutlich, dass der Archäologie als Methode zeitlich keine Grenzen gesetzt sind und erinnert vielleicht manchen der heute noch lebenden ehemaligen Schüler dieses Schulhauses an die Geschichtlichkeit seiner eigenen Existenz.

Auch wenn die Besucher oft nur für kurze Zeit im archäologischen Park verweilen, löst der Anblick der im Laufe von rund 2000 Jahren gewachsenen Kulturschichten im aufgeschnittenen Boden Assoziationen über die im Grunde ur-menschlichen Fragen nach Herkunft, Identität und Vergänglichkeit aus[21].

Zusammenfassung

Der Dialog mit der Öffentlichkeit ist eine wichtige Voraussetzung für die Akzeptanz von Denkmalpflege und Archäologie. Voraussetzung für eine zielgerichtete Öffentlichkeitsarbeit sind Organisationsformen und Methoden, die eine kontinuierliche Quellenschöpfung, Auswertung und Vermittlung gestatten.

Der Auftrag der Archäologischen Bodenforschung Basel-Stadt ist im Gesetz über den Denkmalschutz festgehalten. Dort werden vier Ebenen, Ausgrabung, Auswertung, Rekonstruktion und Öffentlichkeitsarbeit, unterschieden, die als gleichwertige integrierende Etappen der Stadtgeschichtsforschung verstanden werden.

Der Kontakt mit der Öffentlichkeit erfolgt über die Medien, Stadtführungen, Einladungen auf Grabungen und vor allem durch Informationsstellen im öffentlichen Raum. An verschiedenen Orten der Stadt wurden im Laufe der letzten Jahre archäologische und baugeschichtliche Befunde konserviert und didaktisch erläutert. Die Informationsstellen sind in vier Stadtrundgängen (Führungsblätter) eingebettet. Das Programm wird kontinuierlich ergänzt.

Die Visualisierung der Stadtgeschichte ist ein wirksames Mittel zur Förderung der Identifikation der Bevölkerung mit ihrer alltäglichen Umgebung. Der archäologische Auftrag wird im Dialog mit der Öffentlichkeit zur Selbstverständlichkeit und wird damit von Behörden, Politikern und Bürgern anerkannt und unterstützt.

Abbildungsnachweis:
Abb. 1, 2, 9 und 10: Grabungsdokumentation der Archäologischen Bodenforschung. Abb. 6, 7, 8, 11 und 12: Fotos Thomas Kneubühler. Abb. 3: Zeichnung Christian Bing. Abb. 4: Ausschnitt aus dem Falknerplan, 1865. Abb. 5 und 6: Zeichnungen Stefan Tramèr. Abb. 10: Orientierungstafel und Innengestaltung der Glashäuser: Nicolas d'Aujourd'hui.

Rolf d'Aujourd'hui
Archäologische Bodenforschung des Kantons Basel-Stadt
Petersgraben 11
CH - 4051 Basel

[20] Grabung, Konzeptfindung, Architektur und künstlerische Gestaltung beeinflussten sich wechselseitig. Die Umsetzung der wissenschaftlichen Erkenntniss e wurde im Team entwickelt und fand in der zweckdienlichen Gestaltung von Hannes und Petruschka Vogel ihren künstlerischen Ausdruck.

[21] Der vorliegende Text wurde der Eidgenössischen Kommission für Denkmalpflege zur Veröffentlichung anlässlich des Kolloquiums über Denkmalpflege und Öffentlichkeit vom 12./13. September 1996 in Sion (CH) zur Verfügung gestellt. Eine ausführlichere Fassung des Textes erscheint in der Festschrift für Walter Sage (im Druck).

Fabio Redi

Metodologie e tecniche per una diagnostica preventiva non invadente e per una opzione preliminare sulle strategie d'intervento in materia di restauro edilizio e di scavo archeologico: applicazione della termografia e della prospezione con georadar

Assai frequentemente il restauratore edile e l'archeologo devono intervenire su edifici pluristratificati, pervenuti trasformati e ricoperti da un uniforme strato d'intonaco, o su siti archeologici complessi, privi di afffioramenti o di utili indicazioni preliminari alla scelta della strategia da adottare nello scavo. Nel primo caso è possibile conoscere le preesistenze architettoniche, evitando il lungo e costoso ricorso alla rimozione dell'intonaco e prima che con il restauro si provochino lacerazioni o sventramenti irreversibili, con il prezioso ausilio di opportune e relativamente semplici prospezioni termografiche che rivelino la consistenza delle singole componenti strutturali di ogni parete del complesso immobiliare. Nel secondo caso appare più proficuo poter scegliere il sito o particolari aspetti di esso, da verificare con lo scavo archeologico, pianificando a tavolino, sulla base di indicazioni offerte da applicazioni geofisiche, piuttosto che procedere incautamente o probabilisticamente allo scavo estensivo.

La Termografia è una diagnostica non invadente, e quindi non distruttiva, relativamente moderna e di sperimentata efficacia, che trova però ancora scarsa applicazione in occasione di restauri edilizi e di indagini archeologiche degli elevati degli edifici storici che costituiscono in alta percentuale il tessuto delle nostre città. Ogni edificio, ogni insediamento, è il risultato di interventi successivi, che ne hanno modificato di volta in volta l'assetto adattandone le forme secondo i mutamenti di esigenze e di funzioni, che hanno lasciato nelle strutture murarie tracce troppe volte non identificabili a causa del manto d'intonaco che ne ricopre le superfici. Il rispetto dovuto agli intonaci, frequentemente dipinti o affrescati o graffiti, non permettendone la rimozione a scopo conoscitivo, priverebbe inevitabilmente di una notevole quantità di dati fondamentali il ricercatore, se non fosse disponibile lo strumento di cui ci stiamo occupando. Le pur limitate applicazioni della Termografia in campo archeologico-architettonico sono sufficienti a dimostrare l'efficacia di questa tecnica e a suggerirne un più largo impiego quando s'intenda conoscere a fondo le vicende costruttive e storiche di un edificio o di un insediamento, come credo di avere dimostrato in più occasioni[1].

I principi fondamentali della Termografia derivano dall'osservazione che le superfici murarie sono sede di squilibri termici in virtù della conducibilità degli intonaci che produce l'"ombra termica" dei fenomeni sottostanti che dipendono dalla diversità dei materiali impiegati nel sodo murario e negli elementi strutturali[2]. Infatti, qualsiasi oggetto emette radiazioni elettromagnetiche caratteristiche della sua costituzione fisica. Pietra, laterizio e malta non reagiscono allo stesso modo al calore. La prima è la migliore conduttrice di calore: lo assorbe più rapidamente e si raffredda più celermente degli altri materiali, comportando variazioni termiche più brusche rispetto a essi. Poiché le irradiazioni termiche delle componenti del sodo murario si riflettono sulla superficie intonacata, l'immagine infrarossa, che non è percepibile dall'occhio umano, può essere registrata da appositi sensori, che consentono di effettuare la mappatura termica delle superfici dei muri. Tonalità di grigio più chiare corrispondono alla pietra, perché più fredda, e immagini sempre più scure rappresentano l'intonaco e il laterizio, perché questi materiali conservano più a lungo della pietrra

[1] F. REDI, Analisi termografica e lettura archeologica: l'esempio del Palazzo dei Cavalieri in Pisa, *Ricerche Storiche* XII, 1 (gennaio-aprile 1982), 3-27; IDEM, Anatomia della Sapienza, *Notiziario Università di Pisa* V, 12 (30 dicembre 1986), 8; IDEM, Il Palazzo del Consiglio dei Dodici a Pisa. Termografia delle strutture medievali, in: *Il Palazzo del Consiglio dei Dodici del Sacro Militare Ordine dei Cavalieri di S.Stefano P. e M.*, a cura di R. BERNARDINI, Pisa, 1987, 19-30; IDEM, *Pisa com'era: archeologia, urbanistica e strutture materiali (secoli V-XIV)*, GISEM, Europa Mediterranea, Quaderni 7, Napoli, 1991, 325-332.

[2] M. SERACINI, G. RUFFA & F. PETRUCCI, L'indagine termografica applicata al restauro dei centri storici & Impiego della Termovisione per rilevare strutture architettoniche celate da intonaci, *Ricerche Storiche* XII, 1 (gennaio-aprile 1982), 28-34.

il calore assunto durante l'esposizione diurna ai raggi solari.

In considerazione di quanto detto è evidente che i periodi stagionali e diurni più favorevoli per le riprese termografiche sono quelli in cui l'escursione termica diurna è più accentuata, cioè in grado di fornire un'"ombra termica" più contrastata. La primavera e l'autunno, quindi, sono le stagioni più adatte e le ore notturne quelle più favorevoli, perché la temperatura esterna è più bassa rispetto a quella dei muri che sono stati riscaldati da una prolungata insolazione diurna e perché la pietra ha avuto il tempo di raffreddarsi più precocemente della malta e dei laterizi. Condizioni sfavorevoli possono consistere sia nell'esposizione poco soleggiata del fronte dell' edificio che interessa, orientato ad esempio a tramontana o ubicato in uno stretto vicolo scarsamente assolato durante il giorno, sia nella presenza di estese sacche di umidità che costituiscono uno scudo termico fra il sodo murario e il rivestimento d'intonaco. Mentre per la prima causa di limitazione dell' efficacia della Termografia è possibile una correzione per mezzo di una forzatura termica, cioè di un riscaldamento artificiale degli ambienti interni dell' edificio, per la seconda causa non esistono rimedi.

La strumentazione è costituita da una videocamera sensibile all'infrarosso, collegataa con un monitor sul quale possono essere fotografate le porzioni di superficie muraria riprese dalla camera stessa. Sarà accortezza dell'operatore riprendere porzioni consecutive e strisciate che abbiano una piccola percentuale di superficie in comune, onde consentire il montaggio dei particolari, e mantenere l'apparecchio il più possibile equidistante e perpendicolare rispetto al piano di ciascuna porzione. Ad ogni modo uno o due bordi trasversali del monitor sono graduati metricamente così da poter riportare ciascun fotogramma alla stessa scala e raddrizzarne il più possibile i contorni.

In condizioni ottimali di buona insolazione e di assenza di umidità la risoluzione termografica può raggiungere livelli di dettaglio sorprendenti, come ho potuto evidenziare nell'analisi termografica della facciata della Scuola Normale Superiore di Pisa[3]. L'edificio, come è noto, è il risultato di un calibrato intervento di mimetizzazione del complesso medievale del Palazzo degli Anziani del Comune di Pisa voluto dai Fiorentini dopo la conquista della città e attuato da Giorgio Vasari nella seconda metà del sec.XVI[4] allo scopo di cancellare nella città sottomessa perfino la memoria dell'antica potenza e della grandezza delle istituzioni civiche[5]. Una coltre d'intonaco pregevolmente decorato a graffito fu stesa per nascondere le strutture medievali dei palazzi del Comune e un nuovo ordinamento delle porte e delle finestre, insieme con un livellamento della linea di tetto delle torri e delle case-torri del complesso edilizio medievale, costituirono sostanzialmente l'intervento vasariano pervenuto fino a noi. Studiosi di valore, come il Rohault de Fleury, il Salmi e altri[6], fin dalla metà del XIX secolo si erano cimentati nel proporre interpretazioni e immagini ricostruttive della forma architettonica degli antichi palazzi della Repubblica marinara, basandosi unicamente sulla lettura del rilievo di pianta, su scarse testimonianze iconografiche e archivistiche, in sostanza tentando ricostruzioni fortemente ipotetiche in analogia con le caratteristiche dell'edilizia civile pisana del XII-XIII secolo superstite. E' chiaro perciò che, non potendo rimuovere il pregevole intonaco graffito, ormai storicizzato, ed essendo pressante l'esigenza di conoscere la consistenza e la dinamica della formazione del complesso palaziale originario, si doveva ricorrere a strumenti di indagine non distruttiva, capaci di penetrare sotto i 2-4 cm di intonaco e di restituire l'immagine dei manufatti ricoperti da esso. Si è proceduto quindi alla sperimentazione delle potenzialità della termografia, peraltro già note e applicate in altri settori della medicina e della diagnostica in campo urbanistico e statico. Le riprese effettuate ai primi di giugno del 1979 dalla E.DI.TECH. di Firenze per nostro conto, essendo favorevoli le condizioni di ripresa della facciata della Scuola Normale perché esposta a mezzogiorno, con scarse infiltrazioni di

[3] Cfr. *supra*, nt. 1. Un esito decisamente più limitato hanno dato le indagini di M.L. CRISTIANI TESTI, Introspezione termografica del Palazzo dei Cavalieri a Pisa. Problemi antichi e nuove tecnologie, *Critica d'Arte* 172-174 (luglio-dicembre 1980), 51-68; di G. ROCCHI, Esame termografico della facciata del Palazzo dei Cavalieri di Pisa, in *Critica d'Arte*, cit. *supra*, 65-66; e di A. BARTOLOZZI & L. GIORGI, Indagini termografiche. Relazione, *Critica d'Arte*, cit. *supra*, 67-68.

[4] E. CODINI KARWACKA, Piazza dei Cavalieri ed edifici adiacenti, in: *Livorno e Pisa: due città e un territorio nella politica dei Medici*, Catalogo delle Mostre Medicee di Pisa, Pisa, 1980, 223-241.

[5] F. REDI, *Fine del simbolo di Pisa repubblicana: il risultato della politica edilizia fiorentina in seguito alla conquista della città, Celebrazioni del 6 agosto 1980*, Pisa, 1980; ripubblicato in *Momenti di Storia medioevale pisana. Discorsi per il giorno di S.Sisto*, a cura di O. BANTI & C. VIOLANTE, Biblioteca del "Bollettino Storico Pisano", Collana Storica 37, Pisa, 1991, 199-206.

[6] G. ROHAULT DE FLEURY, *La Toscane au Moyen Age. Architecture civile et militaire*, Paris, 1873, tav. 38a; IDEM, *Lettres sur la Toscane*, Paris, 1874, 122-131; M. SALMI & F. ARNALDI, *Il Palazzo dei Cavalieri e la Scuola Normale Superiore di Pisa*, Bologna, 1932, M.L. TESTI CRISTIANI, Un disegno d'architettura del XIII secolo, *Critica d'Arte* 126 (novembre-dicembre 1972), 5-18; cfr. anche *supra*, nt. 3.

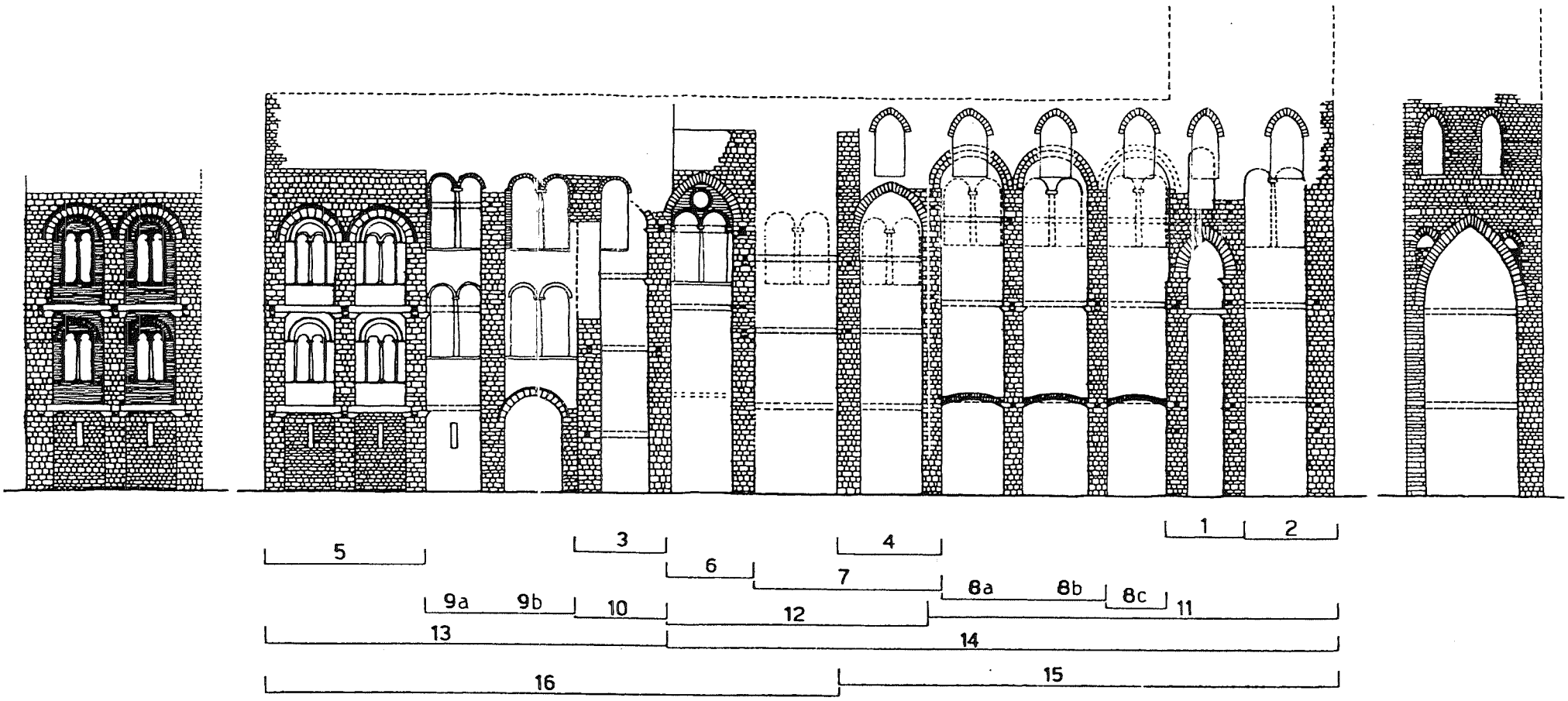


Fig. 1. - *Restituzione e interpretazione grafica del rilevamente termografico della facciata del Palazzo della Carovana, già degli Anziani del Comune (Scuola Normale Superiore di Pisa). La sequenza delle graffe, dall'alto verso il basso, indica la successione degli accorpamenti immobiliari.*

umidità e con strutture murarie di diversa consistenza fortemente contrastata, hanno permesso una lettura, una interpretazione e una rappresentazione grafica delle preesistenze che supera le aspettative[7]. Non soltanto è stato possibile individuare l'esatta consistenza architettonica, strutturale, tecnica e materiale di ogni componente, ma anche percepire le relazioni stratigrafiche intercorrenti fra i diversi corpi di fabbrica e quelle delle fasi di sviluppo di ciascuno di essi, così da conoscere su basi scientifiche oggettive la dinamica degli accorpamenti e delle rispettive redazioni architettoniche del complesso edilizio nel suo divenire storico dal XII-XIII secolo fino alla seconda metà del XIV. Pilastri, archi, ghiere, ammorsature, inserimenti, tamponamenti, soprelevazioni, tagli, crolli, strapiombi sono perfettamente leggibili, ma in pparticolare desidero sottolineare l'esatta percezione delle dimensioni dei conci grazie alla evidenziazione dei giunti fra elementi consecutivi[8]. La diversità di materiale: pietra per i conci, malta per i giunti, permette di contare e di raffigurare in scala ogni elemento e non solo è marcata la diversità fra pietra e malta, pietra e mattoni, laterizi e giunti, bensì anche le diversità litologiche e di tecnica di apparato del materiale lapideo sono valutabili con precisione. Calcari e quarziti si distinguono da brecce e da tufi, in quanto più scabre o più porosi; un apparato perfettamente riquadrato, spianato e sagomato si distingue da un altro meno accurato nel trattamento dei contorni e delle facce, poiché lascia più spazio alla malta dei giunti e del rivestimento. Buche pontaie e buche da ballatoi lignei sono nettamente distinguibili perché tamponate con materiali diversi; similmente le sottostanti mensole di rinforzo delle sovrastrutture di legno, nonostante l'identicità del materiale di esse e delle murature dalle quali in origine aggettavano, sono riconoscibili perché la loro scalpellatura al momento della soppressione ha lasciato superfici più scabre rispetto a quelle del muro circostante. Una conferma delle mie interpretazioni è stata possibile in quanto i lati destro e sinistro, contigui alla facciata del palazzo, circa un secolo fa, con la rimozione dell' intonaco, erano stati riportati in vista. Le immagini riprodotte sono più eloquenti delle parole.

Ad eccezione del palazzo del Capitano del Popolo, o del Bonomo, o dell'Orologio, sostanzialmente valutabile perché in parte stonacato, si è proceduto a termografare anche gli altri palazzi che si affacciano sulla stessa piazza dei Cavalieri, ma con esito diverso.

Il palazzo che sorge lungo il lato ovest della piazza, composto dal Collegio Puteano, dall'orologio di S. Rocco e dal Collegio Pacinotti, essendo esposto a oriente, ha restituito un'immagine termografica soddisfacente come quella del palazzo della Normale, resa evidente dalla muratura ordinaria di pietra grezza o a conci di spoglio distribuita eterogeneamente con laterizi e con giunti di malta evidenti. Essa peraltro non ha rivelato strutture medievali preesistenti, qualificando quindi come una costruzione ex novo o una ricostruzione di fine XVI-inizi XVII secolo l'intero fronte di edifici che ha separato la chiesa di S.Sisto, a ovest, dalla piazza dei Cavalieri, a est[9].

Il palazzo all'angolo S-O della piazza, noto come Tribunale dei Dodici, invece, sotto le sembianze della redazione del 1603 realizzata dal Francavilla[10] ha rivelato nitidamente le strutture della preesistente Camera Nuova del Comune, realizzata nel 1338[11], nonostante la facciata sia esposta a settentrione come il vicino Palazzo del Genio Civile, già Canonica della chiesa di S.Stefano dei Cavalieri, e precedentemente occupato da edifici medievali di pertinenza del Comune[12]. Evidentemente, mentre la facciata del Tribunale dei Dodici gode di buone condizioni di scarsa umidità e, soprattutto, è costituita da strutture di materiali diversi fortemente contrastati: pietra la Camera Nuova del Comune, mattoni e conci sparsi di spoglio la realizzazione del Francavilla, la facciata della ex Canonica di S.Stefano presenta abbondanti chiazze di umidità e, in particolare, è costituita da strutture originali di mattoni con interventi successivi anch'essi di laterizi. Così, estremamente difficile, lacunosa e dubbiosa è risultata la sua lettura.

Altri edifici pisani sono stati oggetto di prospezioni termografiche, con risultati di diversa qualità[13]; per altri ancora è in corso di attuazione un programma di indagine, in particolar modo per tutti gli edifici affacciati sull'Arno, allo scopo di riproporre un'immagine storica attendibile dello scenario che si presentava ai mercanti e ai viaggiatori che nel Medioevo risalivano il fiume con le loro imbarcazioni, magari provenienti dalla stessa città di Brouges nella quale ci troviamo per il Convegno.

Altra diagnostica non invadente, applicabile questa volta al terreno anziché agli elevati di edifici storici,

7 Redi, *Analisi termografica*, cit.; Idem, in: *Pisa com'era*, cit., 325-332 e tavv.44a, b, c; Seracini, Ruffa & Petrucci, *L'indagine termografica*, cit.

8 Redi, *Analisi termografica*, cit., figg. non numerate alle pp. 16-17.

9 Redi, in: *Pisa com'era*, cit., 320-334 e tav.43.

10 Codini Karwacka, *Piazza dei Cavalieri*, cit., 240-241.

11 Redi, in: *Pisa com'era*, cit., 332-334.

12 Redi, *Il Palazzo del Consiglio dei Dodici*, cit., 19-30; Id., *Pisa com'era*, cit., 332-334 e tav. 45a,b.

13 Redi, *Anatomia della Sapienza*, cit.

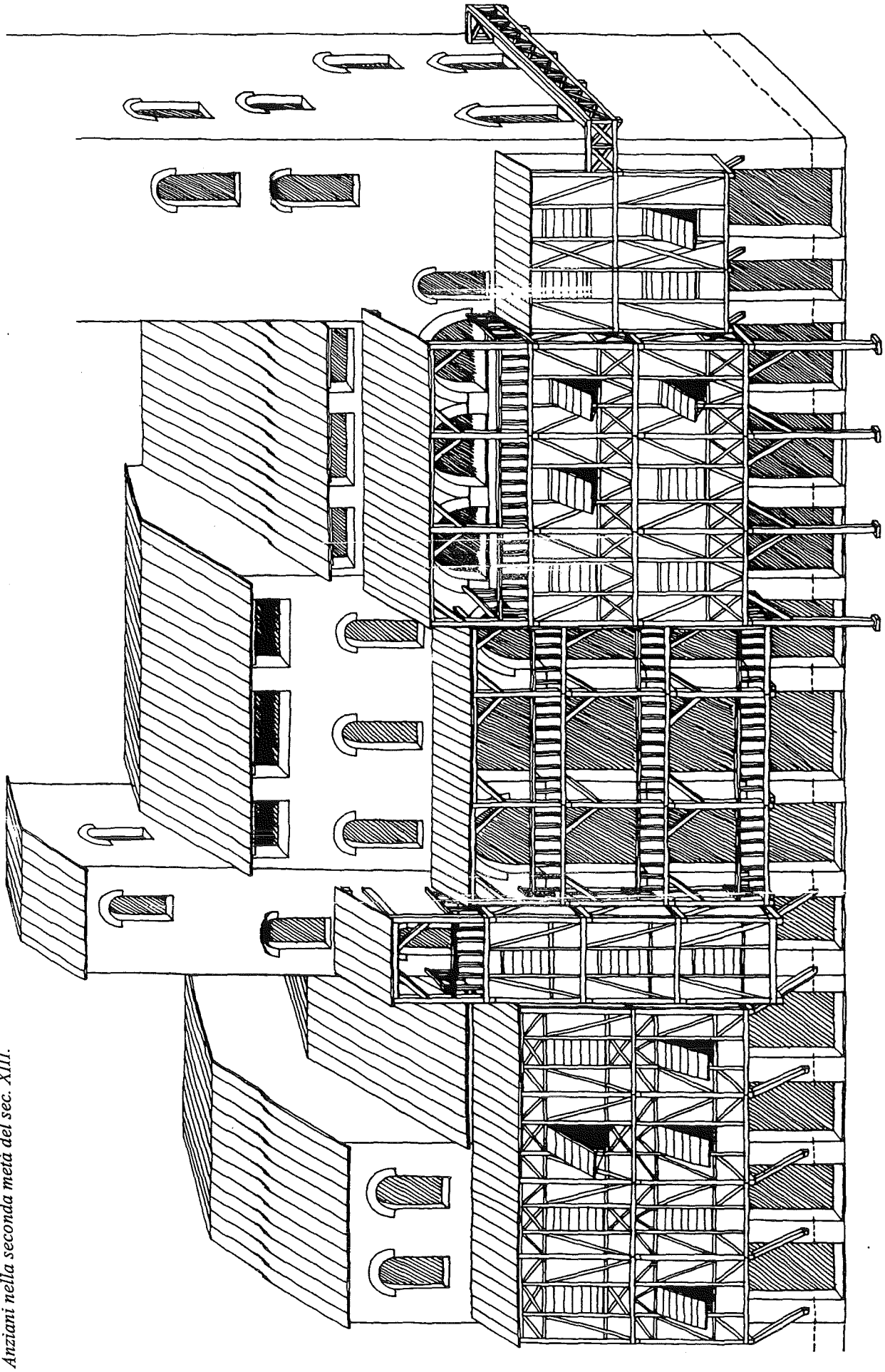


Fig. 2. - *Ipotesi recostruttiva del Palazzo degli Anziani nella seconda metà del sec. XIII.*

consiste nelle prospezioni geofisiche, in particolare con georadar, che consentono di conoscere le presenze di strutture murarie o di oggetti nel suolo indipendentemente da interventi di scavo e, suggerirei, preliminarmente o sostitutivamente rispetto a essi, similmente alla Termografia nei confronti della stonacatura.

Ogni scavo archeologico, per la sua natura intrinseca, anche nel caso della massima correttezza di applicazione del metodo stratigrafico, comporta una rimozione, sia pur graduale e documentata, di "unità stratigrafiche", cioè di terreno e di materiali, e quindi si configura come intervento distruttivo di una situazione reale formatasi in un lasso di tempo generalmente molto ampio.

Inoltre, la motivata tendenza degli interventi archeologici ad acquisire una dimensione estensiva per una maggiore comprensione spaziale delle complesse relazioni stratigrafiche che interferiscono in un sito di una certa consistenza, sostanzialmente produce la quasi totale asportazione del deposito archeologico del sito preso in esame. Con questa procedura di scavo, pur con i "risparmi" di terreno consigliati dalle moderne teorizzazioni del metodo di scavo e imposti da condizionamenti oggettivi, si corre il rischio di lasciare agli archeologi del Duemila ben poche testimonianze archeologiche dei siti da noi indagati. In questo modo si impedisce ai posteri ogni possibilità di esaminare e verificare ampie aree d'interesse archeologico con gli strumenti più sofisticati e precisi e con le risorse metodologiche ed economiche più complesse che saranno, mi auguro, a loro disposizione. D'altra parte, anche in termini attuali di economia di tempo e di denaro, non risulta produttivo scavare in tutta la sua estensione una necropoli, un villaggio, un complesso edilizio, nei quali risultino ripetute per una certa quantità numerica le medesime unità strutturali o materiali. Al contrario, procedendo preliminarmente alla mappatura completa dell'area oggetto d'indagine e a una diagnosi complessiva della consistenza strutturale del sito, risulta logica e proficua la possibilità di operare scelte selettive, per aree o per problemi, e soltanto in queste direzioni effettuare una verifica con lo scavo archeologico completo, in base alle analogie o alle differenze manifestate dall'indagine preventiva.

In questo senso mi pare che acquisti una forte rilevanza la metodologia di ricerca, che definirei Archeologia non distruttiva o Diagnostica archeologica, da attuare per mezzo di strumenti non invadenti, non aggressivi delle stratificazioni, come sono quelli offerti dalle moderne applicazioni archeologiche della geofisica tradizionale.

Qualsiasi intervento archeologico che intenda essere "moderno" e "sensato" deve fare i conti con questo tipo di ricerca preliminare che consenta di realizzare una mappa delle emergenze strutturali e della configurazione del sito nel quale s'intende impiantare lo scavo archeologico. E' ormai anacronistico e confinato entro ambiti cronologici superati ogni intervento archeologico "a scatola chiusa" o "a salto nel buio", eseguito con l'aspettativa di rinvenire comunque qualcosa, con un calcolo delle probabilità generico quanto avventuroso. Al contrario, con una diagnosi precisa, sarà possibile individuare problemi che abbiano una sicura corrispondenza sul piano reale dell'effettivo deposito archeologico e localizzare strutture o situazioni che si prevede possano essere più significative di altre per l'interpretazione delle vicende storico-insediative del sito o maggiormente cariche di valenze in termini qualitativi o diacronici. Sarà possibile quindi scegliere se è preferibile o interessante scavare, ad esempio, la chiesa o il chiostro e gli annessi, la parte signorile del castello o quella produttiva e insediativa, il nucleo più antico dell'insediamento o l'espansione più recente, l'area delle sepolture a tumulo o quella delle sepolture a "forma", ecc., ma anche campionare ciascuna delle variabili o limitare l'indagine a un certo numero di fenomeni nel caso in cui sia diagnosticata una costante ripetitività di unità indifferenziate.

La ricerca archeologica non invasiva, con qualsiasi tecnica sia essa realizzata, ha un enorme interesse in termini di:

- economicità, in quanto estremamente più economica delle equivalenti operazioni di scavo;
- rapidità, se confrontata con le equivalenti opere di scavo;
- conservazione del patrimonio archeologico, il quale non viene in alcun modo manomesso;
- disponibilità di un potente strumento per la pianificazione di eventuali interventi successivi.

Di contro, il dettaglio di definizione dei reperti messo a disposizione da indagini non invasive è tipicamente modesto; a titolo di esempio la risoluzione tipica delle indagini tradizionali non supera il metro.

Moderne tecniche di analisi elettromagnetica tendono a superare drasticamente queste limitazioni, rendono accessibili risoluzioni dell'ordine dei 20 cm, con un vistoso aumento della significatività delle indagini.

Le metodologie proposte non sono assolutamente da paragonare alla foto aerea: oltre a una maggiore profondità di penetrazione, queste indagini permettono di distinguere "oggetti" relativamente piccoli anche sovrapposti; di valutarne le profondità; di riconoscerne qualche forma; di seguire discontinuità stratigrafiche.

I risultati di base della indagine sono costituiti da una rappresentazione tridimensionale ad alta risoluzione del sito.

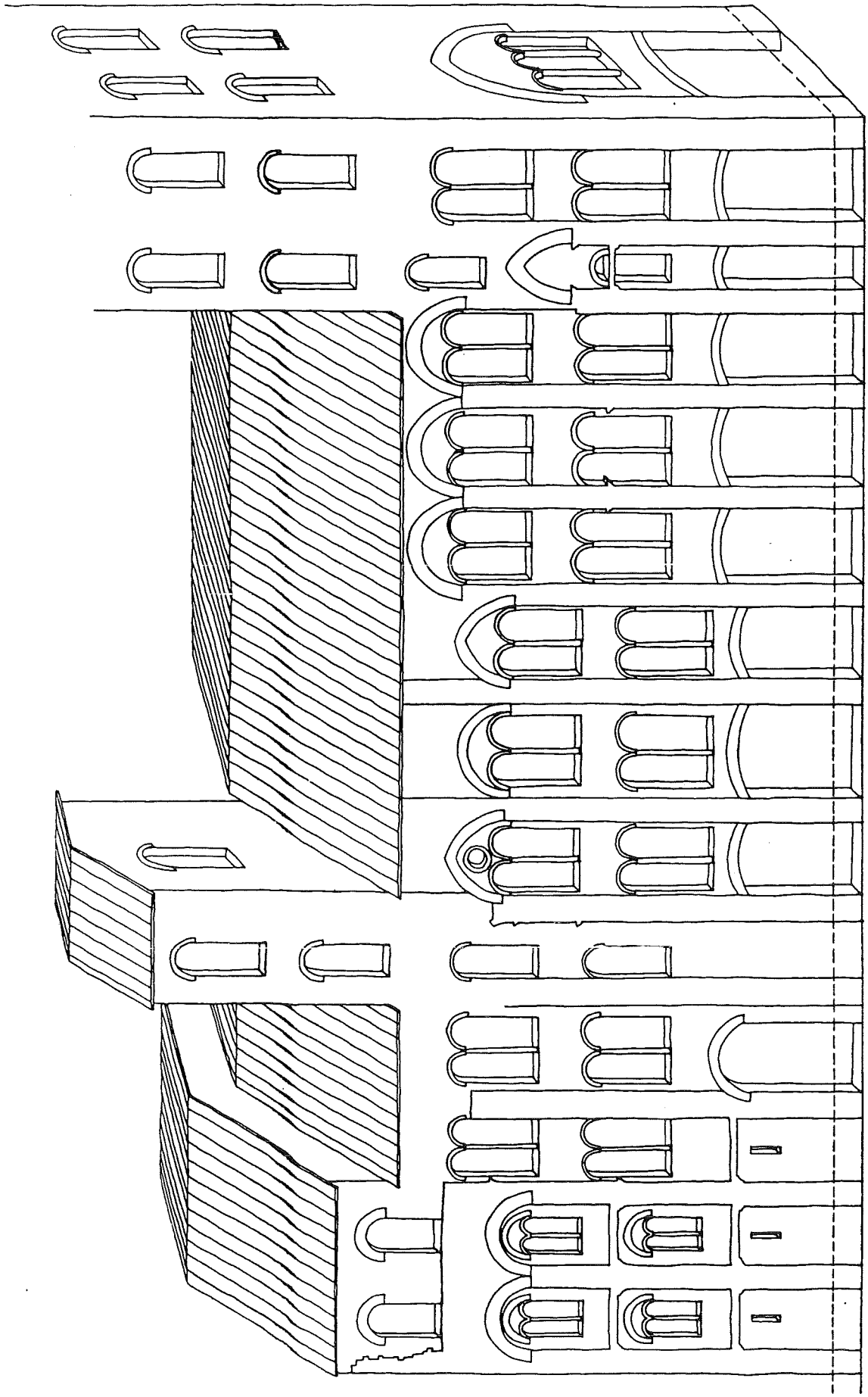


Fig. 3. - *Ipotesi ricostruttiva del Palazzo degli Anziani agli inizi del sec. XIV.*

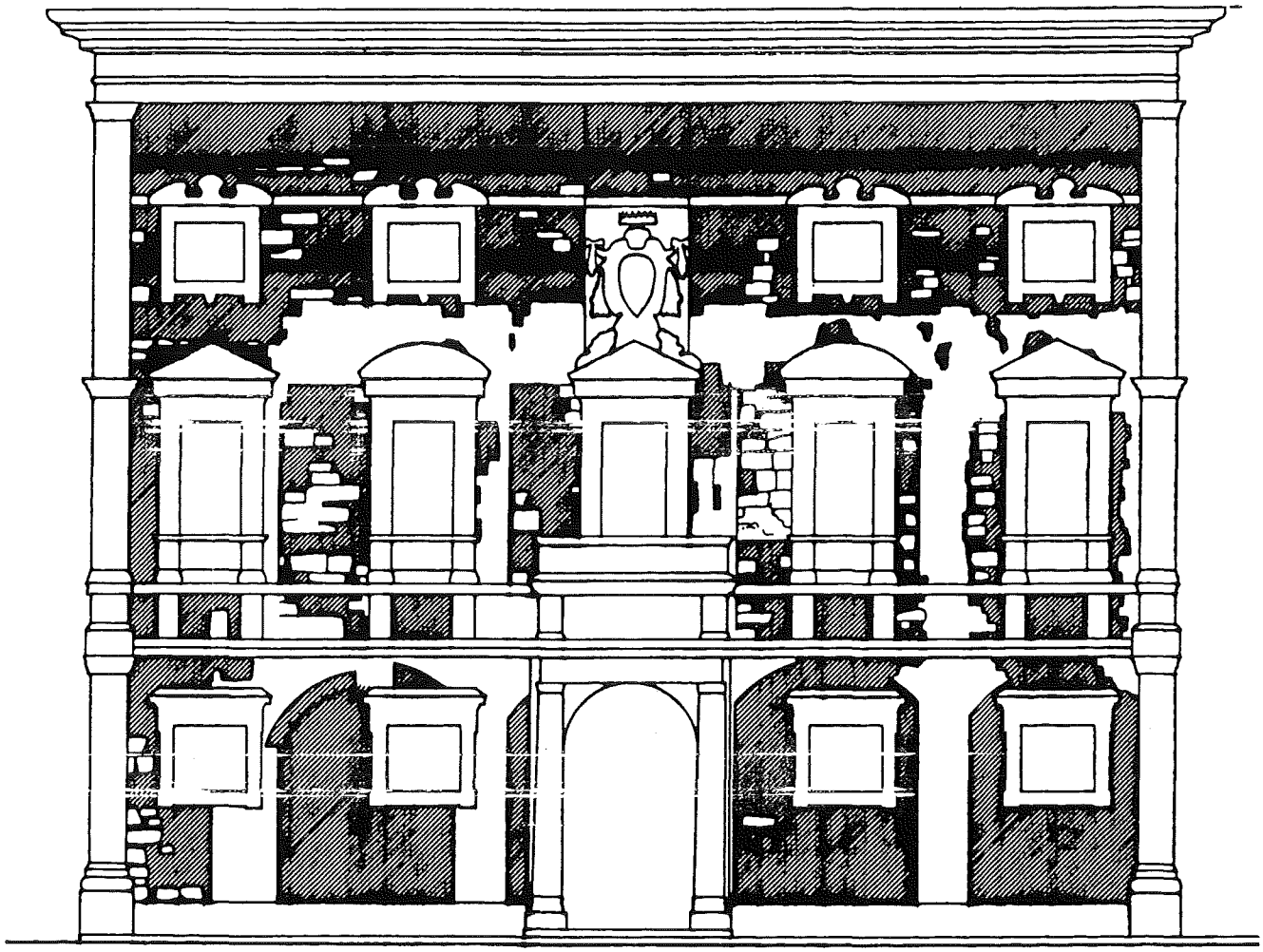


Fig. 4. - *Restituzione grafica del rilevamento termografico della facciata del Palazzo del Consiglio dei Dodici, già Camera Nuova del Comune.*

In genere il prodotto più rappresentativo e più fruibile è costituito da planimetrie stratigrafiche del sito. In pratica vengono elaborate planimetrie dei reperti presenti nel sito a varie fasce di profondità; per esempio:

- planimetria generale: reperti presenti tra 0 e 100 cm;
- planimetria superficiale: reperti presenti tra 0 e 40 cm;
- planimetria intermedia: reperti presenti tra 0 e 70 cm;
- ecc:

La tecnica elettromagnetica rende disponibili anche altri risultati, quali la valutazione delle caratteristiche dei suoli di riempimento, rappresentazioni tridimensionali, visioni in sezione, sovrapposizione degli esiti della indagine con rilievi precedenti, classificazione di manufatti assimilabili alla stessa tipologia, ecc:[14].

Scopo dell'indagine è il rilievo non invasivo (ovvero ottenuto senza alcuna modificazione chimica, fisica, strutturale o di qualsiasi altra natura) delle strutture presenti nel sito in questione.

Il minimo di dimensione del manufatto cui si mira è costituito da oggetti di dimensioni inferiori ai 50 cm.

In particolare si richiede il seguente piano di lavoro:

- studio e rilievo preliminare del sito;
- provino in zona archeologicamente nota, sulla base del quale tarare e mettere a punto la procedura di indagine e le tecniche di elaborazione dei dati;
- indagine di tutto il sito, ed elaborazione dei dati raccolti;
- analisi e interpretazione dei risultati, con la identificazione di punti di peculiare interesse;

[14] Cfr. D.J. DANIELS, D.J. GUNTAU & H.E. SCOTT, Subsurface Radar, in *I.E.E.Proceeding*, agosto 1988; S. ARCONE, Field observations of electromagnetic pulse propagation in dieletric slabs, *Geophysics* 49, ottobre 1984; AA.VV., *Atti della 4.a Conferenza sul "Ground Penetrating Radar"*, Rovaniemi, Finlandia, 1992; L. AMATO, L. BRACHI & G. DI MAIO, Applicazioni del metodo Georadar G.P.R. nel campo delle problematiche della geologia applicata, *Geologia tecnica e ambientale* 2, 1994, 29-45.

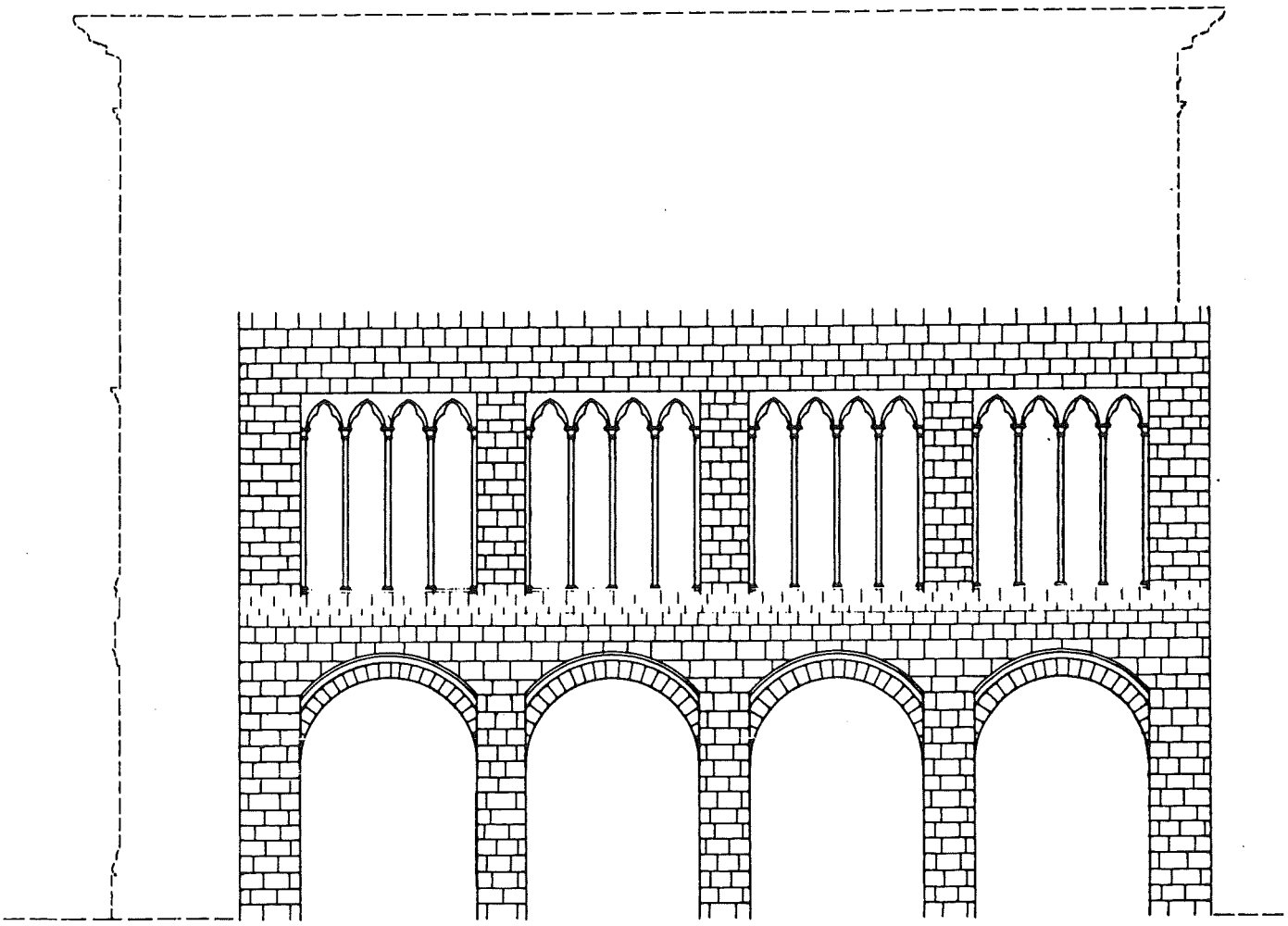


Fig. 5. - *Ipotesi ricostruttiva delle strutture originali del Palazzo del Consiglio dei Dodici.*

- indagine di maggior dettaglio delle aree di particolare interesse identificate nella fase precedente.

Per una superficie di indagine di m 100x300, pari a 30.000 metri quadri (3 ettari) ad esempio, qualora si stabilisca di effettuare una stazione di ripresa ogni 50 cm sia sulle ascisse sia sulle ordinate e predisponendo la lettura in profondità su quattro livelli diversi, da -50 a -200 cm, la strumentazione elettromagnetica, nel complesso della indagine, verrà movimentata sul suolo su di un percorso di lunghezza di oltre 120 km, e verranno acquisiti oltre 3 Gbyte di dati, con una esigenza di attrezzature hardware e software piuttosto elevata per la decodifica dei segnali registrati. Sarà possibile però ottenere quattro piante a quote di distanza predeterminata e tante sezioni longitudinali e trasversali quanti sono gli allineamenti delle stazioni effettuate. In questo modo sarà possibile selezionare per scala d'interesse le strutture e gli oggetti da verificare con lo scavo archeologico, tenuto conto che l'apparecchiatura fornisce soltanto la presenza, la posizione tridimensionale e la forma di massima di strutture od oggetti, ma evidentemente non la cronologia. Una mappatura di questo genere può divenire uno strumento indispensabile per la pianificazione territoriale e degli scavi archeologici individuando aree d'interesse archeologico da sottoporre a vincolo e consentendo opzioni preliminari all'intervento di scavo.

E' in avanzata fase di attuazione un progetto di verifica limitatamente alla piazza del Duomo di Pisa, che ritengo con fondatezza possa costituire un banco di prova ottimale per la sperimentazione delle teorie e delle tecniche diagnostiche ora dette. In conseguenza della particolarità dell'area scelta per l'esperimento, la metodologia che presento potrà risultare un preciso termine di riferimento per analoghe situazioni e, mi auguro, un passaggio obbligato per la ricerca archeologica del futuro.

L'ampiezza della piazza, con le sue misure di circa m 300x100, infatti, consente di abbracciare molteplici realtà materiali e una complessità insediativa, in parte già nota grazie a precedenti esplorazioni archeologiche parziali, che si protrae dal VII secolo

a.C. fino a oggi[15], con possibilità di precisi riscontri di cronologia assoluta, ben documentati archivisticamente, epigraficamente e materialmente, in un ambiente architettonico piuttosto articolato e monumentale.

La notorietà del luogo prescelto offre una possibilità di notevole risonanza dell'esperimento a livello mondiale, anche in considerazione della grande attualità del problema statico e conservativo della Torre pendente. E' in funzione degli interventi di sondaggio geologico e quindi di scavo archeologico preventivo, finalizzati al consolidamento statico della Torre e allo scongiurare fondati pericoli di crollo imminente, che il nostro esperimento si presenta in termini propositivi come utile e inderogabile strumento di diagnostica, preliminare a qualsiasi tipo di operazione conoscitiva del sottosuolo superficiale e delle preesistenze archeologiche, fornendo una mappa dell'intera area che non può essere disattesa o ignorata da chi intenda intervenire nella piazza del Duomo.

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[15] F. REDI, *Pisa. Il Duomo e la piazza*, Cinisello Balsamo (MI), 1996, in particolare 36-61.

Joakim Thomasson

Private Life Made Public
Aspects of the Emergence of the Burghers in Medieval Denmark

Introduction

The central theme of this article is the emergence of the burghers in Denmark and how their everyday life was shaped and manifested. The starting point is a brief thematic discussion of architecture and the concept of class. The period studied comprises the development from the congested countryside of the thirteenth century to the mercantile proto-capitalist city in the age of absolutism in the early eighteenth century. During this period Protestantism was introduced.

A conglomerate of temporal horizons

The concepts of feudalism and capitalism may refer to different levels of history. As regards feudalism, there are broadly speaking four different research traditions (Klackenberg 1986, 341f.). One of these broadens the concept from that used in the other research traditions, to include not just judicial and administrative conditions in the upper stratum of society, but also the relations of social dependence that existed at all levels of society (Klackenberg 1986, 342).

Similar research traditions exist as regards the concept of capitalism. Matthew Johnson makes a distinction here between definitions that include a social totality and those which encompass specific elements. Johnson's definition of capitalism as a social totality should be equated with the research tradition described above by Klackenberg. Using different terminology, the French *Annales* historian Fernand Braudel (1982) has considered the same problems. He has divided history into three different phases determined on the basis of their proneness to change. The different phases are on a falling scale of changeability: political history, economic development, and material life. Briefly, according to Braudel, the material world constituted the limits to what was possible in people's everyday lives. Material life thus determines the possibilities for the formation of a new social class and a new social system. The foundations of different types of social changes should thus be viewed in a social totality, as a conglomerate of temporal horizons.

Class consciousness in Braudel's temporal space

E. P. Thompson (1963) has discussed the making of the working class from an ethical and hermeneutic perspective. He claims that class can never be regarded as a thing, as a category existing at any time independent of the subjects; in other words, a class can only exist if it has a consciousness of itself as a class (see Lindqvist 1987, 24ff.). Thompson (1983, 161) compiles examples of criteria for when people acquire class consciousness. These comprise, in chronological order, first a perceived antagonism *vis-à-vis* other classes, which is then generated into a commitment to class-related issues. This means that Thompson sees class and class consciousness as always being the last stage in the historical process. The process leading to class consciousness begins in Braudel's most sluggish category of change, everyday life, and every transformation in history thus has its point of departure in everyday life and is a result of people's practice (Lindqvist 1987, 28). The concept of practice has been defined by the Czech philosopher Karel Kosík (1979, 193ff.), who says that practice is shaped by man himself as an independent being and a historical actor.

The relevance of practice for the understanding of buildings

Housing plays a central role for the understanding of everyday life. Some scholars think that a building is an archetypal image of the owner, while others see the matter as being more problematic. The latter believe that there is a dialectical relation between form and function, that is, that the owner of a house influences its shape and the shape of the house in turn influences him (Parker-Pearson & Richards 1994, 3ff.).

The continuous dialectic between form and function should be interpreted in this context as the result of people's practice, that is to say, created in the tapestry of everyday life. In principle, then, all changes in practice must take their departure in the existing social totality and the historical context. This reasoning automatically leads to the problem of agent versus structure. There is no room here to dwell on this to any extent, so I shall content myself with a declaration. Like Matthew Johnson (1989, 206), I believe that the agent cannot be distinguished from the surrounding structure, that agency is manipulation of an existing structure, a structure that is external to the individual Y and appears to that agent as a synchronic construct, as something to be drawn upon.

Another aspect of the interpretation of a building is the relationship between idiom and sociality. Here the architectural idiom should be perceived as an analogous reflection of social relations. The architectural theorist Finn Werne (1993, 78ff.) argues that in small societies, where everyone knows everyone, the scope for all representation is small. Instead solutions to constructive problems are emphasized as decorative art. In larger societies the art of representation is given greater prominence. Werne (1993, 81) sees this in the opposites of representativity and presentativity, with the former being an agent for something that cannot be present (God, wealth, power, social status, etc.) and the latter presenting itself.

In its representative guise, the architectural idiom communicates a message. Yet a representative idiom may also be seen as a statement in a conflict of ideas in society, for example, concerning class relations, and may have several different levels of expression depending on the society as a whole. In this respect the idiom should be interpreted as an aspect of the development of class consciousness. The layout of the house should be perceived to a greater extent as an expression of human practice, in other words, something that anticipates the manifestations of an articulated idiom.

Selected features of the urban context: the historical context

The urban feudal dispute

The role of the towns in feudal society was full of contradictions. While the town was an organic and necessary part of the feudal system, it also played a crucial role in the collapse of the system (Hilton 1980, 16f., 28ff.). The towns were initially a part of the feudal sovereignty, the rights to which could be granted as fiefs to different lords. Craftsmen were treated like tenant farmers in the countryside (Andrén 1985, 119ff.). The production and the market in the town were an essential requirement for the conspicuous consumption of the upper class, by which they manifested their position in society and thus legitimated their mastery (Dyer 1989). Changes in class relations in society made the town a closed unit, both fiscally and architecturally. The liberation of the towns meant that the town and the bughers in the late Middle Ages became a power factor, an agent, in political life (Andrén 1985, 118f.). The burghers were still, however, a class constituting a part of the feudal system, which was divided in the late Middle Ages into nobility, clergy, burgherdom, and peasantry. Yet the burghers' livelihood, capital formation, and their internal class relations, a reified relation between producer and consumer, contained the embryo of industrial capitalism (Braudel 1982).

Power and lordship; the development from 1000 to 1750

Anders Andrén (1985, 120) has outlined three phases in the development of the Danish state in the Middle Ages. In the first phase (1000-1200) the town functioned as a point of support in regal lordship. In the second phase (1200-1350) this regal lordship was granted in fief to a large number of local magnates. These used the towns to convert their surplus into luxury consumption and craft production. In the third phase of development (1350-1550) the character of lordship changed. From having been based on older types of feudal lordship, it was now based on a type of mercantile lordship which used the towns to control the distribution of the surplus produced in the countryside. All goods in principle had to pass through the burghers' hands, and all craft products were to be made in the towns (Andrén 1985, 111f.). Mercantile lordship was exercised by the burghers over peasants and foreign merchants. The state in turn controlled the burghers through direct tariffs and duties. Against this background, the form of lordship may be described as having a dual character: borough charters were granted directly by the king to the council of each individual town, and at the same time an almost capitalist relation prevailed between the inhabitants of the town.

In the following centuries (1550-ca. 1700) lordship changed character as a result of the coming of the absolute state. The dominating economic system, mercantilism, may be regarded as an expression of a feudal class which adapted to an integrated market (Anderson 1994, 37). Perry Anderson argues that mercantilism required the abandonment of local and

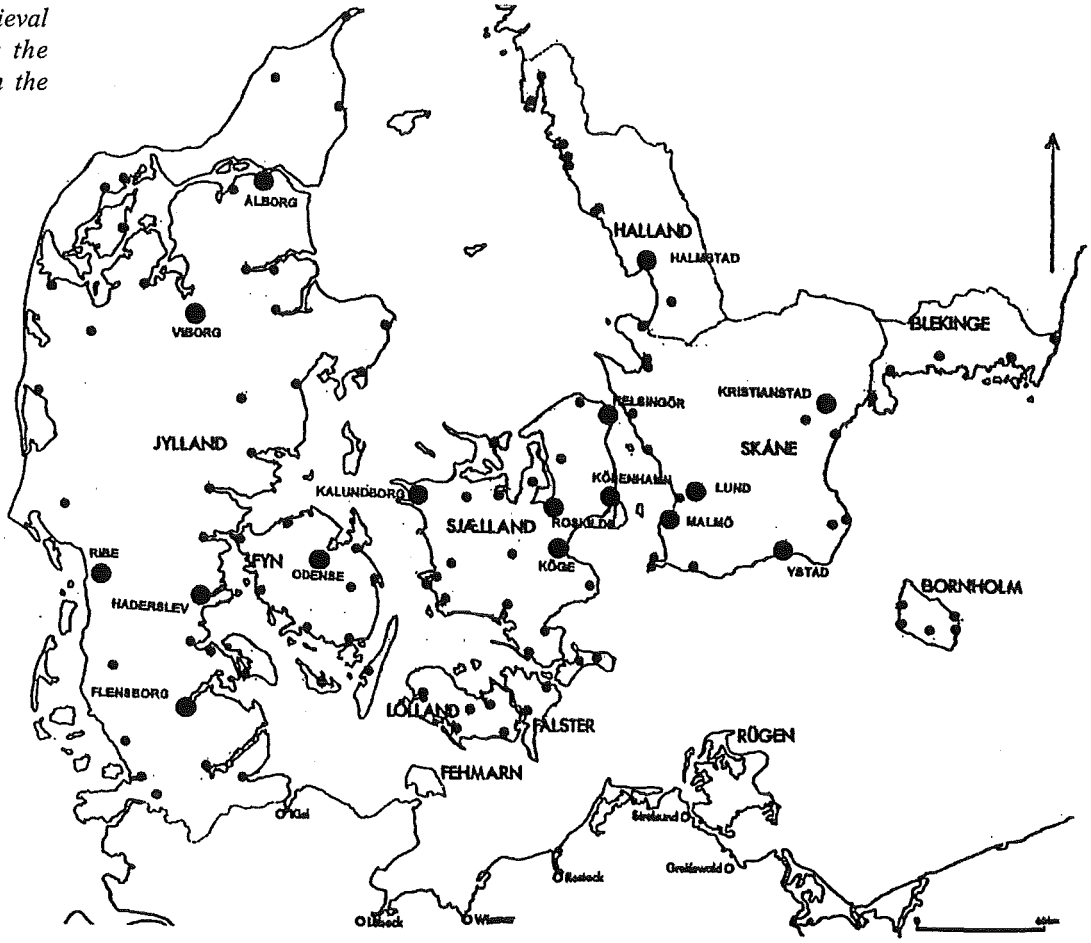


Fig. 1. - *Map of medieval Denmark showing the towns mentioned in the text.*

regional trade barriers within a national territory, sought to achieve a common domestic market for commodity production, and encouraged exports, while simultaneously banning the export of, for example, precious metals (1994, 36). Denmark and Sweden, however, were exceptions to these principles. At the end of the sixteenth century, foreign trade was already restricted to certain towns (Tomner 1971). At the end of the seventeenth century domestic trade in Sweden was subject to the so-called minor customs (*ibid.*) The towns also lost the independent role they had played in the Middle Ages. With the placing of the county sheriff (*länsman*) in the towns, lordship was decentralized and devolved to a paid staff of officials manned by nobles. The towns also lost some of their trade monopoly, which had been one of the cornerstones of their income and power.

The burghers' buildings

Single-cell building

The earliest houses in Danish towns greatly resembles the building culture of the countryside. In Lund, for example, excavations have unearthed a convex-walled long-house of the Trelleborg type (Nilsson 1976, 41ff.). The house was divided into three rooms with the all-purpose living-room in the middle. This type of house is usually associated with royal structures such as the forts of Fyrkat and Trelleborg and should probably be regarded as a noble building culture.

With the twelfth century, town buildings assumed a clearly urban character (Andrén 1985, 80). A characteristic feature of early medieval urban settlement is the principle of one room, one house (Hartman 1979, 54). This pattern is general throughout medieval Denmark, being represented in Malmö (Romberg 1982, 201), Lund (Andrén 1976, 34ff.), Halmstad (Augustsson 1992, 90ff.), and Oslo (Shia 1982, 155). In Halmstad, Augustsson (1992, 90ff.) has observed that this form of housing dominates until the sixteenth century. In the thirteenth century Lund showed an interesting departure from this principle. In the St Clemens quarter there was a three-room timber-framed house with the living-room '*stuga*' and kitchen in the middle room (Blomqvist 1951, 347). The interesting thing about this building is the emphasis on the living-room, which had a sturdier foundation and was better built than the two side rooms. This type of building is common in the villages of Skåne from the

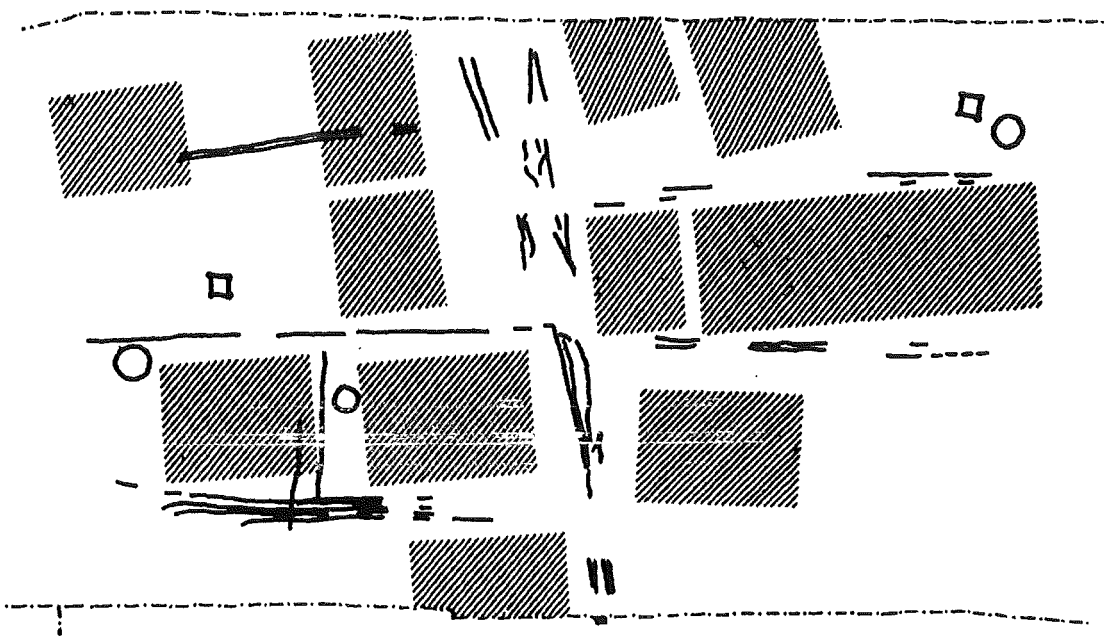


Fig. 2. - *One-room houses from the St Clemens quarter, Lund. After Andrén 1976.*

thirteenth century onwards (Thomasson 1996). The rural houses have exactly the same plan as the house in St Clemens, with the living-room in the middle and service rooms at either gable. It can also be related to the *sydgötisk* type of house (so-called because it was characteristic of southern Götaland), which can be characterized by the combination of several separate wooden buildings constructed using different techniques (Augustsson 1986, 272). Even though the St Clemens house was not built of wood, the analogy with the *sydgötisk* type and the context of the building culture in which it was erected must be beyond all doubt.

The disposition and architectural design of the St Clemens house, however, shows that the different rooms each have their own prehistory as separate elements. They were previously single-room houses. The single-room principle continued to characterize building culture into the eighteenth century, bearing the stamp of an almost organic way of thinking, according to which each building was constructed in keeping with prevailing needs and supply of materials (Deetz 1977, 99). James Deetz states that the one-room principle was a medieval building tradition which was replaced by Renaissance architecture. What distinguishes Renaissance architecture is that it was planned and built by people with a literate education who had studied architecture (Deetz 1977, 111). The dwelling-house constituted a totality in which the function of the rooms was determined in advance. Deetz's interpretation (1977, 117) is that the medieval building tradition was based on a collective world view which was replaced by the emphasis on the individual in the Renaissance.

The St Clemens house is thus a very interesting document of its times. The early housing found further south in the same quarter of Lund consists largely of separate one-room houses (Andrén 1976; Nilsson 1976). The St Clemens house has a more densely built plot, which meant that buildings with different functions were joined. Houses facing the street were combined with houses in the yard in the fourteenth and fifteenth centuries (Hæddersdal 1987, 23; Augustsson 1992, 90ff.), which meant that the one-room house was gradually abandoned, although the mentality behind it survived. This process is known from several places in Sweden, but it is thought to have originated in the towns of northern and western Germany (Sandblad 1949, 96ff.).

The disposition of the houses

Despite the different architectural design of the townyards, their plans follow the same division. The dwelling-houses were often withdrawn into the middle of the plot while the buildings by the street were shops and craft workshops (Engqvist 1989, 61f.). The dwelling-houses consisted of one room which was at once a kitchen and living-room. The middle room, in the physical sense of the term, was an open unit. Similar phenomena in England have been interpreted as an expression of the collective nature of the household, which included the servants (Johnson 1996, 81).

At the end of the fifteenth century the dwelling-house was moved forward to be in line with the street, usually with the gable facing the street (Engqvist 1989,

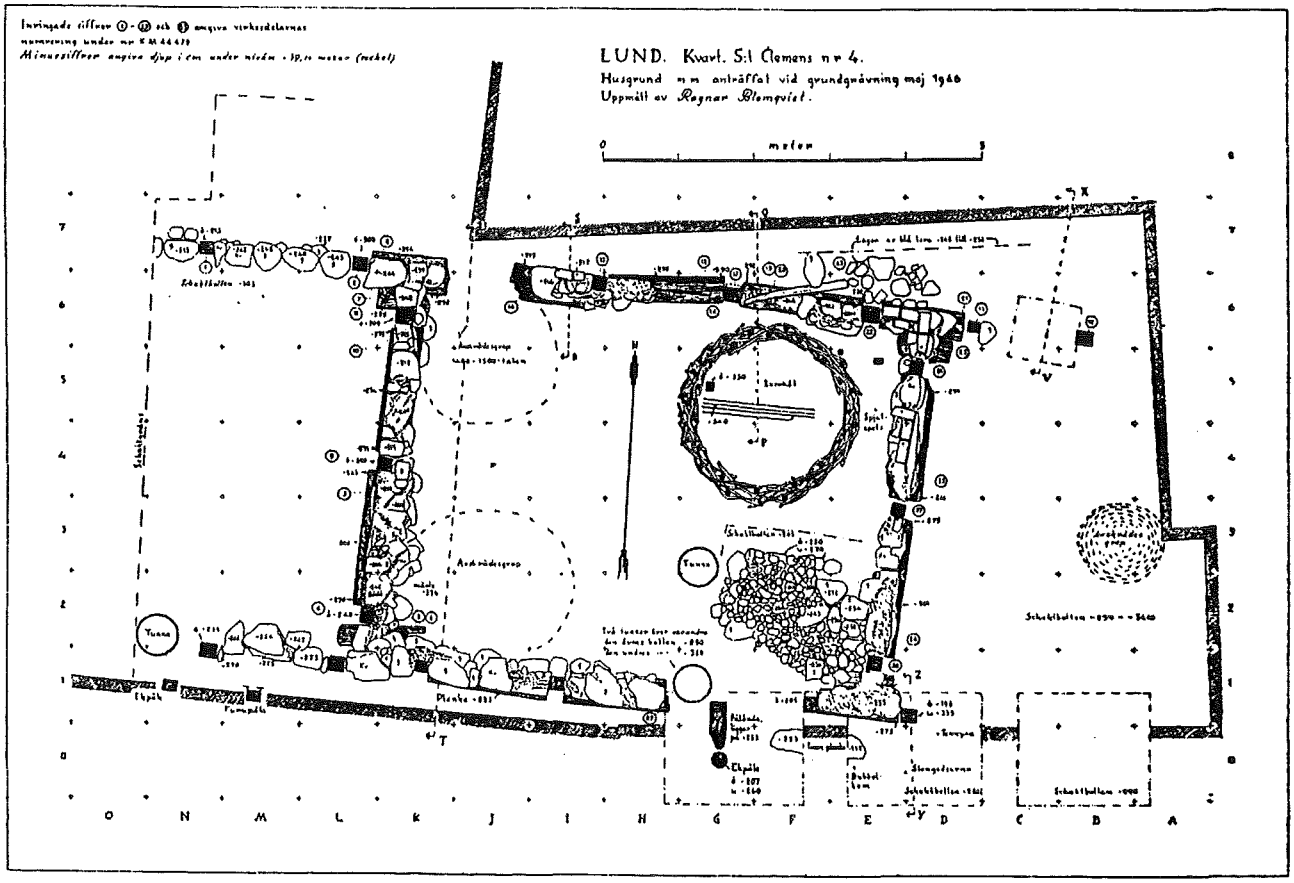


Fig. 3. - *The St Clemens house in Lund, middle room, living-room. After Blomqvist 1948.*

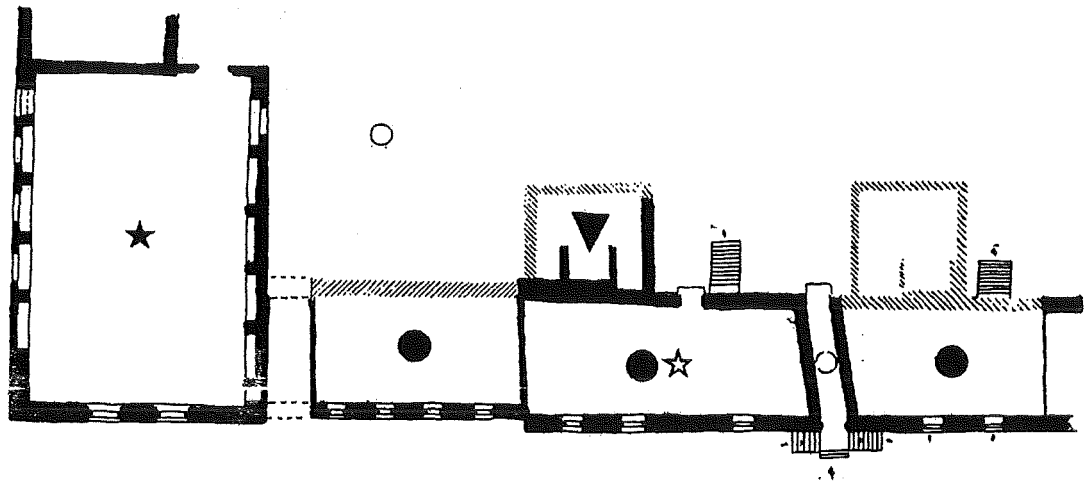
61f.). These gable houses should be viewed as one-room houses in which the shop on the street has been merged with the dwelling-house. In this process a functional division was made between kitchen and living-room. This division came as early as the fifteenth century. An example is the bishop's house, Bispegården, in Kalundborg (fig. 4, Riis 1983, 31), where a double-house was erected in 1408, with the living-room facing the street and the kitchen in an adjacent side wing. This arrangement became very common in the sixteenth century and later. It may be interpreted as reflecting a separation of the family members proper from the servants in prosperous homes, or from the woman in poorer households. Yet the move of the living-room to the street façade makes the interpretation more problematic, since it must have meant that everyday life became more public. The change may therefore be simultaneously viewed as an increased manifestation of status as regards everyday life.

Tower houses and stone houses with gable façades

As a result of the greater density of building in town plots and the development of society as a whole, other forms of organic building structures emerged. In Malmö (Reisnert 1992), as in Lund (Andrén 1987), Kalundborg (Riis 1983), and Odense (Christensen 1987), there are examples of townyards where an almost square stone house was built close to the street and dominated the other adjacent buildings in the yard. This pattern, which is also known from the continent, is a form of monumental tower architecture. In its initial phase this type of architecture had its direct models in contemporary castles (Hæddersdal 1987, 21). In the central and southern parts of Europe, the tower was through time incorporated architecturally in the other buildings, thus losing its monumental character.

The tower houses which were still a part of the old building culture and erected according to the principle Aone room, one house must be understood on the basis of their monumental message Leif Gren (1990) has discussed the concept of monumentalism, arguing that the monument must be seen as a message intended to exert an ideological influence on the receiver. He also thinks that the monument presupposes the existence of an opposite message which could not be implemented and was therefore forced to retreat. Monumentalism may be seen from two points of view, the first urban, the second political. From the urban perspective, the tower houses can be seen as an assertion of

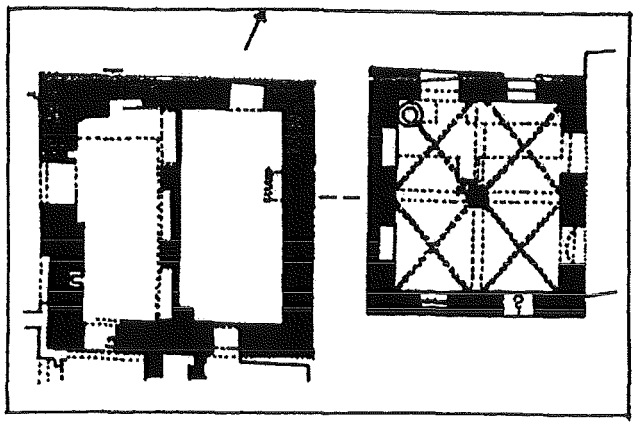
Fig. 4. - *Bispegården in Kalundborg. After Riis 1983.*



the town as a fiscal unit. This phenomenon can also be studied in the construction of the many Gothic town churches and the building of ramparts round the towns (Andrén 1986). Monumental architecture can be interpreted as an assertion of urban autonomy *vis-à-vis* the rest of society. Using contemporary analogies from northern Germany and the absence of fireplaces in the tower houses, they should be interpreted as petrifications of the shop/workshop part of the townyard. If these assumptions are correct, it is natural to see the tower houses as symbolizing the urban livelihood, which reinforces the impression of autonomy.

The political perspective is based on the fact that the kingdom of Denmark in this period was torn by civil strife because of a power struggle between the crown and the aristocracy, which led to the total collapse of the kingdom in 1319 (Andrén 1986, 95). At the same time, the volume of trade increased, with the consequence that fiscal interest was shifted from the individual merchant to the commodity, which acquired a more out-and-out economic significance (Andrén 1986, 96). In this context, the merchants did not have the same self-evident position but needed to manifest their status more, perhaps by building tower houses.

Fig. 5. - *Two tower houses from Ovegade in Odense.*



A slightly younger pattern of building can be seen in the Klingenberg house, which was situated on the medieval main street of Malmö, consisting of a large hall with a stone foundation built a short distance in from the street (Reisnert 1992). The house is dated to the start of the sixteenth century, but Reisnert (p. 212) argues that it is probably a hundred years older. This arrangement is known throughout medieval Denmark, from Flensburg in the south-west to Helsingør in the north (Hartman 1979, 55). Towards the street there was a stone-built or timber-framed house with the gable facing the street. This is once again a variant of the one-room principle, but with a monumental emphasis on the hall building.

Stone houses with a gable façade

Stone houses with a gable façade are known from the fourteenth century (Reisnert 1992). In their earliest form the houses usually consist of one room, either a hall (*sal*) or a room with a commercial function,

Fig. 6. - *Examples of a medieval stone house with the gable facing the street. After Hæddersdal 1989.*

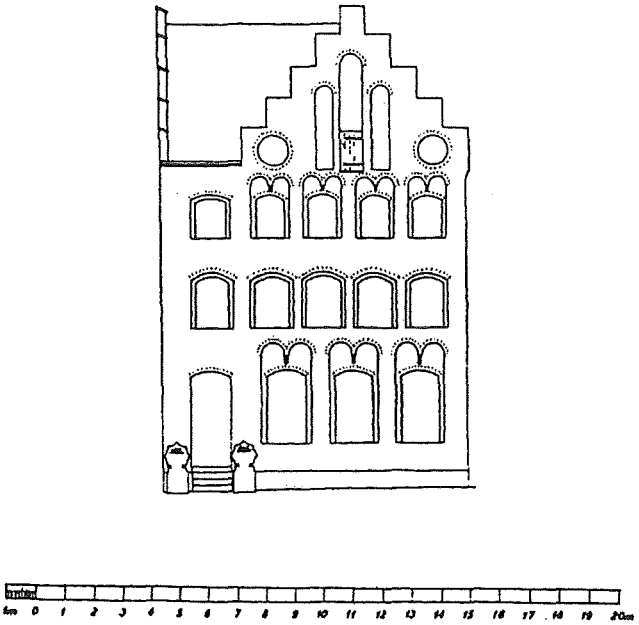
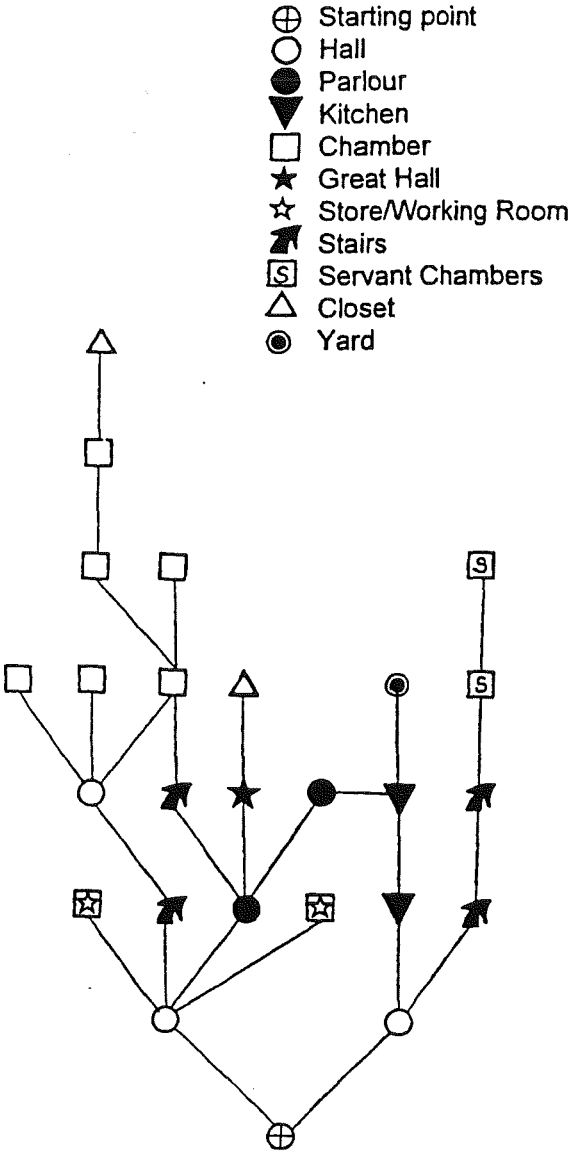


Fig. 7. - *Access diagram of the Jörgen Kock house in Malmö.*



sometimes combined with a half-cellar. In the course of the fifteenth century, and above all in the sixteenth century, the gable houses took on a different character. Several functions which had previously been divided between different houses were combined in one building. This took place at the same time that the living-room in certain buildings was moved to the street façade. As a consequence of this, the houses were built in two storeys, almost always with a half-cellar. The most common arrangement was that a shop was housed in the half-cellar, and above this the living-room or a shop, while the hall was usually on the upper floor. An example of this type is Jacob Nickelsen's house in Malmö. This was built at the start of the sixteenth century by the mayor of that name. It consists of a three-storey brick house with the gable facing the street. Archaeological investigations of the façade revealed four large arched window openings on the second floor, facing the yard (Bager 1971, 298).

The building was entered directly from the street, with separate entrances to the cellar and the vestibule/shop. The disposition of the gable houses was partly different in eastern and western Denmark. In the western parts the gable houses usually consist of two rooms: a vestibule/shop next to the street and then the living-room. In the eastern parts there are several examples where the first half is divided into a narrow vestibule or passage running the length of one long wall and a living-room. In the part of the house further from the street there was a kitchen and chamber (Engqvist 1989) (fig. 6).

The most distinctive late Gothic stone gable houses have a highly sophisticated plan. In Jörgen Kock's house in Malmö we see a significant change of trend in building culture. It was built according to a holistic idea, of the kind that James Deetz would call Renaissance architecture. It consists of a main building which included everything from shops to toilets. The rented shops were separate from the main house and from each other. The kitchen sections had a similar position in relation to the other rooms in the house. They were clearly separated, and a look at an adjusted access analysis shows that they had their own entrances and that the only other room to which they gave access was the living-room (fig. 7). The most accessible parts were the shops, while the least accessible have been designated as chambers. The Kock house thus differs as regard the architectural concept, the number of rooms, and the separation of masters from servants.

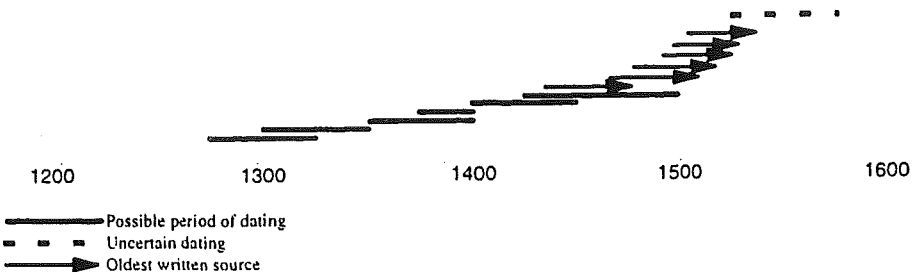


Fig. 8. - *Diagram showing the number of søgningsgårde in Malmö and their datings. Compiled from information in Rosborn 1984.*

Aristocratic town houses

In stark contrast to the other townyards were the Acentral-house plots. These consisted of stone dwelling-houses built a little way back from the street (Engqvist 1989, 25; Hæddersdal 1987, 7ff.). A characteristic of this form of settlement, besides the position of the dwelling-house, is the surrounding outhouses and the square plot, sometimes surrounded by a wall. Hæddersdal (1987, 15ff.) associates this phenomenon with noble *søgningsgårde* or town houses. These are known from all over north-west Europe. Hæddersdal (p. 11) says that the central-house plots were first used in the fourteenth century. This agrees with observations in Malmö, where it can also be seen that the youngest central houses were built in the sixteenth century (fig. 8). The stone house built some way in from the street should be seen in connection with the contemporary tower architecture. We have previously seen how the shop and hall functions were monumentalized, and it seems natural to interpret the *søgningsgårde* as a monumentalization of the dwelling function. There is also a certain similarity to the contemporary manor tofts in the villages as regards the disposition of the buildings and the form of the plot. The noble element in the towns may possibly be related to the medieval agrarian crisis and the change in feudal lordship. The latter came to be increasingly based on commodities that were channelled into the towns (Andrén 1986, 100). This, together with the more independent role of the towns and the fact that trade and fishing increased in importance at the expense of farming must have encouraged the aristocracy to be represented in the towns as well (fig. 1).

Two examples from Malmö are worth mentioning in this context. In the von Conow quarter, excavations in the middle of the 1970s and the early 1980s uncovered a very interesting townyard complex consisting of three buildings in all (Reisnert 1994, 12ff.) (fig. 9). Two outhouses (B & C) stood with their gables facing Själabodgatan; they were probably used for service functions and to house the servants. The main house (A) consisted of a stately main building standing a little way into the plot. The cellar was divided into two rooms, the first of which was a vestibule and the other probably a vaulted store. The property as a whole can be dated to the first half of the fourteenth century (Reisnert 1994, 24). Like other *søgningsgårde*, the von Conow house shows a noticeable separation of the kitchen functions and the dwelling premises of the master's family (fig. 2).

This tendency is even clearer in the Thott house (Rosborn 1981). This property consisted of a two-storey timber-framed building, constructed in 1558, along the street, and a stone house, undated, in the yard. The timber-framed house had three apartments, the one on the ground floor being occupied by the servants, and the two upstairs probably being used as guest rooms. The interesting thing, however, is that the timber-framed house had virtually no windows or doors facing the yard, there was only one window and one door, both right beside the steps from the upper storey, and a door leading into the main house. This clearly emphasizes the bipartite spatial segregation of masters and servants.

Late Gothic stone buildings with the long side facing the street

Besides stone gable houses, people in the sixteenth century also began to build stone houses with the long side facing the street. The whole concept of the long-side house was a new feature in the range of town buildings, while the gable houses were a relic of an earlier building culture. The new type consisted of two categories: single houses and double houses. The difference between the two is that the single house was built for one household while the double house was made for two. Despite this, they both had a largely similar, highly symmetrical plan. From the door to the street there was a narrow passage running through the house to the yard. On one side of the passage was the living-room while the other side consisted of kitchen, chamber, and/or shop. This plan is found only in the bigger Danish towns, and Engqvist (1989, 63f.) believes that it was confined to the upper class (fig. 3).

Malmö has two good examples of double houses. The Rosenvinge house was built in 1534 by Anne Pedersdotter, widow of a mayor of Helsingør (fig. 10A). The house is built of brick facing the street and timber framing facing the yard. It consists of two identical apartments in mirror image. Each apartment is divided into two equal-sized halves by a passage running right through the house. The living-rooms are closest to the gables, while a shop and bedroom are on the other side of the passage. There was also a privy in the bedroom (Johansson 1987, 48ff.). Mayor Niels Kuntze's house was built in the 1530s, totally of brick. The building had almost exactly the same plan, with the sole difference that the kitchen was integrated in the main building in the room that served as a chamber in the Rosenvinge house (Johansson 1987, 50f.). The upper storeys in the two houses differed somewhat, but in both houses they consisted of a hall and two chambers.

Helsingør has two good examples of single houses with the same type of plan as in the separate apartments of the double houses. Stengade 66 was built at the end of the fifteenth century by the country sheriff at Kronborg Castle, Johan Oxe (fig. 10B). The plan consisted of a passage running through the house, dividing it into two parts. The living-room was on one side, while the other consisted of a bedroom with a privy and probably a shop (Engqvist 1987, 158ff.). The other house was built at the start of the sixteenth century by Mayor Sander Leyell. The property had formerly had a stone gable house to which was added the stone house with its long side facing the street. Like the older stone house, the later one was divided into two halves by a passage, with two rooms on either side (Engqvist 1987, 178ff.). The two Helsingør houses had the kitchen in a building in the yard attached at right angles.

Despite the new plans, an old architectural idiom was chosen for the building of both single and double houses. Niels Kuntze's house boasted corbie gables, as did the two Helsingør houses. Despite these old features, however, there was a completely different stress on the façade facing the street. The earlier and contemporary gable houses emphasized verticality while the long houses rather stressed the horizontal

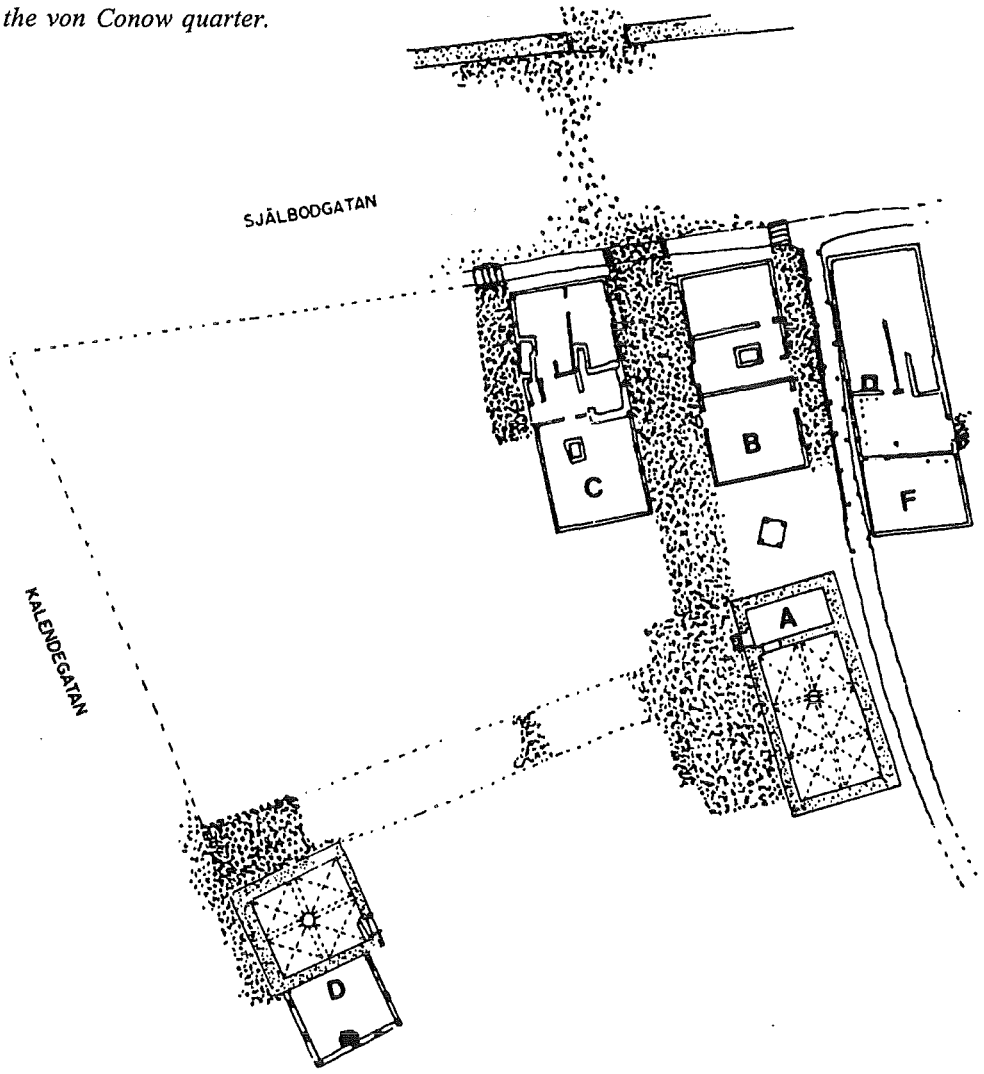
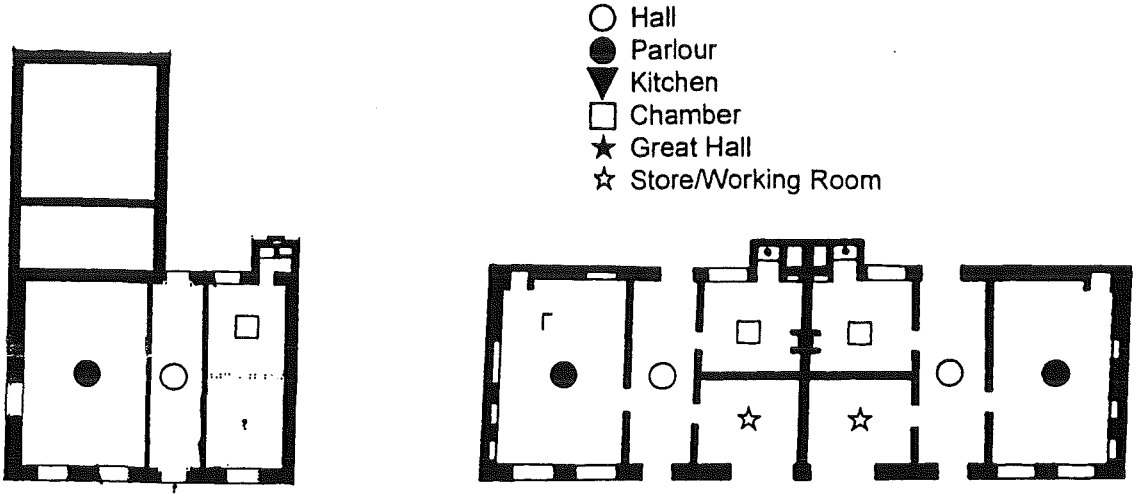


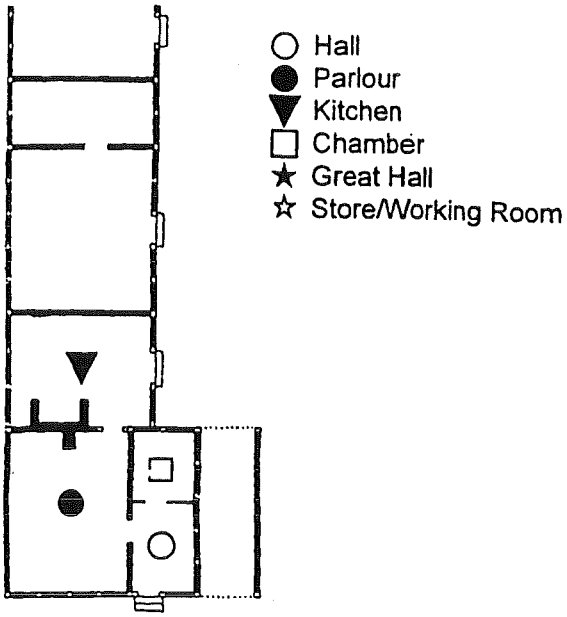
Fig. 9. - *The townyard in the von Conow quarter. After Reisnert 1994.*

Fig. 10. - *Examples of single houses and double houses with a similar layout. A: Double house, the Rosenvinge house in Malmö (after Johansson 1987). B: Single house, Stengade 66 in Helsingør (after Engqvist 1987).*



dimension. In addition, private life was emphasized by the movement of the living-room, but not the kitchen, out to the street. In other words, everyday life became a public phenomenon, and the living-room can be interpreted as a stage on which the burgher acted the play of his private life. At the same time, we can see a clear process away from single-cell building. Buildings came to be built in a more academic way, with functions that had previously been divided among separate buildings in the yard now being integrated in the same building. The dwelling-house usually contained the living-room, the chamber, and the hall. The most distinguished dwelling-houses also had a privy, a kitchen, and a shop.

Fig. 11. - *Plan of Store Kirkestræde in Køge. After Engqvist 1989.*



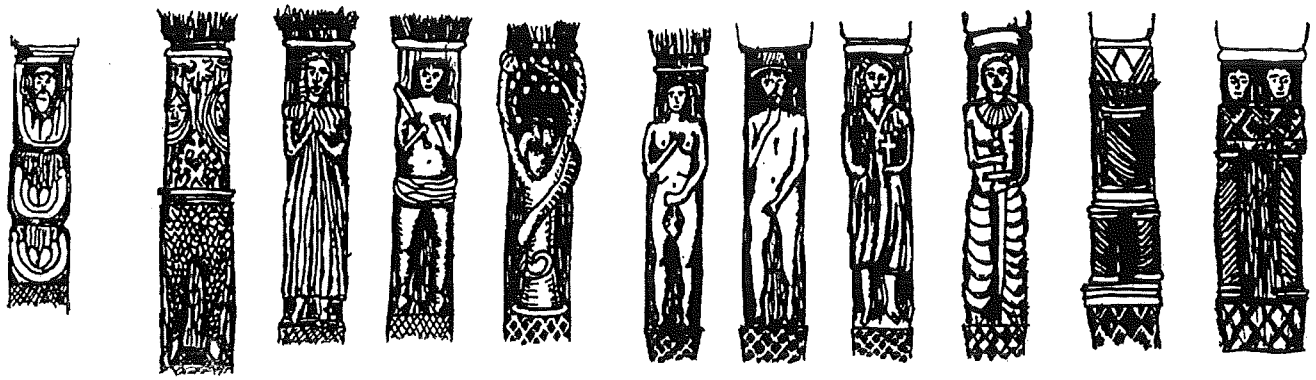
Timber-framed houses

With the sixteenth century and the Renaissance, the era of the timber-framed house began. Many ostentatious timber-framed houses were built, usually with their long side facing the street. The second floor of the building was cantilevered with decorative constructional elements. The entire bearing structure of the building was emphasized, as was the horizontal dimension. Above the doors and gateways there were carved plaques with the name of the builder and the year of construction. In front of the entrances there were projecting porches consisting of steps bordered by a low wall and ending in upright stones with carved patterns.

In eastern Denmark the plan of the buildings usually consisted of a doorway, either between the dwelling proper and the gable or a shop/room for hire (Bager 1936, 19; Engqvist 1989, 40). Beside the doorway, in bigger houses, there was a passage running through the house, and after this came the living-room. The kitchen was adjacent to the living-room in a yard house set at right angles. In larger burgher homes there was also a kitchen in the main building. Through time, a chamber facing the yard was divided from the passage. There were also examples of a chamber being divided off at the gable end of the living-room. The hall was normally on the upper floor of the dwelling-house. An example of this is the timber-framed house in Store Kirkestræde in Køge, built around 1590. Counting from one side to the other, the dwelling-house consisted of a doorway, then a vestibule, a chamber, a living-room, and the kitchen in an adjacent building in the yard (fig. 11).

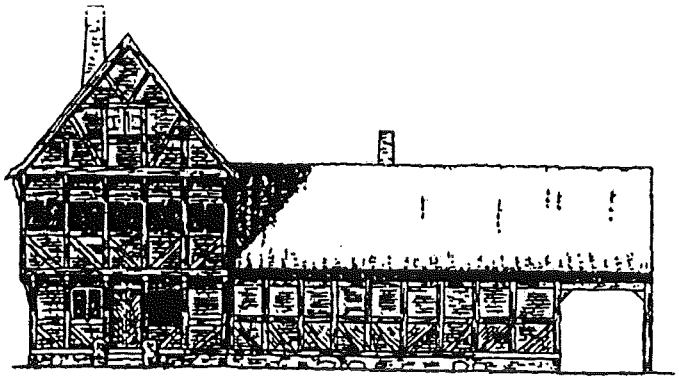
In western Denmark the dwelling was usually in a gable house. It consisted of a living-room (closest to the street), followed by a kitchen and a chamber.

Fig. 12. - *The consoles on the Lembke house in Malmö. Drawn by the author from Bager 1949.*



The timber-framed houses represent a new architectural idiom. The exterior emphasizes the bearing elements of the structure; the consoles were often decorative or figurative, the wall plates were often decorated, the diagonal trusses between the posts formed ornate patterns, and the panels were filled with brick laid in patterns. The consoles above all were very conspicuous in their figurative design. Biblical motifs were most common; at the Lembke house in Malmö, for example, Justice, Adam, and Eve were depicted on the consoles (Bager 1948) (fig. 12).

The inscriptions on the door plaques often cited hymns and the Bible, but they also emphasized the name of the owner and the year of construction. This



A

Fig. 13. - *A: Exterior of timber-framed house on Pilgränden in Ystad. The dwelling-house was built around 1520 (after Sandblad 1948). B: Door lintel bearing the date 1575 from Stora Östergatan 4 in Ystad.*

B

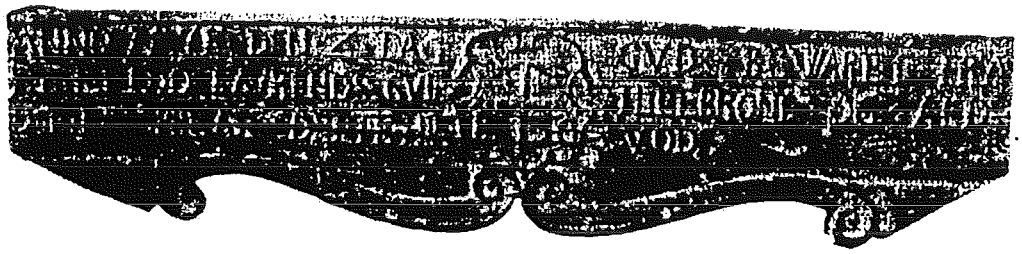
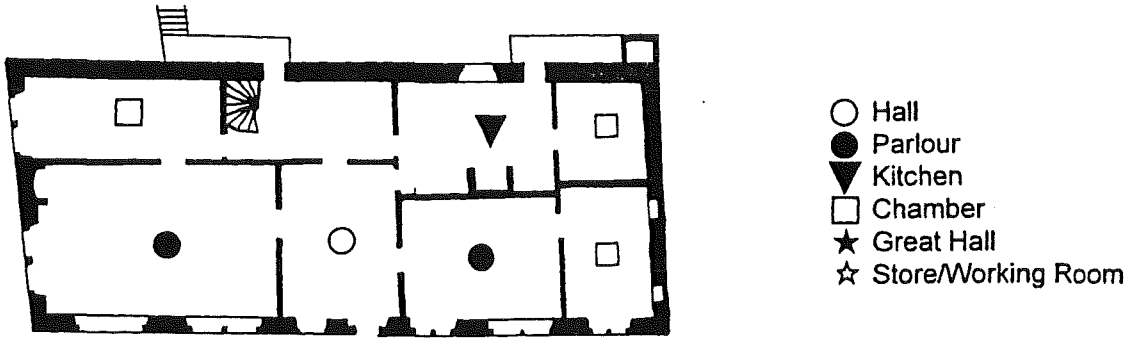


Fig. 14. - *Plan of Jens Bang's house in Ålborg, built in 1624. After Engqvist 1989.*



should be interpreted as a way of marking individual ownership. The timber-framed houses were built with a view to assembling the everyday and representative functions of the dwelling in one building. The kitchen was excluded from this, however, and located in an adjacent building. This may be interpreted in two ways. The process towards integration into a single all-embracing main building may have been incomplete. There are examples from contemporary stone buildings in which the toilet and the kitchen were housed in the main building, which indicates that this was socially acceptable. Alternatively, the kitchen was the domain of the servant folk and therefore did not belong in the main building. Through time more rooms were divided off, which should be interpreted as increased privatization of the rooms in the house (fig. 13 A + B).

In the timber-framed houses it is possible to interpret two interwoven processes, the first of which can be related to the development of society towards capitalism while the other can be related to the dwelling as a concept. Max Weber (1986, 67ff.) argued that the emergence of capitalism was due to the successive factors of the Reformation, rational thought, and the Protestant ethic. The timber-framed houses in their Renaissance form should be studied in this context. The fixed division of the timber-framed houses into bays of standard dimensions, the symmetrical design of the façade, and the ground plan should definitely be interpreted as a reflection of rational thought. Yet it can also be seen as part of a process by which the building came to be regarded as a commodity. The division of the building into bays, together with the dates on the door plaques, expresses the value of the buildings, which meant that the houses constituted at once a home and a capital. The biblical quotations together with the figurative consoles were thus a time document with a moral message and a guarantee of the irreproachable construction of the capital the house. The increased number of private rooms in the houses should be interpreted in the context of broader changes. Matthew Johnson (1996, p. 81) sees it as a reflection of the greater significance attached to the individual, and of changes in household relations between masters and servants and between husband and wife.

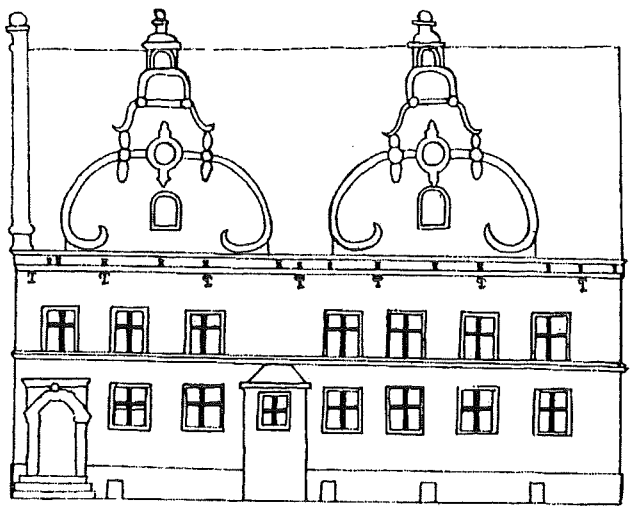
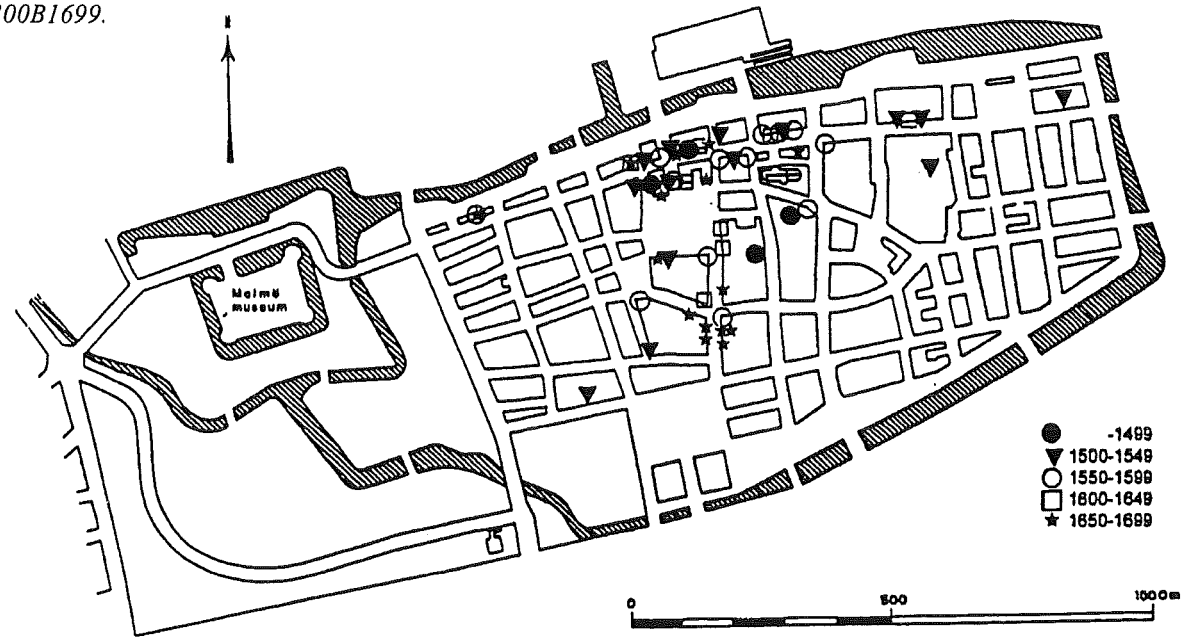


Fig. 15. - *Exterior of the Ulfeld house in Kristianstad. After Sandblad 1949.*

Renaissance stone houses

The plan of Renaissance stone houses does not differ noticeably from that of the timber-framed houses and the late Gothic long-side houses. The entrance was normally beside one of the gables, followed by the living-room and a chamber. Upstairs there was often just one big hall, but sometimes a chamber was also divided off from it. Many of the houses, however, were located on corner plots. In the Ulfeld house in Kristianstad the kitchen, larder, and a chamber were housed separately in an adjacent building at right angles to the main building. This house was also

Fig. 16. - *Map of Malmö showing the location of mayors' houses, 1300B1699.*



unique in that it had a gallery built entirely of brick which ran like a corridor on the side of the building facing the yard (Sandblad 1949, 372f.). Another type of plan that did not suit the timber-framed houses could be found in Jens Bang's house in Ålborg, built in 1624 (Hartman 1979, 67f.) (fig. 14). This was built to a plan in which the vestibule was located in the centre. The vestibule did not run the entire width of the house; behind it was a staircase leading to the first floor. On one side of the vestibule was the living-room, a bedchamber, the kitchen, a room that was probably a larder, and the privy. On the other side, besides the staircase, there was the large room used for entertaining and a chamber. Jens Bang's house likewise did not have the kitchen in the main building. This was also the case in the buildings at Strandgade 28 in Christianshavn (Copenhagen). The house had its gable facing the street and was laid out roughly like a Gothic house with a passage running all along one long wall, except with a staircase, and with the living-room facing the street and the chamber and kitchen looking into the yard (Engqvist 1989, 60).

In other houses the vestibule ran the entire width of the building, as in the Gyllenpalm house in Malmö (Sandblad 1931, 10f.). This form of plan was similar to that of late Gothic brick houses.

The exterior design of the buildings was characterized by the sturdy gable ends, with carved stone ornaments in the form of scrolls and circles. These often followed the edge of the window reveals and the edges of the gable end, which were emphasized in this way. The houses often had carved doorway surrounds, and some also had carved window surrounds. A doorway in Hans Michelsen's house in Malmö had ornamental fixtures, carved diamonds, and a lion mask (Sandblad 1949, 382f.).

With the Renaissance houses, architects and specialized master builders began to take over the design and construction of houses (Villadsen 1979, 68). In addition, the houses were heavily influenced by contemporary castles. For example, several burgher houses were built in Renaissance style in Helsingør in conjunction with the construction of the royal castle of Kronborg. Similar examples are known from Haderslev (Villadsen 1979, 58). Despite the many similarities, however, between the magnates' castles and the contemporary stone houses in the towns, Sandblad (1949, 380) believes that the burghers' houses are far from being copies. He thinks that the relationship is not so simple that the town houses can be described as mere copies of noble architecture; instead, the buildings can be grouped according to the architects. The groups could contain a large number of house types such as burghers' houses, castles, and churches. The house owners, the upper class of society, should therefore be interpreted as a unit which had formerly been divided into different categories.

The Renaissance stone houses represent a distinct change of trend in the prevailing architectural culture. The houses had previously been built in accordance with a collective cosmos as regards design and choice of materials. In the new tradition, much of the design of the building represented not just the owner but also, and even more so, the architect. It may be said that the earlier type of building culture was based on a regional collective tradition, while the stone houses emphasized an international and individual knowledge created in a literate context. It must of course have

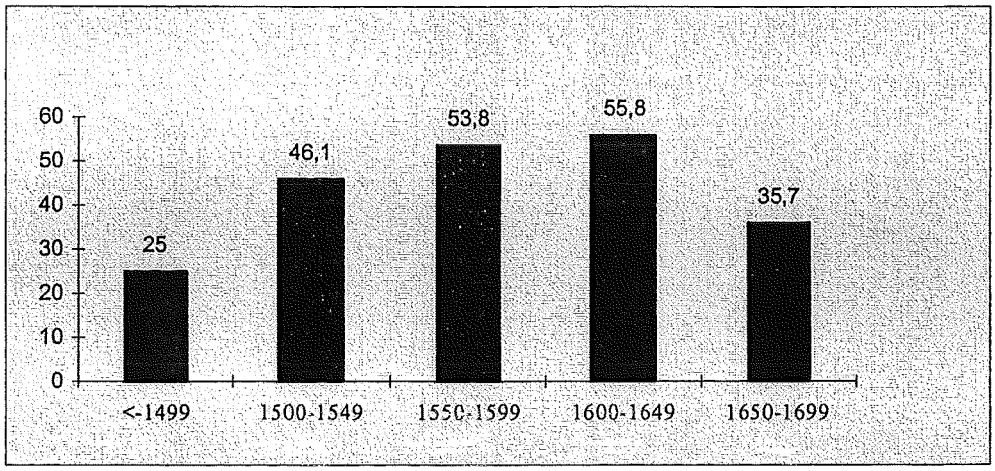


Fig. 17. - *Diagram showing the percentage of mayors of Malmö living in houses on corner plots.*

been a deliberate choice on the part of the owners to express this message through their individual houses (fig. 15).

Private life made public; an epilogue

How can the homes of the burghers contribute to a discussion on the subject of class formation and class emergence? Is it relevant at all to speak about classes before the concept of class was established by Marx, or without the possibility of substantiating class consciousness by means of historical sources? Marx and Engels used the concept of class as an analytical tool for social relations chiefly manifested in relations of production. The disadvantages of their definition have been frequently pointed out, and they are indisputable. The fundamental and immediate criticism is ethical: people not economic structures, create class. Both Thompson and Lindqvist give the concept of class an all-embracing dignity which means that it is not specific to any particular period in history (as Marx's definition tended to be). These definitions also make archaeological source material and archaeological methods useful. This article, however, studies the cultural mobilization of burgherdom, not their specific relations of production.

The ethnologist Mats Lindqvist (1987, 147) describes the emergence of the working class in two stages: first they transgressed the frames of the ruling class, and then they took control and initiative of the rules governing social and cultural space. As a result of this, the values of the new class made their mark on the concrete social structure. This process also involved alienation and distance, some kind of collective unity, and some type of cultural distinction. When performing an analysis based on archaeological sources, it should be possible to study the changing utilization of space and symbols in order to learn about the emergence of class consciousness. This may be studied on two levels.

The first level comprises the collectively built manifest remains in the towns. Anders Andrén (1985) has shown that the character of the town changed in the late twelfth and early thirteenth centuries. From having been open towards the surrounding countryside in the early Middle Ages, the town became a closed unit. Walls or ramparts were often constructed around the town, and Gothic churches were built. This should be interpreted as collective manifestations of burgherdom as a unit, a definition of space and exclusion in the feudal landscape. But this was complex. At the same time, the town as a phenomenon was, as we have seen, a feudal power symbol. The feudal system thus recognized and encouraged the emergence of an autonomous new social class. This phenomenon can also be studied in the emergence of the working class in Sweden. Lindqvist (1989, 163) believes that part of the reason for the growth of this class may be found in the bourgeois recognition of social mobility.

The other level comprises the development of the burghers' everyday life. This article has worked on the assumption that class consciousness was preceded by efforts at collective cultural unity in everyday life. There are indications that building culture was homogeneous in town and country until the fourteenth century, when people began to build stone houses in the towns (although there were already examples of stone houses in the thirteenth century). The stone houses may be interpreted as dual manifestations. On the one hand, they may be interpreted as signs of an emancipation of burgherdom, and on the other hand as expressions of competition between townspeople (a symbiosis of status and sociality) as a consequence of changed forms of lordship in feudal society. The new forms meant that the burghers could receive mercantile fiefs. Previously this had been reserved for the nobility and the king himself (Andrén 1985, 111f.). The forms constit-

uted an expression of an urban idiom which communicated social representations and social role play. According to Werne (1994, 78ff.), this is symptomatic of societies where people represent themselves and play a role, in this case as burgher or merchant or craftsman or noble. As we have seen, the square plots with stone town houses in the middle, the *søgningsgårde*, represent the role of noble, while large stone houses with the gable facing the street represent the role of merchant. The show houses were thus also markers of social distinction in the town.

Social manifestations in the town can also be studied at the transition from timber-framed houses to Renaissance stone houses. The change in idiom between the two types of building may be understood in terms of the pair of concepts described above: presentativity and representativity (Werne 1994, 81). The timber-framed houses present someone who is present, mostly through decorative elements. The idiom of the Renaissance houses should rather be regarded as representative and absent. The structural elements are often concealed behind elements which merely represent structural details (Werne 1994, 79). An example of this is the gable ends dominating the façade, which are related to house types with the gable facing the street. This should be interpreted as a duality between the old, present burgher class and the new, absent upper class (or at least aspirations to belong to this). The new upper class, as revealed in the architecture, was a conglomerate of earlier classifications.

Social role play can also be studied in the utilization of space in the town. In Malmö the mayors, with few exceptions, lived until the eighteenth century in the mercantile centre of the town (Thomasson 1993). In addition, corner plots in the blocks were particularly attractive. This was especially noticeable in the period from the middle of the sixteenth century until the middle of the following century (fig. 16).

The corner plots should be regarded as especially significant in the medieval town. By building and owning a corner plot along the main street, one ensured that the house dominated the visitor's field of vision. The use of space in the town was thus influenced by the quest for prestige in the burghers' role play and their claim to the mercantile centre. The diagram (fig. 17) shows a decline in the number of mayors living in corner plots in the second half of the seventeenth century (Thomasson 1993). In attempting to understand this, one should relate it to the greater development of burgher housing. This development may be summed up as a demythologizing of an older architectural idiom and the breakthrough of a new idiom, a remythologizing: the myth of rational thought.

The toning down of the significance of corner plots coincided with several parallel phenomena that went hand in hand with the emergence of rational thought in relation to burgher housing. An example of this is the abandonment of the equation of a room with a house. In this process the living-room '*stuga*' was broken up into several smaller constituents such as kitchen, vestibule, and chamber, and the addition of a shop, a hall, and a privy to the building. At the same time, the home was given a mercantile value. Before this, the home had been regarded as organically linked to the person who lived in it, but in the sixteenth century it came to be regarded as a commodity. It is symptomatic of this development that the nobles abandoned their town houses during the same century. When the town house was no longer the same fixed point and did not enjoy the same symbolic distinction, the socio-economic need for it disappeared. This is even clearer in the case of the timber-framed houses. The perfect form of these was a symbiosis: rational structure combined with architectural ornament guaranteed the value of the capital.

Max Weber (1986, 47f., 80f.) viewed the rational organization of everyday life, of which the view of the home should be regarded as part, as one of the crucial factors in the origin of Western capitalism. He also saw an intimate connection between the introduction of Protestantism and the spirit of capitalism. He believed that the foundation of Protestantism , that one should obey God more than man, was one of the most important pillars of modern individualism (Weber 1986, 93). In Denmark, Protestantism was officially introduced in 1536, but in practice it had been preceded by a few decades of theological dispute and power struggle. On one side stood the rich burghers as advocates of the new doctrine, while the nobles represented Catholicism. It was during this period that the burghers for the first time acted as a social class (Andrén 1985, 117), defended their interests, and showed an interest in class-related issues. Andrén (p. 119) argues that the Reformation, paradoxically, meant a reduction in the power of the burghers. The confiscated church property was to be the foundation for the economic and political power of the new aristocracy.

The burghers, however, constituted a cultural space, or an island, in the feudal sea. Despite their dwindling influence in the period 1550-1750, their specific values were reflected in the concrete social structure. The concept of the dwelling shows some interesting dialectic characteristics in the rational mythology of the burghers. There was a gradual divergence of the members of the household (also including the servants) by means of the growing number of rooms. In Matthew Johnson's view (1996, 81), the household in the English countryside was originally regarded as a collective unit. He bases this view on the fact that the medieval

houses, like the early medieval houses in Danish towns, had a communal living-room. Johnson interprets the increase in room divisions as showing changed relations within the household, with the collective world view being abandoned in favour of an individualist outlook. Such an interpretation appears to be valid for Denmark as well.

Despite the increased privatization of the rooms, the household became more public with the move of the living-room towards the street, while the kitchen function continued to be located at the back of the house or in a side building, facing the yard. Everyday life was not concealed; it must instead have been regarded as a virtue, something clean which could be shown off on the stage of the street. At the same time, however, entry into the house was as complicated or more complicated than before. Coming from the street, one had to pass through at least one room before entering the living-room.

Private life was inaccessible but public.

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