



Faculty of Arts
Department of Archaeology

ON HEATH AND FIELDS

THE TRANSFORMATION OF THE RURAL LANDSCAPE OF THE BAILIWICK
OF 'S-HERTOGENBOSCH DURING THE LATE MIDDLE AGES AND EARLY
MODERN PERIOD (CA. 1200-1550)

Dissertation Synopsis

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Opponents of the dissertation thesis

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The dissertation defence will take place at the Department of Archaeology, Faculty of Arts UWB (date, hour):

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Introduction of a problem

The coversand area in the southern parts of the Low Countries, an area roughly bounded by the rivers Meuse, Demer and Scheldt (MDS), has been the focus of medieval settlement research since the late 1970s. Remnants of these settlements have been well persevered underneath the thick, man-made arable soils and major construction projects enabled numerous extensive excavations. As a result considerable advancements have been made in our understanding of medieval rural societies in this region. Nevertheless, precisely the characteristics that make this area so attractive for archaeological research testify of the profound transformation that the region has undergone during the Late Middle Ages.

During this period considerable developments took place in almost all areas of society. The region came under centralized authority, an administrative and legal infrastructure was formed, property relationships changed, towns and markets were established and monumental churches were erected. Also at the local level several remarkable developments took place. One of most notable was the wide-spread relocation of rural settlements which had been located amidst the arable field from the early middle ages, yet around the first half of the thirteenth century all of them were abandoned in an apparently short period of time and relocated, presumably to the locations of villages and hamlets as illustrated on the eighteenth and nineteenth century maps. With this relocation the settlements disappeared from the archaeological view. Around the same time major changes occurred in the construction of the vernacular houses in which the traditional 'boat-shaped' construction with earth-fast posts was succeeded by the rectangular aisled house (*hallehuis*) with a timber frame on footings. At the fields a reorganisation of the arable land can be observed and the adoption of plaggen manuring led to the formation of the dark man-made plaggen soils. The dramatic character of these developments suggests that it reflects major changes in rural society. At the same time these developments formed the basis of the rural landscape as it still the appearance of the countryside today. This was the reason take a closer look at this late-medieval transformation.

Aims and objectives

This study aims to contribute to our understanding of the late medieval transformation of the MDS-area by examining the development of the rural landscape in the Late Middle Ages and Early Modern Period from a landscape archaeological perspective and to collate, synthesize, and critique the evidence from recently published studies and excavations. To this end this study aims to identify significant developments in the countryside that are archaeologically traceable or that have been observed in archaeological excavations and which could indicate wider social changes. By exploring a selection of these topics, a more detailed understanding is gained of the nature and chronology of these individual issues which can then be used to explore to what extent these developments are correlated.

By focussing on the late medieval transformation this study aims to add to the long-standing and rich research tradition in this region and build onto the long series of syntheses that have been composed for the previous periods. Most of all it aims to contribute to our understanding of the long-term development of this region: the biography of the Maas-Demer-Scheldt area.

Research methodology

Given the topic this research takes a landscape archaeological approach. Since the main focus of this research will be on the transformation of the countryside and the rural landscape the conceptual framework will be modelled after the current research programme: The biography of a sandy landscape: cultural history, heritage management and spatial planning in the southern Netherlands.

This project sets out to explore the regional cultural history in the long term (*longue durée*) from a biographical perspective that focuses on the study of the interrelationships between spatial transformations, social and economic changes and the construction of regional and local identities. The present research will examine one of the major stages of landscape transformation of the Brabant region: the Late Middle Ages and Early Modern Period.

This study is carried out in three steps:

1. Defining key developments of this transformation;
2. Studying the course of these individual developments;
3. Establishing the correlation between these issues and the correlations with other social developments in that period.

Five developments were selected that on the one hand are key to the late medieval transformation of the countryside and on the other hand (appear to) have been interrelated. These will make up the main themes of this study. The themes are:

1. The large-scale relocation of rural settlements;
2. The changing structure of the rural landscape;
3. Developments in agricultural land use and the emergence of *plaggen* manuring;
4. Developments in the agricultural practice and the emergence of the deep litter byre;
5. The developments in the construction of vernacular farmhouses;

Each of these topics was first studied separately in order to determine its precise nature and chronology. Subsequently, the correlation between these events and their relationship with other major social developments of this period was examined. The results have been brought together in a regional synthesis. This was then compared with late-medieval transformation processes in other parts of Europe. Two overarching themes, the rise of open field agriculture (a) and the formation of villages (b), were explored in further detail for the MDS area. This yielded a hypothesis, but also revealed the limits of our current insights and data. Because these are related to the way in which archaeology is organised in the Netherlands and Belgium, this study concluded with the formulation of a solution for currently inhabited historical village research in the present heritage system.

Results and discussion

Although the study covers the MDS-area, relevant data from archaeological, building archaeological and historical geographical sources was not readily available for the entire region. More importantly, however, was that the subjects that constituted the late medieval transformation, such as the rural landscape at the time are generally only covered sparsely in archaeological research. This meant that I had to turn to the primary data to obtain the required information. Fortunately, a couple of good case-studies were available and I was able analyse and develop these studies over the course of my doctoral studies. These cases, in particular Best-Aarle and Veldhoven-Zilverackers, proved to be invaluable sources since these were designed from the start to address the current research topics. Because of this, the study focusses primarily on the area of the Bailiwick of 's-Hertogenbosch. Given the correlation with environmental factors it is believed that the results could still be used as a hypothesis for the wider area.

1. The large-scale relocation of rural settlements

In current views, the widespread relocation of rural settlements in the first half of the thirteenth century is believed to be tied to the incorporation of the area into the duchy of Brabant and a subsequent push to reorganize agriculture towards sheep herding for the benefit of the wool trade. An analysis of thirty sites that were studied through large-scale excavations indicates that the relocation of settlement does indeed neatly coincide with this development and it is tempting to view this as a direct correlation. However, it should be noted that the process was not restricted to

the Brabantic territories, but was observed in neighbouring regions as well. Moreover, the decline in tofts prior to the completion of the abandonment suggests that the relocation process had started already at an earlier stage and was well underway by the time the territories became ducal land. For the same reason the emergence of towns could not have been a direct cause for the settlement relocation. In addition, The archaeological studies showed little evidence for a notable change in farming in de thirteenth or early fourteenth century that could indicate a substantial increase in sheep rearing or husbandry in general.

In contrast, the relocation was found to be best explained from a vantagepoint of the arable fields rather the settlements themselves. It fitted a long-term process of expansion of arable land and gradual shifting of farmsteads. New reclamations were primarily determined by the suitability of the soil for agriculture starting with the most suitable areas and gradual expanding into the more marginal terrains. Given the relative scarcity of fertile soil in a sandy landscape, the relocation of settlements can be understood as a climax in this process aimed to freeing up valuable arable land. The concurrent timing of this development despite the variety in size of the coversand ridges -and thus farmland- within the territory can be attributed to a change in property relations from feudal land tenure towards leasehold or even privately-owned land as indicated by changes in spatial demarcation. Quality arable land had probably be scarce for some time, but the farm could only be moved after the manorial ties were loosened and people were no longer directly tied to the land.

2. The changing structure of the rural landscape

The archaeological record of the coversand area between the Meuse, Demer and Scheldt shows little evidence for spatial demarcation of arable land up until the High Middle Ages. In this period fields are sometimes enclosed with ditches. Then, in de Late Middle Ages, the rural landscape suddenly gets (re)structured, marked out and divided in smaller plots and parcels. This demarcation extends across wider parts of the arable land and a appears to have taken place in a relatively short period of time. Although this represents a major change in spatial design of the rural landscape, these feature generally receive little attention in archaeological excavations.

Analysis of four large-scale excavations identified four main forms of demarcation: corner stones, ditches, (wooded) earthen banks and fencing. The case-studies reveal that the development of the demarcation of the arable land in the Middle Ages took place in three stages. Firstly, we saw the appearance of individual enclosed fields in the High Middle Ages. These fields were characterised by their rounded form and lack of further subdivision. Historical geographical studies showed that these rounded fields or *woerden* are often associated with manorial farms.

Well dated sites such as Best and Veldhoven show that during the late twelfth and thirteenth century these older structures are succeeded by a more extensive and rational allotment. This new lay-out corresponds closely with the plots as depicted on the earliest available topographical maps: the ordonnance surveys dating to the early nineteenth century. Since these maps represent land ownership, it is likely that the change in spatial demarcation is to be understood in terms of changing property relations. This development therefore could reflect a shift from feudal land tenure to leasehold or even privately-owned land. When people start to have their own piece of land the need arises to clearly mark out its boundaries and fix them in a durable form. This also explains why the shape of the plots suddenly changed from a more or less organic form to predominantly rectangular allotments as it enabled to determine exact plot sizes for taxation or tenure.

In the fourteenth and fifteenth century the demarcation saw another major transformation. This time, however, the allotment itself remained basically unchanged as illustrated by the continuing similarities with the later ordonnance maps, but now the form of demarcation on the permanent arable fields was altered. This suggests that this development does not reflect a change in property relations, but rather one of exploitation. The ditches were filled in and replaced by corner stones,

creating an open field structure. This coincided with the intensification of agriculture by the adoption of humus-rich plaggen manuring, resulting in the formation of the dark man-made soils. At the same time spading marks and tillage layers were found to extend beyond individual field boundaries and to continue uninterrupted across multiple parcels. This suggests that the adoption of corner stones was done to facilitate a mode of exploitation that transcended individual plots.

The continuation of tillage layers and spading marks across field boundaries indicates that owning land and working it were different things. The size of the cultivated areas now became far too extensive for one family to work on their own. This suggests that despite individual ownership, land was worked (at least in part) at a communal level. This could indicate *Flurzwang*, an agreement or even a directive from the community on the sequence for the crops in the crop rotation system and also on dates for the work (spading, ploughing, sowing and harvesting).

3. Developments in farming practice and the emergence of plaggen manuring

One of the most characteristic elements of the coversand landscape of the MDS-area are the wide open field complexes with their thick concave man-made arable soils, the so called plaggen soils. These soils are the product of an intensive form of cultivation and can reach up to 1.5 m thick. In this type of cultivation sods are cut from the grass- and heathlands, mixed with the manure used as a fertiliser of these poor sandy soils. Sand that stuck to the roots of these turfs was brought onto the fields together with the sods, but unlike the plants, this inorganic material did not decay and accumulated in the tillage layer. Though not intentionally, this effectively increased the volume of the plough soil. It is a practice that is well documented from ethnographic sources and that continued to be practiced up until the introduction of chemical fertilizers around the start of the twentieth century.

Although the aims of plaggen manuring are clear, the origins of this strategy are still debated. Basically, there are two schools of thought. The first one, put forward by Theuws, regards plaggen manuring as an innovation tied to the intensification of grain cultivation in order to free up space for husbandry. This development is part of a general shift in the agriculture towards sheep farming. Spek on the other hand regards inorganic plaggen manuring to be the unintentional effect of the overexploitation of the extraction areas. His model suggests that this practice started with the gathering of heath and forest litter to supplement the scarce amount of manure that was available to the farmers. As the demand grew over time these areas did not fully regenerate. Increasingly farmers had to use younger litter layers that were less well developed and contained less vegetable matter. In order to still obtain sufficient nutrients to sustain the same level of production more and more litter needed to be collected. This gave the extraction areas less time to recover. Gradually the collection of litter became the mowing of the shrubs and finally the cutting of sods and the farmers got trapped in a downward spiral.

The findings paint an interesting picture about the development of plaggen manuring which puts both theories in a different perspective. The late medieval transition towards intensive plaggen manuring turns out to be an innovation, though it was not the mineral plaggen that were the novelty. The use of mineral plaggen for fertilisation of arable land dates back to the High Middle Ages. In the eleventh or twelfth century plaggen were found to be used in the preparation of manure in pits (or heaps) on the farmyard. Relatively little dung was used in this process as indicated by the bleak appearance of the grey tillage layer that formed on the arable fields in this period. Ruling out depletion, it is likely most of the manure was distributed by livestock during grazing on the stubble or in the meadow. It was the management of manure that was the major change in the Late Middle Ages.

From the perspective of the plaggen use, the transition was an intensification of the existing practice. The areas where the litter and plaggen were extracted remained the same. The major difference was the radical increase in the amount organic matter in the manure. This was not so much the result of

growing use of litter, but rather a substantial increase in the amount of dung. Since it is unlikely that the livestock grew dramatically in a subsistence farming system, it has to do with the management of the available resources. This comes down to the concentration of the manure and optimisation of its use for fertilization. This is precisely what the deep-litter system we know from the eighteenth and nineteenth century was designed to do. It's therefore the most likely candidate for the transition, though not necessarily in the same form.

A deep-litter system is in effect a combination of: 1) livestock management (grazing/stabling); 2) a form of manure preparation and storage; and 3) a form of litter use. This can be combined in a certain type of byre, but this does not necessarily need to be the case.

The increased use of mineral plaggen, i.e. plaggen that were cut together with a part of the plant root system and the adhering sand, may not have been an accident or the result of degradation. Instead it probably was a deliberate choice aimed at increasing the capacity of the plaggen to absorb (liquid) manure. This is illustrated by the abrupt transition in the soil layers between the grey proto-plaggen layer and the dark plaggen soil that can be observed in excavated field throughout the MDS-area.

Soil degradation on the commons was not the reason for the transition into intensive plaggen manuring. Conversely, this form of exploitation did cause and exacerbate the degradation of the common lands. This most likely necessitated the increasing laborious cultivation to sustain a decent output. Shortly after the intensive plaggen manuring was established, the farmers started spading the land occasionally. In the eighteenth century even a type of ridge-and-furrow was adopted. This took place against a background of a growing pace of manuring which can be seen in the build-up of the plaggen soil. This does not appear to be (solely) driven by a desire to increase agricultural production, rather the farmers seem to have gotten trapped in a downward spiral in which the decreasing quality of the plaggen necessitated an ever-increasing effort in manuring and cultivation to keep up the required harvests. This downward spiral was only broken when chemical fertiliser was introduced by the end of the nineteenth century. It soon caught on and in the beginning of the twentieth century the plaggen manuring practice was phased out.

4. The emergence of the deep litter byre

One of the most characteristic elements of the Brabant farms prior to the Second World War was their deep-litter byre. This barn type had a sunken floor and was designed to optimise manure production and storage. Until the advent of chemical fertilizer byre manure was (almost) the only manure available to the farmers to fertilize the poor sandy fields. Because of this 'making manure' was one of the primary activities on the farm. The introduction of the deep litter byre is generally linked to the emergence of man-made soils, but so far, this was mainly through a projection of the eighteenth and nineteenth century situation rather than direct archaeological evidence.

The case-study of Best-Aarle provided an opportunity to get a better understanding of its development. In this large-scale excavation a long and uninterrupted series of farmyards were found dating from the late ninth century up to the late nineteenth century. Not only did it provide rare data on rural settlement in the Late Middle Ages and Early Modern Period, it also presented a unique opportunity to study the long-term development of the timber-framed farms and their tofts and find out, for the first time, when the deep-litter byre appeared in the vernacular farms and how it developed in form, construction and lay-out.

The earliest farmhouse in which a deep-litter byre was found dated to the beginning of the fifteenth century. The byre had a rectangular shape and was situated in the side aisle. The byre was 0.8 m deep and was equipped with additionally a drainage pit, a part which cut through the loam layer, precisely into the top of the underlying sandy soil and was filled in immediately after with sand. This allowed excess moisture to seep away and ensured that the animals stayed dry. In the beginning of

the sixteenth century the deep-litter byre was widened to cover the entire width of the house and from then on encompassed (nearly) the entire byre area. Nearly all of these deep litter byres were equipped with drainage pits. Their capacity varying between 43 and 129 m³.

Around the start of the nineteenth century a series of remarkable developments occurred in the form, size and situation of the deep-litter byres. First, the new byres were considerably smaller than their predecessors. With a maximum volume ranging between 25 and 39 m³ their capacity was only one third to one half of the old deep-litter byres. Next, all the new byres were square whereas their predecessors all were rectangular. At the same time of this change in shape the byre was moved to the front of the service area, and built excentrically so that one side was against the outer wall while leaving room for a corridor to the rear side of the house on the other side.

The main change, however, occurred in the construction of the deep-litter byres. These were now fitted with clay floors. This application is remarkable since it is a reverse of the previous strategy. First people wanted to get rid of excess moisture through drainage pits, now the liquid parts of the manure and the nutrients these hold were retained. As a consequence, people would have had to make a greater effort to keep their animals dry and this development implies a greater investment of labour.

This development shows that the deep-litter byre did not emerge in isolation but stemmed from an existing practice of manure preparation. As early as the late twelfth century manure preparation pits were found in outhouses. Evidence for manure preparation in the open was found they dating back even to the early eleventh century. Based on the dimensions of the manure pits this was initially done on a fairly small-scale. This changed in the beginning of the fifteenth century with the introduction of the deep litter byre. This was accompanied by an intensification of the manure preparation and a change in livestock management. Cattle were now kept indoors for a longer period, so that the animals produced a larger part of their manure here.

The introduction of the deep-litter byre in the fifteenth century coincided with the beginning of the formation of the dark plaggen soil on the arable fields. On these grounds it can be assumed that there is indeed a direct correlation between both phenomena.

Although the use of mineral, sandy sods appears to have been an important part in the preparation of the plaggen manure, it was not limited to the deep-litter byre. Sods found at the bottom of the oldest manure pits attest their use in manure preparation dates back to at least the eleventh century. The use of sods in the preparation of manure before the formation of the dark plaggen soil, however, posed a problem. After all, even when it was applied on a modest scale, this would have left traces in the arable land after a few centuries. Evidence for this was found as in the central parts of the arable field complex beneath the plaggen soil remnants were observed of an older, greyish tillage layer. Through palynological analysis and micromorphology this horizon could be identified as a (proto)-plaggen soil.

5. The development in the construction of the vernacular house

The high medieval house in the MDS-area is characterised by its timber-frame construction and oval or 'boat-shaped' ground plan: an elongated building with convex longitudinal sides, narrow gable ends and a curved ridge. This house-type is frequently found in excavations in the region. Interestingly it differs considerably with the earliest remaining farms dating to the fifteenth and sixteenth century. These are rectangular aisled-houses with a distinct separation of the living and working area. This illustrates that timber-framed farmhouses underwent a profound development during the Late Middle Ages. Unfortunately, the image of farmhouse development in the intermediate period is murky as very few data sets are available from archaeology or building archaeology. A region-wide survey is currently in progress; however, much of the data is fragmented. At this point the most relevant data set is, again, the archaeological case-study Best-Aarle in which result a series of farms could be traced uninterruptedly from the late ninth until the late nineteenth

century. For the first time this provided an overview of the chronological development of farmhouses within one micro-region from the Middle Ages through to the Modern Period. This included the emergence of several key-features such as the use of brick and shift from earth-fast building to a construction on padstones.

The earliest house plans in Best dates to the late ninth and tenth century and are clearly built in the Carolingian tradition. The houses had a rectangular ground plan with a three-aisled configuration. Around the beginning of the eleventh century a profound development took place when at multiple farmyards simultaneously a new construction form was applied. This consisted of an internal frame from three equally wide transverse frames placed at regular intervals. At both short ends a pair of end-posts with an narrow intermediate distance were set. The longitudinal walls, which posted were set in a convex line, were placed outside the internal frame. The curved appearance was enhanced by putting the corner posts further inward. This gave the house a boat-shape ground plan. The new house type proved to be very resilient and in the following two centuries they were built repeatedly and in (almost) the exact same form and dimensions.

Around the beginning of the fourteenth century again changes were made. The boat-shaped lay-out was abandoned and the floor plan now was fully rectangular (fig. 10.6). The construction itself, nevertheless, remained the same: a central frame consisting of six transverse frames, aligned in a straight line with end posts on both sides. No evidence for a physical internal division was observed. Based on the construction and the shape of the floor plan, this house can be classified as a rectangular three-aisled house (*hallehuis*) like the ones known from (more recent) building archaeological research. Around the same time the first houses were built on brick or stone supports placed at ground level. As a result, most of the house plan became archaeologically invisible. Only the central frame left an imprint.

This new construction form was not adopted everywhere (to the same extent). The posts of the timber frame of one house that was built at the beginning of the fifteenth century were still earth-fast. The ground plan was characterised by its rectangular shape and the presence of a deep-litter byre. The elongated, slender form became a characteristic trait of the farm houses in the successive periods. The narrowing mainly occurred in the central nave. In the seventeenth century in changes were made in the internal lay-out. Around the middle of the eighteenth century farmhouses got familiar lay-out of more recent farms. At the beginning of the nineteenth century the lay-out of the service area was modified. The deep-litter byre was decreased in size and moved to the middle of the farm house. The byre was now separated from the dwelling area by a narrow foddering corridor. A corridor in one of the side aisles gave access to the back end of the house. Here was a large open area which probably housed a storage area. The entrances now were put in the longitudinal wall, which became the front gable. Based on the lay-out, the location of the entrances and the application of load-bearing brick walls, these farmhouses can now be classified as a longhouse farm (*langgevelboerderij*), a sub-type of the compartmented house-group.

Within the series of successive farm houses brick was used from the fourteenth century onwards. Initially, the new building material appears to have been used solely in the foundation of the houses. Next, the application was then extended to the hearth and the separation wall between the dwelling area and the service section. The earliest examples date to the late (and possibly the early) seventeenth century. From the middle of the eighteenth century the outer walls started to be built from brick. This, however, was limited to the dwelling part of the house. The earliest houses in the case-study that were built entirely in brick date to the beginning of the nineteenth century. These houses no longer had a timber frame and the roof was now supported by the outer walls. In this period also the first application of roof tiles was observed. In all periods ceramic building material was used economically and after the dismantling of the house the still usable bricks and tiles were carefully selected for reuse.

In the beginning of the fourteenth century a major change was implemented in the construction of (some of) the farm houses in which the timber frame was put on (brick) supports or padstones (*poeren*). The motive for this profound development has remained elusive. In the present hypothesis it is regarded as a move towards a more durable construction form in which the placement of the timber frame on supports reduced the risk of rotting of the posts. The timing of this development is explained through the supposed connection to the widespread relocation of rural settlement to the lower parts of the landscape. This new settlement area was wetter and hence the shift increased the risk of rot.

Although these developments occurred around the same time, this study found that the relocation of settlements started prior to the change in construction. Moreover, the relocation was found not to be exclusively directed towards the lower and wetter parts of the landscape. This suggests that environmental causes were not the main motive for this constructional development. The change to building on footings does, however, correlate with the emergence of brick as a building material. Evidence from building archaeological research, however, showed that supports of some of the oldest remaining farms were made from iron ore, a material that is widely available in the brook valleys in the region. This suggests that the availability of brick probably was not of vital importance in this development. Especially, if a construction on footings truly had been so urgent, people would have obtained stones from elsewhere or used the already available ore. This was not the case. A technical innovation could also be ruled out, since the move towards a self-supporting timber frame was mainly enabled by the use of stiff joints through the application of diagonal braces. A building historical survey revealed that these basic elements were known and widely applied before this period.

A possible answer was found in the construction of wells. Throughout the Middle Ages these used to be made from hollowed-out oak tree trunks in this region. Then, around the start of the fourteenth century this practice was suddenly abandoned and from then on wells were built by stacking tapered sods on top of a cartwheel. This was part of a wider development in the MDS-area in which log shafted wells were phased out in the second half of the thirteenth century. The main reason is thought to be an increasing scarcity of suitable oak trees. This is supported by the observation that the trees used in the youngest wells were twisted and knotted and hardly suitable for making a well shaft.

The sudden scarcity of substantial oak trees was probably caused by the large-scale reclamation of woodland and the sale of timber in the thirteenth and fourteenth century. Historical studies suggest that various stakeholders competed in the reclamation of the Brabantic woodlands to capitalise their contested claims on the available resources. This resulted in a radical change of the rural landscape which appears to have suffered a severe deforestation.

The scarcity of timber not only affected the construction of wells, but also that of buildings as is supported by the fact that postholes of high medieval houses were considerably larger and deeper than those of the later buildings. The timber frame of the high medieval farms obtained much of its stability from its embedment in the soil. The large size of the posts did not only allow to bear a considerable load, but also made the posts more resilient against rot. When materials became more scarce, thinner posts were used. These were probably more vulnerable to decay and required different measures to sustain their durability. This presented the preconditions that necessitated a different construction. The lighter frame work, which was now put on footings, got its stability mainly from its construction in particular from rigid joints. This most likely required more labour, an investment that was offset by the increased cost of materials.

The late medieval development in the farm building practice thus was not mainly driven by technological innovation or availability of new building materials, but indeed by environmental changes. This, however was not the assumed increase of moisture caused by relocation of

farmhouses to the wetter parts of the landscape, but rather the sudden scarcity of suitable timber by the rapid reclamations of woodland in the thirteenth century. By the beginning of the fourteenth century this required a more economical use of timber which resulted in a lighter construction. Because of its vulnerability to rot this could no longer rely on the embedment into the soil as the main source of stability. Rather it required a more elaborated construction to create a ridged frame work which allowed the building to be placed on footings. The newly available bricks provided a suitable solution for the construction of these new foundations.

Conclusions

The late medieval transformation of settlement, landscape and agriculture was found to be not so much the direct result of a specific factor or decision such as the incorporation into the duchy of Brabant or the stimulation of wool trade, but rather the outcome of a context in which a set of conditions were met that made certain developments in the rural landscape possible or expedient. So there certainly was a link between the themes mentioned, but the correlation was not always direct. For example, the transition to intensive plaggen manuring and the formation of the dark plaggen soils was indeed closely linked to the introduction of the deep litter byre in the farmhouses, but these elements were part of a far wider development of the intensification of an existing agricultural practise which resulted from a change in property relations and the emergence of a market network. At the same time the relocation of rural settlement was not initiated by seigniorial policies, but these policies did respond to a new emerging situation and reinforced and formalised this through the issuance of the common lands.

In its essence the late medieval transformation is the shift from a late feudal society, mainly organised according to manorial structures to a proto-capitalist society with an early market economy with more elaborate administrative and economic structures which led to the development of villages and market towns under a centralized authority. In the MDS-area this development was an intricate interplay between social, political, legal and economic factors within the specific geographical and environmental context of the coversand area. This accounts for the regional scope of the developments on the one hand with distinctly local features on the other.

The transformations in the rural society of the Meierij therefore did not occur in isolation, but rather were part of a wider range of socio-economic and political developments that took place in large parts of Europe. In nearly all of the regions studied in the survey an extensive expansion of the arable land was observed around this period resulting in the growth and often reorganisation of settlements and the emergence of market towns. Yet it should not be concluded that these developments were universal. There are marked differences between these regions in the nature and course of these developments, their timing and pace as well as the major driving forces behind them. It is also striking that the late-medieval crisis, a period of epidemics and famines and the subsequent socio-economic reorganization, apparently had little impact in the Meierij, while in central England and southern Germany it has led to major changes in ownership, agricultural strategies, demography and settlement structure.

For the research of rural communities and the developments they underwent in the Late Middle Ages, the agricultural landscape itself has proven to be an indispensable source. The study of arable land and parcel boundaries, contexts that are generally neglected in excavations, not only led to a new understanding of developments in agriculture, land use and spatial planning, but also provided insights into the underlying property relationships and social organisation of these communities. Especially when settlements and rural landscape could be studied in conjunction, the interrelationship between the two became clear. For example, it is only when the physical

demarcation of individual plots appear in the arable fields that it becomes apparent that the relocation of the farmhouses from the farmland is related to the transformation from feudal servitude to tenure and private usufruct.

Somewhat elusive still is the formation of the currently inhabited villages and hamlets. For although numerous excavations bear witness to the disappearance of habitation from the arable fields, substantial archaeological data from the existing settlements is scarce. As a result, it remains unclear to what extent this was merely a relocation of settlements, a clustering at a new location or a nucleation in an already existing centre. Research opportunities in these built-up areas are generally scarce and small-scale, but no less valuable. In order to make effective and efficient use of these observations, it is desirable to work from a regional research agenda, based on historical geographical area studies and to safeguard the continuity of knowledge in order to maintain an overview and be able to properly assess the often fragmented data.

Community archaeology can provide an avenue into the research of these villages. Close collaboration with residents not only provides the opportunity to make the archaeological observations necessary to improve our understanding of village formation, it also enables people to participate in the archaeological heritage of their own hometown. This has potential social benefits in terms of well-being and community spirit by strengthening ties with the village (*binding*), enhancing the relationship with neighbours (*bonding*) and promoting contact between different groups (*bridging*). A communal approach can improve the social relevance of archaeological research, which is becoming an increasingly important element in the management of our cultural heritage. At the same time, it opens up new routes for substantive research with greater public support.

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Souhrn

Výzkum středověkého osídlení v oblasti mezi řekami Mázou, Demerem a Šeldou (*MDS*) na pomezí severní Belgie a jižního Nizozemí začal ke konci 70.let 20. století. Pozůstatky těchto osad se výborně zachovaly pod silnou vrstvou orné půdy a rozsáhlá stavební činnost umožnila množství detailních výzkumů. V důsledku toho bylo dosaženo značného pokroku v našem chápání středověké venkovské společnosti v této oblasti. Vlastnosti, které činí tuto oblast tak přitažlivou pro archeologický výzkum, však svědčí o hluboké transformaci, kterou tato oblast prošla v pozdním středověku.

Téměř ve všech oblastech společnosti došlo během tohoto období k podstatným změnám. Oblast se dostala pod centralizovanou vládu, byla vytvořena správní a právní infrastruktura, došlo ke změnám v majetkových vztazích, byla založena města a zřízeny trhy a došlo k výstavbě monumentálních kostelů. K pozoruhodnému vývoji také došlo na místní úrovni. Protože ta tvoří základ venkovské krajiny, jejíž vzhled určuje i dnes, zabývá se tato studie podrobněji touto pozdně středověkou transformací, a to za pomoci krajinné archeologie. Z důvodu dostupnosti údajů se tato studie zaměřuje především na oblast Bailiwicku 's-Hertogenbosch (*Meierij van 's-Hertogenbosch*). V rámci tohoto výzkumu rozlišujeme výběr vývojů, které jsou na jedné straně klíčem k poznání transformace pozdně středověké krajiny, a na druhé straně se zdají být vzájemně propojeny. Tento výběr bude tvořit hlavní témata této studie. Témata jsou:

1. extenzivní přesouvání venkovského osídlení;
2. změny ve složení venkovské krajiny;
3. vývoj ve využívání zemědělské půdy a intenzivní kultivace půdy (*plaggen manuring*);
4. vývoj zemědělských postupů a vznik chlívů ze zahlobenou deponií chlívské mrvy;
5. vývoj konstrukce lidové architektury;

Každé z těchto témat bylo prozkoumáno samostatně, to proto, aby se stanovily jeho přesné vlastnosti a chronologie. Následně byla zkoumána korelace mezi těmito událostmi a jejich vztahy k dalším významným sociálním vývojem tohoto období. Výsledky byly shrnuty v regionální syntéze. Ta byla poté porovnána s pozdně středověkými transformačními procesy v jiných částech Evropy. V oblasti MDS byly podrobněji prozkoumána dvě zastřešující témata, vzestup systému otevřeného polního zemědělství (a) a zakládání vesnic (b). Výsledkem je hypotéza, ale také odhalení limitů našich současných poznatků a údajů. Ty se vážou ke způsobům organizace archeologického bádání v Nizozemsku a Belgii, a proto tato studie formuluje řešení, jak provádět výzkum historické vesnice, která je stále obývána, v rámci současného systému památkové péče.

Transformace pozdně středověkého osídlení nebyla výsledkem nějaké konkrétní okolnosti či události (ať už je to např. začlenění oblasti do vévodství Brabantského či rozvoj obchodu s vlnou), ale spíše výsledkem splněných podmínek, které umožnily či usnadnily tento specifický vývoj venkovské krajiny. Určitě tedy existuje souvislost mezi zmíněnými tématy, ale jejich vzájemná souvislost není vždy zřejmá. Například přechod na intenzivní hnojení (*plaggen manuring*) a tvorba tmavých humusových (*plaggen soils*) půd byla úzce spjata se zavedením zahloubených chlévů s deponií hnoje (*deep litter byre*) ve vesnických dvorech, ale tyto postupy byly součástí mnohem širšího rozvoje intenzivního zemědělství. Přičemž tento rozvoj byl výsledkem změn ve vlastnických vztazích a vzniku tržní sítě. Zároveň nebyla změna v umístění venkovských sídel prováděna z iniciativy vrchnosti, jejíž politika odpovídala na nově vznikající situaci a tuto změnu posílila a formalizovala skrze vydávání společných pozemků.

Ve své podstatě je transformace pozdního středověku přechodem od pozdně feudální společnosti, která byla organizovaná hlavně podle vrchnostenských struktur, k proto-kapitalistické společnosti s ranou tržní ekonomikou, která měla propracovanější administrativní a ekonomické struktury, které vedly k rozvoji vesnic a tržních měst pod centralizovanou vládou. V oblasti MDS byl tento vývoj provázen složitou souhrou sociálních, politických, právních a ekonomických faktorů v rámci specifického geografického a environmentálního kontextu. Tomu odpovídá i rozsah rozvoje i jeho výrazně lokální rysy.

Transformace venkovské společnosti v oblasti Meierij proto neprobíhaly izolovaně, ale spíše byly součástí širšího spektra sociálně-ekonomického a politického vývoje, ke kterému došlo ve velkých částech Evropy. Téměř ve všech částech zkoumané oblasti bylo v tomto období zjištěno rozsáhlé rozšíření orné půdy, což mělo za následek růst a často reorganizaci osídlení a vznik tržních měst. Přesto není možné dojít k závěru, že by tento vývoj byl univerzální. Mezi jednotlivými oblastmi lze pozorovat značné rozdíly týkající se povahy a průběhu tohoto vývoje. Rozdíly jsou i u načasování a rychlosti změn i hnacích sil stojícími v pozadí. Je také překvapující, že pozdně středověká krize, což je období epidemií a hladomorů, a následná socioekonomická přeměna měla zjevně malý dopad na oblast Meierij, zatímco ve střední Anglii a jižním Německu to vedlo k velkým změnám v pozemkovém vlastnictví, zemědělské strategii, demografii a ve struktuře osídlení.

Pro výzkum venkovských komunit a vývoj, jímž prošly v období pozdního středověku, se samotná zemědělská krajina ukázala jako nenahraditelný zdroj informací. Studium obdělávané půdy a pozemkových hranic, což jsou kontexty, které jsou při terénním výzkumu často přehlíženy, vedlo nejen k novému porozumění vývoje v zemědělství, využití půdy a prostorového plánování, ale také poskytlo náhled do základních majetkových a společenských vztahů těchto venkovských komunit. Vzájemná provázanost se ukázala teprve tehdy, když bylo možné zkoumat zároveň osídlení i zemědělskou krajinu. Je to vidět na příkladech kdy se na polích naleznou fyzické pozůstatky vymezení jednotlivých pozemků. Tam lze doložit, že přemístění jednotlivých usedlostí souvisí s přeměnou nevolnictví na poddanskou držbu a soukromé využití pozemků.

Jedna z věcí, které stále nelze zcela objasnit, je vznik dnes obývaných vesnic a vesniček. Přestože mnohé terénní výzkumy dokládají zmišení obydlí z dnes užívaných polí, tak archeologická data ze současného existujícího osídlení jsou vzácná. V důsledku toho zůstává nejasné, do jaké míry se jednalo pouze o přesun jednotlivých sídel, jejich shlukování v novém umístění nebo nukleace v již existujícím centru. Možnosti zkoumání těchto zastavěných oblastí jsou všeobecně vzácné a když už jsou k dispozici, tak se většinou jedná pouze o výzkumy malého rozsahu, o to jsou získané údaje cennější. Aby tyto údaje byly co nejefektivněji využity, tak je potřeba vycházet z regionálních zdrojů, založených na datech historické geografie oblasti a také zajistit kontinuitu znalostí, to proto aby byl udržen celkový přehled a zároveň aby bylo možné správně vyhodnotit často dost fragmentovaná data.

Komunitní archeologie může být cestou ke zkoumání těchto vesnic. Úzká spolupráce archeologů s místními obyvateli umožňuje nejen lepší porozumění způsobu formování vesnic, ale také umožňuje místním lidem podílet se na poznávání archeologického dědictví svého města. To má i společenské výhody, pokud jde o blaho a cítění komunity, jelikož posiluje vztahy v rámci vesnice (společenské vazby), mezi jednotlivými sousedy (mezilidské vazby) a zároveň podporuje kontakty mezi různými skupinami (přemostění či překlenování rozdílů). Tento komunální přístup může významně zlepšit společenský význam archeologického výzkumu, který se stává stále důležitějším prvkem v našem vztahu ke správě kulturního dědictví. Zároveň tento přístup otevírá nové možnosti pro větší podporu veřejnosti pro další vědecké bádání.

Zusammenfassung

Das Decksandgebiet zwischen Maas, Demer und Schelde (MDS), das sich über Nordbelgien und die südlichen Niederlande erstreckt, steht seit Ende der 1970er Jahre im Mittelpunkt der mittelalterlichen Siedlungsforschung. Überreste dieser Siedlungen sind unter den dichten Ackerböden gut erhalten geblieben, und große Bauvorhaben ermöglichten zahlreiche umfangreiche Ausgrabungen. Dadurch wurden erhebliche Fortschritte in unserem Verständnis der mittelalterlichen ländlichen Gesellschaften in dieser Region erzielt. Dennoch zeugen gerade die Eigenschaften, die dieses Gebiet für die archäologische Forschung so attraktiv machen, von dem tiefgreifenden Wandel, den die Region im Spätmittelalter durchgemacht hat.

In fast allen Bereichen der Gesellschaft kam es in dieser Zeit zu erheblichen Veränderungen. Die Region wurde zentralisiert, es entstand eine administrative und rechtliche Infrastruktur, die Besitzverhältnisse änderten sich, Städte und Märkte entstanden und monumentale Kirchen wurden errichtet. Auch auf lokaler Ebene fanden einige bemerkenswerte Entwicklungen statt. Da diese die Grundlage der agrarischen Landschaft bilden, wie sie auch heute noch das Erscheinungsbild des Gebietes bestimmt, wird in der vorliegenden Studie dieser spätmittelalterliche Wandel näher beleuchtet anhand eines landschaftsarchäologischen Ansatzes. Aufgrund der Datenverfügbarkeit konzentriert sich die Studie vor allem auf dem Gebiet der Ballei 's-Hertogenbosch (*Meerij van 's-Hertogenbosch*).

Im Rahmen dieser Forschung wird eine Auswahl von Entwicklungen unterschieden, die einerseits für die spätmittelalterliche Transformation der Landschaft von zentraler Bedeutung sind und andererseits (scheinbar) miteinander zusammenhängen. Diese bilden die Hauptthemen der vorliegenden Studie. Die Themen sind:

1. Die großräumige Verlagerung ländlicher Siedlungen;
2. Die sich verändernde Struktur der ländlichen Landschaft;
3. Die Entwicklung der landwirtschaftlichen Bodennutzung und das Aufkommen der Plaggenwirtschaft;
4. Entwicklungen in der Landwirtschaftsunternehmen und das Aufkommen der Tiefstreuall;
5. Die Entwicklungen im Konstruktion des bäuerliches Haus.

Jedes dieser Themen wurde zunächst getrennt untersucht, um seine genaue Art und Chronologie zu bestimmen. Anschließend wurde die Korrelation zwischen diesen Ereignissen und ihrer Beziehung zu anderen wichtigen gesellschaftlichen Entwicklungen dieser Periode untersucht. Die Ergebnisse wurden in einer regionalen Synthese zusammengeführt. Diese wurde dann mit spätmittelalterlichen Transformationsprozessen in anderen Teilen Europas verglichen. Zwei übergreifende Themen, der Aufstieg der offenen Gewannflur (a) und die Entstehung von Dörfern (b), wurden für das MDS-Gebiet näher untersucht. Dies ergab eine Hypothese, aber zeigte auch die Grenzen unserer heutigen Erkenntnisse und Daten auf. Da diese mit der Art und Weise zusammenhängen, wie die Archäologie in den Niederlanden und in Belgien organisiert ist, schloss diese Studie mit der Formulierung einer Lösung für die Forschung derzeit bewohnte historische Dörfer im gegenwärtigen Denkmalsystem.

Die spätmittelalterliche Umgestaltung von Siedlung, Landschaft und Landwirtschaft war nicht so sehr das direkte Ergebnis eines bestimmten Faktors oder einer Entscheidung wie der Eingliederung in das Herzogtum Brabant oder der Belebung des Wollhandels, sondern vielmehr das Ergebnis eines Kontextes, in dem eine Reihe von Bedingungen erfüllt waren, die bestimmte Entwicklungen in der ländlichen Landschaft möglich oder sinnvoll machten. Es gab also sicherlich einen Zusammenhang zwischen den genannten Themen, aber der Zusammenhang war nicht immer direkt. So war zum Beispiel der Übergang zur Intensiv-Plaggendüngung und die Entstehung der dunklen Plaggenböden zwar eng mit der Einführung der Tiefsteustall in den Bauernhäusern verbunden, aber diese Elemente waren Teil einer weitaus umfassenderen Entwicklung der Intensivierung einer bestehenden landwirtschaftlichen Praxis, die sich aus einer Veränderung der Eigentumsverhältnisse und der Entstehung eines Marktnetzes ergab. Gleichzeitig wurde die Verlagerung der ländlichen Besiedlung nicht durch die Landherrliche Politik initiiert, aber die Politik reagierte auf eine neu entstandene Situation und verstärkte und formalisierte diese durch die Ausgabe der Gemeindeländereien. Die spätmittelalterliche Transformation ist im Wesentlichen der Übergang von einer spätfeudalen Gesellschaft, die hauptsächlich nach herrschaftlichen Strukturen organisiert war, zu einer protokapitalistischen Gesellschaft mit einer frühen Marktwirtschaft mit ausgefeilteren Verwaltungs- und Wirtschaftsstrukturen, die zur Entwicklung von Dörfern und Marktstädten unter einer zentralisierten Autorität führte. Im MDS-Gebiet war diese Entwicklung ein kompliziertes Wechselspiel zwischen sozialen, politischen, rechtlichen und wirtschaftlichen Faktoren innerhalb des spezifischen geographischen und ökologischen Kontexts des Decksandgebietes. Dies erklärt die regionale Reichweite der Entwicklungen einerseits mit ausgeprägten lokalen Besonderheiten andererseits.

Die Transformationen in der ländlichen Gesellschaft der Meierij fanden daher nicht isoliert statt, sondern waren vielmehr Teil eines breiteren Spektrums sozioökonomischer und politischer Entwicklungen, die in weiten Teilen Europas stattfanden. In fast allen in der Studie untersuchten Regionen war in dieser Zeit eine umfangreiche Ausdehnung des Ackerlandes zu beobachten, die zum Wachstum und oft auch zur Umgestaltung von Siedlungen und zur Entstehung von Marktstädten führte. Es sollte jedoch nicht gefolgert werden, dass diese Entwicklungen universell waren. Es gibt deutliche Unterschiede zwischen diesen Regionen in Art und Verlauf dieser Entwicklungen, ihres Zeitpunkts und Tempos sowie der wichtigsten treibenden Kräfte die hinter diesen Entwicklungen stehen. Auffallend ist auch dass die spätmittelalterliche Krise, eine Zeit der Epidemien und Hungersnöte und die anschließende sozioökonomische Reorganisation, in der Meierij offensichtlich kaum Auswirkungen hatte, während sie in Mittelengland und Süddeutschland zu großen Veränderungen der Besitzverhältnisse, der landwirtschaftlichen Strategien, der Demographie und der Siedlungsstruktur geführt hat.

Für die Erforschung der ländlichen Gemeinden und ihrer Entwicklungen im Spätmittelalter hat sich die Agrarlandschaft selbst als unverzichtbare Quelle erwiesen. Die Untersuchung von Ackerland- und Parzellengrenzen, die bei Ausgrabungen meist vernachlässigt werden, führte nicht nur zu einem

neuen Verständnis der Entwicklungen in Landwirtschaft, Landnutzung und Raumplanung, sondern ermöglichte die auch Einblicke in die zugrunde liegenden Eigentumsverhältnisse und die soziale Organisation dieser Gemeinschaften. Insbesondere wenn Siedlungen und ländliche Landschaft gemeinsam untersucht werden konnten, wurde der Zusammenhang zwischen beiden deutlich. So wird beispielsweise erst bei der physischen Abgrenzung der einzelnen Parzellen auf den Gewannflur deutlich, dass die Verlagerung der Bauernhäuser vom Ackerland zusammenhängt mit der Umwandlung von feudaler Knechtschaft in Pacht und privaten Nießbrauch.

Etwas schwer fassbar ist noch die Entstehung der gegenwärtig bewohnten Dörfer und Weiler. Denn obwohl zahlreiche Ausgrabungen zeugen vom Verschwinden der Besiedlung der Ackerfelder, sind substantielle archäologische Daten aus den bestehenden Örtern kaum vorhanden. Folglich bleibt unklar, inwieweit es sich lediglich um eine Verlagerung von Siedlungen, eine Ansammlung an einem neuen Ort oder eine Nukleation in einem bereits bestehenden Zentrum handelte.

Forschungsmöglichkeiten in diesen bebauten Gebieten sind in der Regel rar und kleinräumig, aber dennoch nicht weniger wertvoll. Um diese Beobachtungen effektiv und effizient nutzen zu können, ist es wünschenswert, von einer regionalen Forschungsagenda auszugehen, die auf historischen geographischen Gebietsstudien beruht, und die Kontinuität des Wissens zu sichern, um den Überblick zu behalten und die oft fragmentierten Daten richtig bewerten zu können.

Gemeinschaftsarchäologie kann einen Weg zur Erforschung dieser Dörfer bieten. Eine enge Zusammenarbeit mit den Bewohnern bietet nicht nur die Möglichkeit, die archäologischen Beobachtungen zu machen, die notwendig sind, um unser Verständnis der Dorfgründung zu verbessern, sondern ermöglicht es den Menschen auch, am archäologischen Erbe ihrer eigenen Heimatstadt teilzuhaben. Dies hat potentielle soziale Vorteile in Bezug auf das Wohlbefinden und den Gemeinschaftssinn, indem die Bindungen zum Dorf gestärkt werden (*binding*), die Beziehung zu den Nachbarn verbessert wird (*bonding*) und der Kontakt zwischen verschiedenen Gruppen gefördert wird (*bridging*). Ein gemeinschaftlicher Ansatz kann die soziale Relevanz der archäologischen Forschung verbessern, die zu einem immer wichtigeren Element im Umgang mit unserem kulturellen Erbe wird. Gleichzeitig eröffnet er neue Wege für eine inhaltliche Forschung mit größerer öffentlicher Unterstützung.