

2.5 The medieval territory of Brussels: A dynamic landscape of urbanisation

Authors

Bram Vannieuwenhuyze¹, Paulo Charruadas², Yannick Devos² and Luc Vrydaghs^{2, 3}

1. Medieval History Research Unit, Katholieke Universiteit Leuven, Leuven, Belgium

2. Centre de Recherches en Archéologie et Patrimoine, Université libre de Bruxelles, Brussels, Belgium.

3. Research Team in Archaeo- and Palaeosciences, Brussels, Belgium

Contact: Bram.Vannieuwenhuyze@arts.kuleuven.be

ABSTRACT

The urbanisation process has a huge impact on both the urban and rural landscape. Not only does it thoroughly modify the urban area, it also has a tremendous impact on the rural hinterland. We propose to take medieval Brussels (Duchy of Brabant) as an example to illustrate this complex issue. According to our different fields of research, a multidisciplinary point of view will be adopted, combining urban history (the study of human urban society), rural history (agricultural developments and rural socio-economic change), historical geography (interaction between medieval people and their spatial environment) and natural sciences (through the archaeopedological and phytolith study of Dark Earth). Firstly, we briefly discuss the essential concepts ‘medieval city’ and ‘medieval urban landscape’ and try to apply them to the case of medieval Brussels. Secondly, we address some essential characteristics of landscape transformation, by tackling the major stages of the emergence and development of medieval Brussels and its changing impact on the regional landscape. We argue that the urbanisation process, generally allocated solely to the urban area, is key to understanding landscape transformation of the medieval territory of Brussels.

KEYWORDS

landscape history, urbanisation, urban morphology, archaeopedology, archaeobotany, agriculture

INTRODUCTION

The study of ancient rural landscapes has quite a long tradition of interdisciplinarity, involving archaeologists, historians, geo-archaeologists, archaeobotanists and archaeozoologists (Rapp & Hill 1998; Wilkinson & Stevens 2003). The study of the medieval urban landscape, however, has mainly been the playground of urban historians, geographers and archaeologists (Heers 1990; Whitehand & Larkham 1992; Verhulst 1999; Lilley 2002; Schofield & Vince 2003). Nevertheless, since the late 1970s and the beginning of the 1980s, we have witnessed a growing interest in urban soil. Natural scientists became increasingly involved in the study of urban contexts (Macphail 1981; Barles et al. 1999). Nowadays, urban archaeology has also become a truly interdisciplinary research field, incorporating specialists from diverse research fields. However, most studies are limited to historical city centres and their development, and seldom consider the interplay of the urban environment with its hinterland (Hall & Kenward 1994).

Of course, this issue cannot be tackled without demarcating and clearly defining the topic. How can we define a medieval city and a medieval urban landscape? What does medieval urbanisation encompass? Many scholars, including historians, archaeologists, soil scientists and ecologists, have already tackled these issues, in either local or general studies (see for instance Lavedan & Hugueney 1974; Heers 1990; Dutour 2003; Heimdahl 2005; Fondrillon 2007). Generally speaking, the parameters of urbanisation, be they medieval or not, are often defined in terms of demography, centrality, density (or concentration) and identity. For instance, Clark's historical overview on European urbanisation starts with the following words:

Since the Middle Ages, Europe has been one of the most urbanised continents on the planet and its cities have stamped their imprint on the European economy, as well as on European social, political, and cultural life. Rarely sprawling mega-cities such as those of present-day Latin America or Asia, mostly compact and coherent, they have been communities characterised by heavy mortality (until the twentieth century) and high immigration. Often endowed with administrative functions and political privileges, they have always functioned as commercial and business centres, while religion (up to recent times), education, leisure activity, and a distinctive townscape have helped define urban cultural identity. (Clark 2009).

From a demographic point of view, a city is seen as a concentration of people (Bairoch et al. 1988), regularly fed by new immigrants, because of its central and economic functions. Nevertheless, the population structures in a medieval city were very complex. Social, economic and political urban institutions and frameworks were created to organise society and to centralise various functions: trade, industry, cultural manifestations, administration, power, etc. This evolution gave birth to a specific urban mentality. According to Reynolds, 'the inhabitants of towns regard themselves, and are regarded by the inhabitants of rural settlements as a different sort of people. However deeply divided they may be among themselves, they tend to be united at least in regarding themselves as different from the rustic simpletons outside.' (Reynolds 1992). Urban identity and the feeling of superiority/otherness were maintained or even defended by administrative, architectural and juridical creations such as city walls, town rights and territorial jurisdictions. Finally, if we consider the built environment, we notice that the built form of a city is often considered as a concentration of buildings of different types (houses, churches, hospitals, castles, walls,

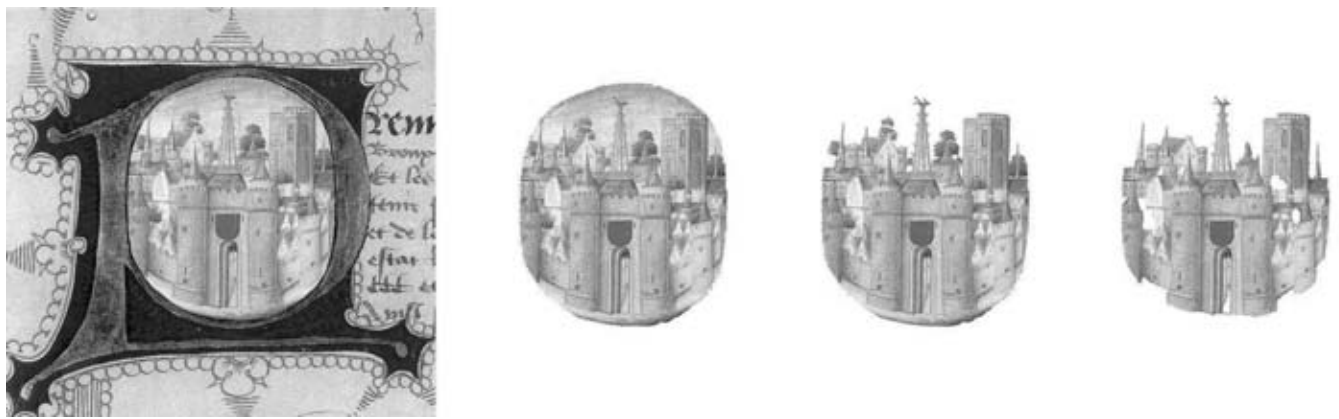


Figure 1. Figured initial dating from the middle of the 15th century, representing the city of Brussels (© Archives of the State, Brussels). From the left to right are shown respectively the entire figured initial, the city view, urban space and finally urban buildings.

etc.) built in different materials (wood, stone, loam, clay, straw, bricks, etc.). Of course, building density is an essential factor which distinguishes the city from the countryside. Medieval citizens themselves portrayed their city in this way, as is clearly shown by the illuminated manuscript initial representing the 15th-century townscape of Brussels (fig. 1). Nearly 84% of the entire image is urbanised, clearly representing a concentration or compilation of buildings (nearly 87% of the urban space, some 72% of the entire image).

Together with the features mentioned above, this kind of image gave birth to a traditionalist vision of the medieval city and urban landscape, namely that of an isolated island, well protected by its walls, inhabited and ruled by a distinct sort of men (citizens). Within these walls a strictly urban landscape would exist, where specific urban functions and activities took place. For a long time historians and archaeologists adopted this paradigm in their studies. However, due to the implementation of other disciplines into the field of urban history, a remarkable change of mindset has been seen over the last few decades. Of course, Despy (1968), Nicholas (1971) and Jourdan-Lombard (1972) have already stressed the importance of considering medieval towns and the countryside as a whole in their pioneering works, but these analyses were often restricted to social, economic or political interaction. In landscape research, this mindset came much later. Today, researchers increasingly consider the hinterland to be an essential part of the urban landscape (see for instance Thoen 1993; Hall & Kenward 1994; Clark & Lepetit 1996; Giles & Dyer 2007; Limberger 2008; Bijsterveld et al. in press). The medieval city can no longer be separated from its surrounding countryside. As a result, the definition of the medieval urban landscape also needs to be reassessed. Was it really that dense, specific and centripetal? In other words, was it really all that urban? In addition, did urbanisation only mean a strengthening of these features?

We want to tackle some of these questions by presenting some results of ongoing research on medieval Brussels. However, it is necessary to stress that this contribution must be considered as one of the first steps within broader research aiming to reconstruct the medieval landscape evolution of the town and its surrounding hinterland. Here we shall try to combine the results of individual research work, bearing in mind that other results will need to be integrated in the future. In particular, we refer to the very recent synthetic view on the Brussels landscape before 1200, published by the archaeological cell of

the Ministry of the Brussels Capital Region. It merges the results of successive archaeological campaigns undertaken over the last twenty years with historical data (Degraeve et al. 2010). We have made use of some archaeological findings, but we also look forward to stimulating cross-fertilisation between the various scientific disciplines involved in this research. In this respect, the opinions stated here should be regarded as work in progress.

INTERDISCIPLINARY RESEARCH ON MEDIEVAL BRUSSELS

Brussels is what is called a second generation city (Billen 2000). Unlike for example London or Paris, it does not have Roman origins. The city emerged at the beginning of the 11th century. Following the traditional vision, the nucleus of the latter town lay alongside the river Senne, where a *castrum* and small port were constructed (Henne & Wauters 1845; Des Marez 1935; Bonenfant 1949; Martens 1976). More recent scholars have agreed that the late medieval town evolved from the merging of scattered settlements (Despy 1979 & 1997; Dierkens 1989; Billen 2000; Deligne 2003), although they experienced serious difficulty in locating them precisely and providing a clear chronology for their spatial evolution. From the 13th century onwards, Brussels became an important political, industrial and ecclesiastical centre (Des Marez 1901; Favresse 1932; Lefèvre 1942; Vannieuwenhuyze 2008; de Waha & Charruadas 2009). In the centuries that followed, the town was considered one of the 'capital cities' of the Duchy of Brabant (Martens 1973; Smolar-Meynart 1985). This major role was confirmed in the 15th and 16th centuries with, ultimately, the creation of central political and administrative institutions within the city (Charruadas & Dessouroux 2005).

Reconstructing and understanding the dynamics of medieval urbanisation and the process of landscape change in Brussels presents a challenge. Except for some well-known 'monuments', surviving medieval remains within the former town and its surrounding hinterland are quite scarce. In 1695, Brussels was subjected to an important bombardment which destroyed a large part of the city (Culot et al. 1992). During the 19th and 20th centuries, the urban territory and its environment were affected by massive town planning and (re)construction campaigns that drastically altered the landscape of the former pre-industrial town (Verniers 1934; Apers et al. 1982; Demey 1990, 1992). Nevertheless, the medieval landscape did not entirely disappear, although its relicts have been extensively transformed and are often well concealed. As a result, there is a huge need for appropriate search strategies to discover, analyse and preserve both written and material records. Moreover, new scientific methods to unravel the dynamics of medieval urbanisation are required. To understand the 'landscape of medieval urbanisation', it is not sufficient to compare the viewpoints of various disciplines, but rather to broaden our horizons by integrating different approaches, methods, scales and results.

We have all studied and are currently studying Brussels' medieval landscape from different viewpoints and at different scales. The historical analysis relates to the study of human urban society, with particular emphasis on the interactions between people and space, enabling the medieval town development of Brussels to be understood. This multidisciplinary research is based on an in-depth study of morphological relicts of the medieval urban landscape within the town (e.g. the few remaining medieval monuments, cartographical representations, street patterns, archaeological data) and on medieval texts (e.g. toponyms, laws, property transactions, urban myths), considered to be relicts of human perception

of spatial phenomena or evolution (Vannieuwenhuyze 2008). The archaeopedological research focuses on the study of urban soil, in particular the Dark Earth units discovered throughout the actual city centre. These Dark Earth units are dark, humus-rich, non-peaty, strongly melanised and apparently homogeneous layers which have been sealed in the soil. Although they are an important part of the medieval stratigraphy, their significance cannot easily be understood using a traditional archaeological approach (Devos et al. submitted). Archaeopedology (including field study, micromorphology and physico-chemical analysis), combined with archaeobotany and, more specifically, phytolith analysis have been shown to be powerful tools in the identification of agents and in understanding the processes and activities responsible for their formation (Macphail 1981; Devos et al. 2009; Devos et al. 2010; Devos et al. submitted). The integrated study of Brussels' Dark Earth demonstrates its potential to identify ancient activity zones (Devos et al. 2009; Degraeve et al. 2010) and to reconstruct the medieval landscape through the evaluation of the role and interaction of natural and human factors (Devos et al., submitted). Finally, rural history makes it possible to observe the broader landscape of Brussels and study the relationship between the medieval town and countryside. Particular attention has been paid to agricultural change and its reciprocal links with urban development. This approach is not dominated by the paradigm of urban imperialism, but rather by the idea of a social, economic and political continuum between town and countryside (Charraudas 2008).

These different points of view also have repercussions on the use of different scales. For historical analysis, various morphological levels have been selected, going from plots of land in neighbourhoods to the entire city. Human action is studied at each level. To unravel the story hidden within the enigmatic and homogeneous Dark Earth, it is necessary to go from macroscopic field study down to microscopic scale (Macphail 1981; Devos et al. 2009). Archaeobotany combines the analysis of macro-remains (charcoal and seeds) and micro-remains (phytoliths and pollen) originating from several sites within the actual city. Unfortunately, the conservation of pollen and non-carbonised seeds on the higher parts of Brussels, where most excavations have taken place, is not good. More recently, there have been some incursions into the lower parts of Brussels, but we still have to wait for the results. And last but not least, by studying rural history, phenomena in both the town and the countryside have been observed. This broad viewpoint enables us to understand the connections (or the lack thereof), contrasts and adequacy of the gap between what happened in town and in the countryside. These phenomena deal in particular with the economic issue, namely urban demand for rural products, and with the elites who settled both in the city and surrounding area. This approach shows the way in which urban society shaped the rural environment and, conversely, how urban structures influenced rural society.

THE DYNAMIC LANDSCAPE OF MEDIEVAL URBANISATION

By studying how humans changed the medieval urban landscape, some general trends have been discerned. Man clearly had a marked effect on the management of the landscape, especially by organising public works (the creation of the road network, hydrographical infrastructure, city walls, etc.), by constructing buildings, mainly for housing and industrial purposes, and through the establishment of administrative, political and juridical frameworks. Up to now, scholars have taken a particular interest in the evolution of these features. Building campaigns were reconstructed thoroughly by archaeologists and

building historians, especially major medieval buildings and infrastructures (Des Marez 1918; De Jonge 1991; Dickstein-Bernard 1995-1996; Bonenfant et al. 1998; Blanquart et al. 2001; Maesschalck & Viaene s.d.), while historians studied in detail the medieval political, administrative and juridical institutions both within and outside the town (Godding 1960; Favresse 1932; Martens 1939; Dickstein-Bernard 1977; Smolar-Meynart 1991).

However important they may be, these and other studies barely reveal the spatial complexity of the medieval urbanisation process. Firstly, it is now commonly accepted that this process cannot be outlined by simply listing the main historical 'events' or reconstructing the evolution of the main sites and buildings. Secondly, although some scholars claim the spatial pattern of medieval Brussels evolved in an organic way (Lavedan & Hugueneu 1974), ever more scholars now agree that organic town development did or does not exist (Pinol 2003; Boerefijn 2005). The townscape was constantly changing as a result of top-down actions as well as bottom-up reactions and with successive ups and downs, both at local or regional scale. The construction of two successive stone city walls during late medieval times serves as a good illustrative example. Up to now, a very clear distinction has always been drawn between Brussels' so-called first city wall, built in the 13th century (Demeter 2001), and Brussels' so-called second city wall, built in the second half of the 14th century (Dickstein-Bernard 1995-1996). Both constructions were impressive works, so it is clear that their construction was ordered and financed by the authorities, the Duke of Brabant and the Brussels town council respectively. However, these two building projects should not be considered as isolated and chronologically-defined spatial phenomena, as historians have usually done (and still do). In fact, recent research shows that the Brussels people continuously and systematically expanded and transformed these walls, adapting them in accordance with changing demographic, political, economic and spatial evolutions within the town and the entire territory (Vannieuwenhuyze 2008). In this respect, the distinction between both late medieval city walls seems to originate from a teleological interpretation *post factum*. In summary, these city walls did not suddenly appear nor did they develop organically.

As a result, the already mentioned keywords used to define cities and urban landscapes must be adopted with caution. Urban centrality, density and identity were constantly changing. This was also true for the urban landscape. Recent historical analysis shows that the sole medieval urban landscape was indeed not always that 'urban'. Here, we are restricting ourselves to two concrete examples to illustrate this point. In-depth analysis of the road network and street names has made it clear that different kinds of streets existed during medieval times. Within the town, long and continuous streets juxtaposed narrow alleys. Other streets were created to reach infrastructural works (city walls, canals) or rural estates. From a morphological point of view, these streets were constantly changing. Little alleys (*straatjes*) were created to access the areas within the blocks and thus played an important role in communication at micro-level. They were systematically heightened and paved each time new houses were built. Some still exist, although most have been enclosed by private houses. At a macro-level, Brussels' old artery network came into being in close harmony with the economic potential of the hinterland (Vannieuwenhuyze 2009). Firstly, smaller roads linked the town to the surrounding villages and countryside. At a later stage, a whole new network of artificial arteries was created by the town government, facilitating direct access to the town. In addition, the creation of this artery network clearly reflected urban economic and political imperialism towards the surrounding countryside.

To take a second example, digital analysis of the oldest (but geometrically very reliable) town plan,



Figure 2. Cartographic analysis of the 16th-century town plan of Brussels by Jacob of Deventer, realized in a scale of approximately 1:8600 (© Royal Library of Belgium, Brussels). From left to right are shown respectively the open spaces (36%), the road network, watercourses and green spaces (34%) and buildings (30%). *See also full colour section in this book*

drawn up by Jacob van Deventer in the middle of the 16th century, shows that the largest part (36%) of urban territory within the city walls consisted of open space. In addition, 17%, 12% and 5% of the territory were respectively allocated to the road network, the watercourses and green elements (trees, bushes and parks), while ‘only’ 30% consisted of buildings (Vannieuwenhuyze 2008, see also fig. 2). This means that at least until the middle of the 16th century, the urbanisation process did not only imply the creation of different kinds of buildings, as often pointed out by historians. On the contrary, in previous decades and centuries the evolution in open spaces, improvements to the road network and hydrographical changes – whether or not these were natural – were if anything more important. It is not surprising that the latest generation of historians consider the landscape of medieval Brussels to be a collection of expanding and/or diminishing settlements, separated by open spaces and connected over time by public works such as roads, canals and walls.

The original 'broek-sele' (i.e. Brussels) seems to be one of these settlements, probably of secondary importance and devoted to cattle husbandry. Another small settlement expanded on a nearby hill, the *Coudenberg*, and became the seat of ducal power, perhaps by the 11th century, but certainly from the beginning of the 12th century onwards (Vannieuwenhuyze 2008). Ducal power clearly stimulated the urbanisation process with the foundation of churches, the draining of wetlands, the creation of a port and markets, etc. Meanwhile, other settlements emerged between the Zenne River and the *Coudenberg*. These were often devoted to small-scale trade and/or agriculture, as was the case with the *Oud Korenhuis* (Degraeve et al. 2010). From the 13th century onwards, Brussels town council took over the big public work projects, for instance, by constructing the so-called second city wall, whose perimeter fixed the urban territory *strictu sensu* until the beginning of the 19th century, when it was demolished (Lelarge 2001). During late medieval times and the modern era the urbanisation process was limited to small-scale operations, such as the densification and petrification of the urban fabric. Both phenomena have been documented in recently

Figure 3: a) Soil profile of Dark Earth on the site of *Hôtel de Lalaing-Hoogstraeten*; b) Graph showing enhanced phosphorus levels for the Dark Earth units (US 7338 and US 7321); c) Granulometric data showing the high similarity between the units US 7338 and US 7321 and the natural soil (US 7340), suggesting they share the same matrix; d) Thin section micrograph showing phosphorus-rich excrement proving the addition of manure (plain polarised light); e) Thin section micrograph showing a textural pedofeature enabling its identification as former at least temporary unprotected topsoil (plain polarised light); f) Thin section micrograph showing dendritic phytoliths (plain polarised light). See also full colour section in this book

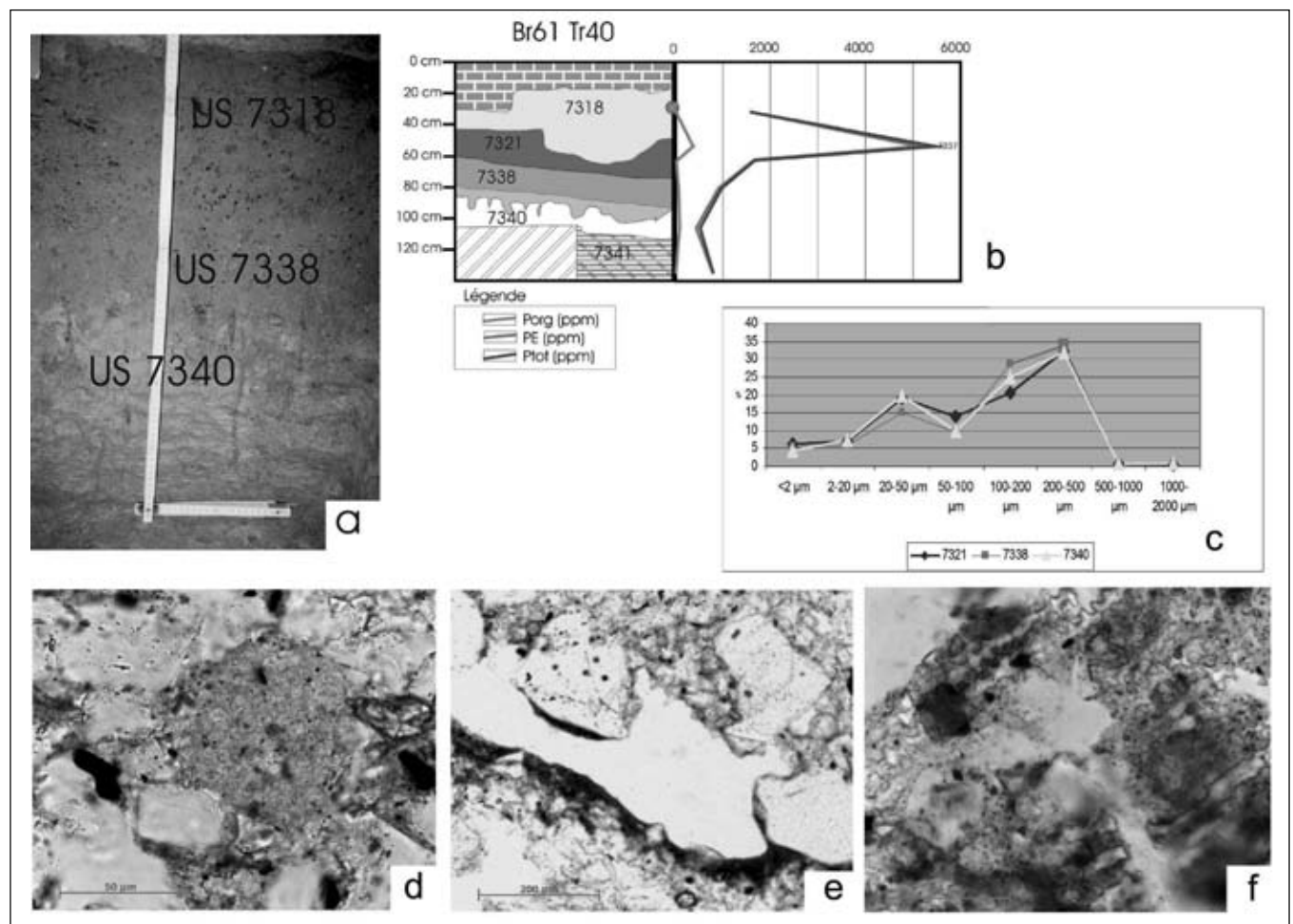
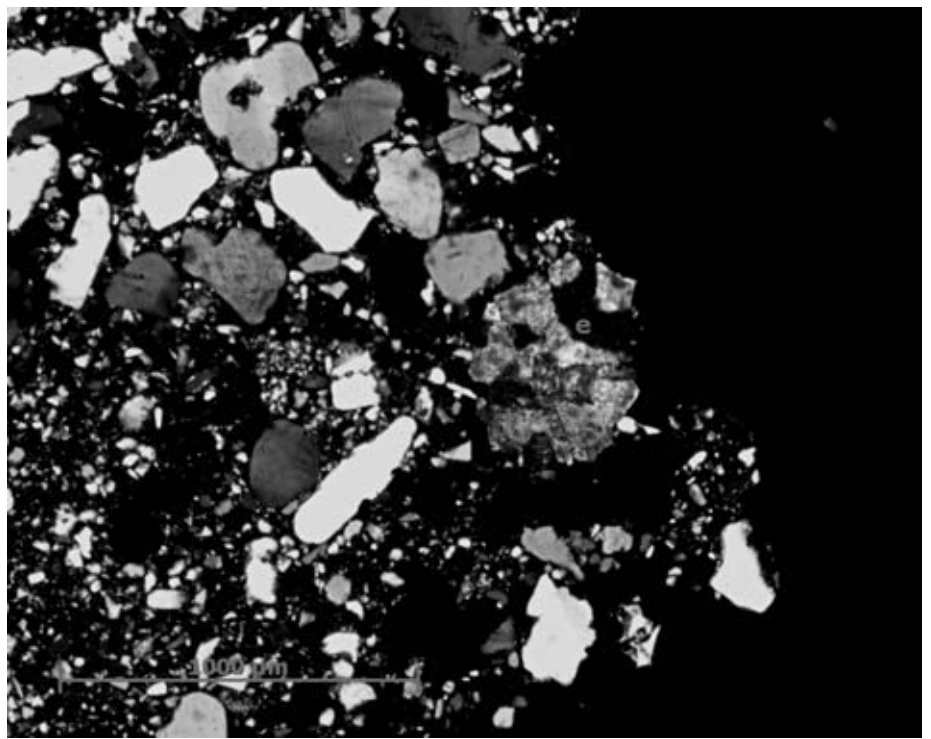


Figure 4. Thin micrograph section of a calcitic bio-spheroid (e). Its presence proves enhanced earthworm bioturbation due to the addition of soil amendments, site of *rue de Dinant* (crossed polarisers).



conducted research in urban archaeology, showing for instance that private stone or brick buildings only emerged from the 14th century onwards (see for instance Cabuy & Degré 1992; Degré 1995; Diekmann 1997; Nachtergaele 1997; Claes 2008).

Of course, these statements give rise to new questions on the evolution of land use within this so-called ‘urban’ territory. As has already been argued sole analysis of historical records will never be sufficient in tackling this complex issue. Dark Earth constitutes a significant part of Brussels’ medieval stratigraphy and has been shown to provide a valuable source of information on this topic. This archaeopedological study reveals that it originates from a complex interplay between human activities and natural factors. Its formation and transformation can be understood as site-specific, involving an ongoing process of accumulation, erosion, decomposition, homogenisation and other types of soil development, which stop once the Dark Earth is sealed. As such, sequences of activities can often be revealed. Among the human activities dating back to the 11th-13th centuries digging, ploughing (fig. 3), manuring (fig. 3) and waste disposal have been identified. The main natural factors are bioturbation (fig. 4), erosion and colluviation (Devos et al. submitted).

The botanical study of the identified agricultural plots is quite difficult. Conservation of pollen and non-carbonised seeds and fruits is very poor. Nonetheless, the few surviving pollen and microfossils confirm the presence of pasture land and crop fields (Court-Picon 2008). Phytolith and charcoal preservation however, is excellent. As phytoliths tend to provide very local information, they are a useful tool confirming the presence of crop fields (Vrydaghs et al. 2007; Devos et al. 2009). Phytolith markers for cultivated crops have been recorded for all the Dark Earth identified as former plough lands (Table 1), demonstrating the cultivation of wheat, oats and barley. Charcoal tends to provide information on the wood people have used. Current data do not contradict pressure on relict forests throughout the 11th-13th centuries, possibly bearing witness to the need for new space (Devos et al. 2007a).

Table 1: Cereals crops identified by phytolith analysis (simplified table).

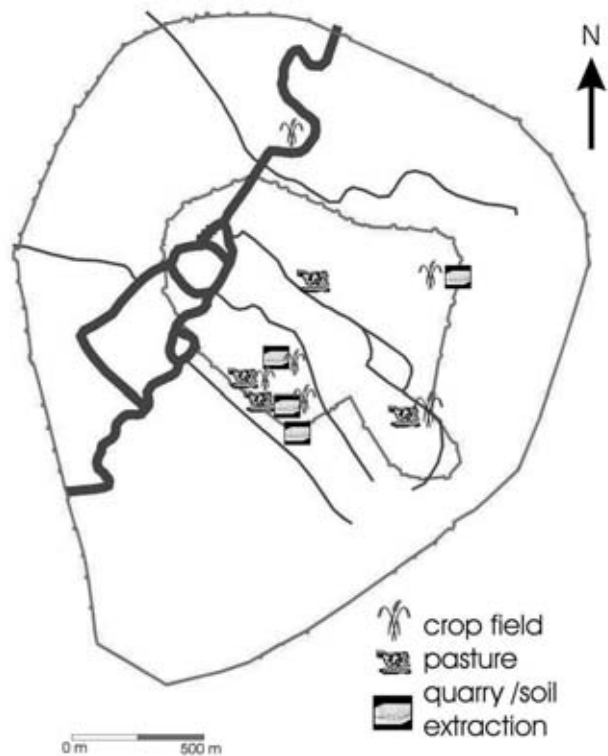
Excavation site	Units	Triticum	Hordeum	Avena
Treurenberg	115	X	X	X
Lalaing	7338	X	?	X
Vieille Halle aux Blés		?	?	X
Impasse Papier	VD Labour	?	?	X
Pauvres Claires	415	?	?	X
Rue de Dinant	413 a, b & c; 631 a & b	X	X	X

It is clear that due to its complex formation process, Dark Earth should be analysed on an individual basis, meaning that the data only relate to the collection site. Nevertheless, thanks to research frequency, a general pattern has emerged. On most sites, we have noticed that patterns of activity seem to have undergone frequent changes over time. This confirms the hypothesis that Brussels had a dynamic medieval landscape. Taking the *Treurenberg* site as an example, proof of a former stone quarry was discovered. At some point this was filled in and transformed into a crop field, which in turn was sealed off by the construction of the first city wall during the 13th century (Devos et al. 2007b). As far as activities recorded within the medieval urban centre are concerned – namely the space enclosed by this first city wall – archaeologists have noticed a heavy dominance of primary sector activities. Between the 10th and the 13th centuries, traces of crop fields, pasture land, stone quarries and soil extraction pits have been identified (Devos et al. 2007a; Degraeve et al. 2010, see also fig. 5). Apparently, artisan activities only appeared at a later stage, when these areas were transformed into building plots, with a combination of different kinds of buildings and infrastructures (Devos et al. 2007a).

The study of economic and agricultural changes makes it possible to indicate some factors that considerably influenced and altered this dynamic Brussels landscape. As regards the supply of food and cereals, the medieval Brussels region seemed to have been self-sufficient. Unlike, for instance, Flemish cities (Tits-Dieuaide 1975), Brussels did not require massive imports of wheat before the end of the Middle Ages. Between 1100 and 1300, Brussels became a centre for the countryside. At that time the city functioned as the main market attracting rural production surplus (Charruadas 2007a). This is fundamental in understanding the scope of agricultural expansion in the Brussels area.

Regional agricultural growth can be divided roughly into two main phases. From the 11th to the 13th century onwards, the region was characterised by an important clearing process and the emergence of a series of rural settlements in a context of demographic and urban expansion (Verhulst 1990). The agricultural system consisted of cereal growing, associated with intensive, stable-fed cattle breeding. This clearing process appears to have declined sharply around 1250, while demographic growth continued. New farming techniques appeared and clearly took the place of extensive farming. We noticed the regular introduction on fallow land of leguminous plants (peas and beans) and fodder plants such as turnips in particular. These new crops were mainly intended for livestock. Indeed, they enabled their numbers to increase. Thanks to improved and greater transfers of fertility from stall to field (also observed by archaeologists, see above), they resulted in increased production yields on cereal-producing land (Charruadas

Figure 5. Map of Brussels with localisation of crop fields, pasture land, stone quarries and soil extraction pits identified within and outside the first city wall.



2007b; Charruadas 2008). This seems to correlate with the observation that new, initially quite poor soils were put under cereal cultivation by adding considerable quantities of fertilising manure (Devos et al. 2011). This agro-system certainly provided an improved level of supply for both the regional and urban population.

Following the viewpoints of some economists and agronomists (Boserup 1965; Tits-Dieuaide 1981), we can adopt a systemic view to emphasise that the creation of such an advanced farm system was only possible given strong demographic growth. Within the pre-industrial context lacking mechanisation and artificial fertilisers, agricultural growth was closely linked to increased human labour. Hence, we could argue that Brussels agricultural system must have been developed in a context marked by demographic pressure. These changes naturally had a major influence on regional landscape structures, especially land ownership patterns.

In this context, but from a social viewpoint, the economic and political development of the city of Brussels at that time also generated an important effect, with the emergence of a group of urban elite. From the end of the 12th century onwards, former landowners, mainly feudal aristocrats, found themselves in economic distress. Conversely, this new urban elite group, active both within the city and the countryside, was at the height of its wealth in the 13th century. Ownership structures therefore changed considerably with important purchases of land made by these new rulers, who preferred smaller plots which they could exploit by seeking high profitability. This process brought about a marked change in the city's surrounding rural landscape (Charruadas 2008).

SOME PRELIMINARY CONCLUSIONS

In medieval times, the Brussels landscape presented a more important rural component than previously assumed. The digital analysis of 16th-century maps suggested the persistence of open spaces within the 'urban area' *strictu sensu* and integrated archaeopedological and archaeobotanical studies provide direct evidence for open areas such as crop or pasture lands. This open urban landscape appears to have been quite diverse and the result of complex and dynamic processes closely connected to regional development. Written records show that the 12th and 13th centuries were an important turning point. However, our analysis also indicates that the forces driving medieval urbanisation were not only 'urban' (i.e. from the city itself), but also emanated from the countryside. Urban policy and planning also contributed to the urbanisation process. Nevertheless, we can state that this often depended on rural exodus. Data emanating from rural analysis are in fact crucial to understanding the general process.

The combination and comparison of the various approaches show the urbanisation process to be complex and interactive. It can be divided into two phases. The first is a 'light' version of urbanisation dominated by a strong rural component. Strictly-speaking prior to the 13th-century demographic growth affected the rural as much, if not more than, the urban area. This urbanisation phase took place in the Brussels hinterland. Medieval Brussels itself was no more than a fusion of scattered rural settlements. All the signs indicate that the majority of people during this period were scattered throughout the region and took part in the land reclamation movement. Demographic concentration within the city would follow, with the stabilisation of agricultural growth after the 13th century. At this time population increase could no longer find an outlet in the countryside. Consequently, rural exodus on a much wider scale occurred. It generated a greater urbanisation process during the 14th and 15th centuries. Streets and plots became more densely occupied and stone and brick materials gradually started to replace former wooden buildings.

This chronological reconstruction provides a negative answer to the questions addressed at the beginning of this paper. As seems also to have been the case in French towns (Leguay 2009), the medieval urban landscape of Brussels was not that dense, certainly not during the first stages of town development. It is only from the late medieval and early modern era onwards that the urban territory slowly intensified. This means that the concepts of density and centrality paradigmatically used to define cities should be refined. These urban qualities were possibly more imagined or invented than real. In this respect, we could link them to the genesis of an urban identity during late medieval times. According to Howell, 'this was a history of ideology, a history of how cities were imagined, represented, and conceptualized and of how the rights and capacities of urban citizens were defined and legitimated.' (Howell 2000). We hope we have made it clear that interdisciplinary research on landscape evolution and urbanisation can play an essential role in debunking such widespread and often persistent assumptions.

ACKNOWLEDGEMENTS

The Direction of Monuments and Sites of the Brussels Capital Region; The Université libre de Bruxelles and Ghent University; Britt Claes (Musées Royaux d'Art et d'Histoire, Brussels); The Institute for the encouragement of Scientific Research and Innovation of Brussels; The Royal Belgian Institute for Natural Sciences, Brussels; Hugues Doutrelepon and Mona Court-Picon (ROOTS).

REFERENCES

- Apers, J., J. Vandenbreeden & L. Van Santvoort. 1982. Chronologisch overzicht van de belangrijkste stedenbouwkundige feiten in en rond Brussel, 1780-1982. In *Straten en stenen. Brussel: stadsgroei 1780-1980*. Tentoonstelling ingericht door de Generale Bankmaatschappij in samenwerking met het Sint-Lukasarchief en G. Abeels. 18 November 1982 - 21 January 1983: 10-122. Generale Bankmaatschappij – Sint-Lukasarchief, Brussels.
- Bairoch, P., J. Batou & P. Chèvre. 1983. *The population of European cities: data bank and short summary of results: 800-1850*. Droz, Genève.
- Barles, S., D. Breyse, A. Guillerme, C. Leyval. 1999. *Le sol urbain*. Anthropos, Paris.
- Bijsterveld, A.J., J. Naylor, A. Wilkin & D. Keene. In press. *Dynamic Interactions. Town and Countryside Relations in Northwestern Europe in the Middle Ages.*, Brepols, Turnhout.
- Billen, C. 2000. Espace et société. In Billen, C. & Duvosquel, J.M. (eds.), *Bruxelles: 36-139*. Mercatorfonds, Antwerp.
- Blanquart, P., S. Demeter, A. De Poorter, C. Massart, S. Modrie, I. Nachtergaele & M. Siebrand. 2001. *Autour de la première enceinte. Rond de eerste stadswalling*. Ministère de la Région de Bruxelles-Capitale – Musées Royaux d'Art et d'Histoire, Brussels.
- Boerefijn, W. 2005. De totstandkoming van de stedelijke vorm. In R. Rutte & H. van Engen, *Stadswording in de Nederlanden. Op zoek naar overzicht: 123-142*. Verloren, Hilversum.
- Bonenfant, P. 1949. Une capitale au berceau: Bruxelles. *Annales, Economies, Sociétés, Civilisations* 4, 298-310.
- Bonenfant, P.-P., M. Fourny & M. Le Bon. 1998. Fouilles archéologiques à la cathédrale de Bruxelles 1987-1998. Un premier bilan d'ensemble. *Annales de la Société Royale d'Archéologie de Bruxelles* 62, 223-257.
- Boserup, E. 1965. *The conditions of Agricultural Growth. The Economics of Agrarian Change under Population Pressure*. Allen & Unwin, London/New York.
- Cabuy, Y. & S. Degré. 1992. Intervention place Saint-Géry. Structures médiévales et post-médiévales. *Bulletin du Crédit Communal de Belgique* 182, 13-17.
- Charruadas, P. 2007a. Croissance rurale et action seigneuriale aux origines de Bruxelles (Haut Moyen Âge-XIIIe siècle). In Deligne, C. & Billen, C. (eds.), *Voisinages, coexistences, appropriations. Groupes sociaux et territoires urbains*. Actes du Colloque international de Bruxelles (4-6 December 2004): 175-201. Brepols, Turnhout.
- Charruadas, P. 2007b. Champs de légumes et jardins de blés. Intensification agricole et innovations culturelles autour de Bruxelles au XIIIe siècle. *Histoire et Sociétés Rurales* 28, 11-32.
- Charruadas, P. 2008. *Bruxelles et ses campagnes. Croissance économique et actions aristocratiques (haut Moyen Âge-XIIIe siècle)*, unpublished Ph D. thesis, Université libre de Bruxelles, Brussels.
- Charruadas, P. & Dessouroux, C. 2005. Histoire d'une capitale: Bruxelles des origines à 1958. In (eds.) Braeken J, Charruadas P., De Kuyper E., Dumont P. & Vander Brugghe, *Région de Bruxelles-Capitale. Bruxelles, 175 ans d'une capitale*, 11-27. Mardaga, Liège.
- Charruadas, P. & M. de Waha. 2009. Centralité religieuse et développement urbain: notes sur la fixation du doyenné de Bruxelles aux XIe-XIIe siècles. *Cahiers Bruxellois* 41, 43-72.
- Claes, B. 2008. *Archeologisch onderzoek van het Brusselse Arme Klarenklooster*, unpublished report, Ministère de la Région de Bruxelles-Capitale – Musées Royaux d'Art et d'Histoire, Brussels.
- Clark, P. 2009. *European Cities and Towns 400-2000*. Oxford University Press, New York.
- Clark, P. & B. Lepetit (eds.) 1996. *Capital Cities and their Hinterlands in Early Modern Europe*. Scholar press, Aldershot.
- Court-Picon, M. 2008. *Résultats d'analyses polliniques des sédiments archéologiques des sites de Treurenberg et Hôtel de Lalaing-Hoogstraeten (Région de Bruxelles-Capitale, Belgique)*, unpublished report, ROOTS, Brussels.
- Culot, M., E. Hennaut, M. Demanet & C. Mierop. 1992. *Le bombardement de Bruxelles par Louis XIV et la reconstruction qui s'ensuivit*. Archives d'Architecture Moderne, Brussels.
- Degraeve, A., S. Demeter, Y. Devos, S. Modrie & S. Van Bellingen. 2010. Brussel vóór 1200: een archeologische bijdrage. In Dewilde, M., Erynck, A. & Becuwe, F. (eds.), *Cenulae recens factae. Een huldeboek voor John De Meulemeester*, 141-157. Academia Press, Ghent.

- Degré, S. 1995. *Brasserie au quartier Sainte-Catherine*. Ministère de la Région de Bruxelles-Capitale – Musées Royaux d'Art et d'Histoire, Brussels.
- De Jonge, K. 1991. Het paleis op de Coudenberg te Brussel in de vijftiende eeuw: de verdwenen hertogelijke residenties in de Zuidelijke Nederlanden in een nieuw licht geplaatst. *Revue Belge d'Archéologie et d'Histoire de l'Art* 60, 5-38.
- Deligne, C. 2003. *Bruxelles et sa rivière. Genèse d'un territoire urbain (12e-18e siècle)*, Brepols, Turnhout.
- Deligne, F. 2002. *Bruxelles-Treurenberg : résultats anthracologiques*, unpublished report, GIEP, Brussels.
- Demeter, S. 2001. La première enceinte, un patrimoine majeur pour Bruxelles. In Blanquart, P., Demeter, S., De Poorter, A., Massart, C., Modrie, S., Nachtergaeel, I. & Siebrand, M., *Autour de la première enceinte. Rond de eerste stadsomwalling*, 12-28. Ministère de la Région de Bruxelles-Capitale – Musées royaux d'Art et d'Histoire, Brussels.
- Demey, T. 1990. *Bruxelles: chronique d'une capitale en chantier. 1: Du voûtement de la Senne à la jonction Nord-Midi*. Legrain, Brussels.
- Demey, T. 1992. *Bruxelles: chronique d'une capitale en chantier. 2: De l'Expo '58 au siège de la CEE*. Legrain, Brussels.
- Des Marez, G. 1901. *L'organisation du travail à Bruxelles au XVe siècle*. Académie Royale de Belgique, Brussels.
- Des Marez, G. 1918. *Guide illustré de Bruxelles*. Touring Club de Belgique-Société Royale, Brussels.
- Des Marez, G. 1935. Le développement territorial de Bruxelles au Moyen-Age. Etude de géographie historique urbaine. *Premier Congrès International de Géographie Historique*, 1-90. Brussels.
- Despy, G. 1968. Villes et campagnes aux IXe et Xe siècles: l'exemple du pays mosan. *Revue du Nord* 50, 145-168.
- Despy, G. 1979. La genèse de la ville. In Stengers, J. (ed.), *Bruxelles. Croissance d'une capitale*, 28-39. Mercatorfonds, Antwerp.
- Despy, G. 1997. Un dossier mystérieux: les origines de Bruxelles. *Bulletin de l'Académie royale de Belgique (Classe des Lettres)* 8, 241-303.
- Devos, Y., L. Vrydaghs, C. Laurent, A. Degraeve & S. Modrie. 2007a. L'anthropisation du paysage bruxellois au 10e-13e siècle. Résultats d'une approche interdisciplinaire. In *On the road again. L'Europe en mouvement. Medieval Europe Paris 2007. 4e Congrès international d'Archéologie Médiévale et Moderne, Session 7, Archéologies environnementales. 3-8 September*. Institut National d'Histoire de l'Art, Paris (<http://medieval-europe-paris-2007.univ-paris1.fr/Y.Devos%20et%20al..pdf>).
- Devos, Y., K. Fechner, L. Vrydaghs, A. Degraeve & F. Deligne. 2007b. Contribution of archaeopedology to the palaeoenvironmental reconstruction of (pre-) urban sites at Brussels (Belgium). The example of the Treurenberg site. In Boschian, G. (ed.), *Proceedings of the Second International Conference on Soils and Archaeology*, Pisa, 12-15 May 2003, 145-151. Società Toscana di Scienze Naturali, Pisa.
- Devos, Y., L. Vrydaghs, A. Degraeve & K. Fechner. 2009. An archaeopedological and phytolitarian study of the 'Dark Earth' on the site of Rue de Dinant (Brussels, Belgium). *Catena* 78, 270-284 (<http://dx.doi.org/10.1016/j.catena.2009.02.013>).
- Devos, Y., L. Vrydaghs & S. Modrie. 2010. L'étude des Terres Noires bruxelloises: l'exemple du site de l'hôtel d'Hoogstraeten (Région Br.). *Archaeologia Mediaevalis* 33, 63-65.
- Devos, Y., L. Vrydaghs, K. Fechner, C. Laurent, A. Degraeve & S. Modrie. 2011. Buried Anthropic Soils in the Centre of Brussels (Belgium): Looking for Fields in a (Proto-) urban Context. In Fechner, K., Y. Devos, M. Leopold & J. Völkel (eds.), *Enclosed and buried surfaces as key sources in Archaeology and Pedology. Proceedings of the Session 'From microprobe to spatial analysis – Enclosed and buried surfaces as key sources in Archaeology and Pedology' organised at the European Association of Archaeologists, 12th Annual Meeting, Krakow-Poland. 19-24 September 2006*, Oxford (British Archaeological Reports. International Series).
- Devos, Y., L. Vrydaghs, A. Degraeve & S. Modrie. Submitted. Unravelling urban stratigraphy. The study of Brussels' (Belgium) Dark Earth. An archaeopedological perspective, Medieval and Modern Matters.
- Dickstein-Bernard, C. 1977. *La gestion financière d'une capitale à ses débuts: Bruxelles, 1334-1467*. Société Royale d'Archéologie de Bruxelles, Brussels.
- Dickstein-Bernard, C. 1995-1996. La construction de l'enceinte bruxelloise de 1357. Essai de chronologie des travaux. *Cahiers bruxellois* 35, 91-128.

- Diekmann, A. 1997. *Artisanat médiéval et habitat urbain. Rue d'Une Personne et Place de la Vieille-Halle-aux-Blés*. Ministère de la Région de Bruxelles-Capitale – Musées royaux d'Art et d'Histoire, Brussels.
- Dierkens, A. 1989. Le haut Moyen Âge. In Smolar-Meynart, A. & Stengers, J. (eds.), *La région de Bruxelles. Des villages d'autres à la ville d'aujourd'hui*, 36-41. Crédit communal de Belgique, Brussels.
- Doutrelepon, H. 2009. *Site des Pauvres Claires (Br 100). Déterminations taxonomiques des « micro »s charbons de bois provenant de l'horizon de 'terres noires' US415*, unpublished report, ROOTS, Brussels.
- Dutour, T. 2003. *La ville médiévale: origine et triomphe de l'Europe urbaine*. Paris, Odile Jacob.
- Favresse, F. 1932. *L'avènement du régime démocratique à Bruxelles pendant le Moyen Age (1306-1423)*. Maurice Lamertin, Brussels.
- Fondrillon, M. 2007. *La formation du sol urbain: étude archéologique des terres noires à Tours (4e-12e siècle)*, unpublished PhD-thesis, Université François Rabelais, Tours.
- Giles, K. & Ch. Dyer (ed.) 2007. *Town and country in the Middle Ages. Contrasts, Contacts and Interconnections, 1100-1500*. Society for Medieval Archaeology-Maney, Leeds.
- Godding, Ph. 1960. *Le droit foncier à Bruxelles au Moyen Age*. Publications de l'Institut de Sociologie Solvay, Brussels.
- Hall, A.R. & H.K. Kenward. 1994. Urban-rural connexions: perspectives from environmental archaeology. *Symposia of the Association for Environmental Archaeology* 12, Oxbow, Oxford.
- Heers, J. 1990. *La Ville au Moyen Age en Occident: paysages, pouvoirs et conflits*. Fayard, Paris.
- Heimdahl, J. 2005. *Urbanised Nature in the Past. Site formation and environmental development in two Swedish towns, AD 1200-1800*, unpublished PhD-thesis, University Stockholm, Stockholm (<http://su.diva-portal.org/smash/record.jsf?pid=diva2:197550>).
- Henne, A. & A. Wauters. 1845. *Histoire de Bruxelles*. Librairie encyclopédique de Perichon, Brussels.
- Howell, M.C. 2000. The Spaces of Late Medieval Urbanity. In M. Boone & P. Stabel (eds.), *Shaping Urban Identity in Late Medieval Europe*, 3-23. Garant, Leuven/Apeldoorn.
- Jourdan-Lombard, A. 1972. Oppidum et banlieue: sur l'origine et les dimensions du territoire urbain. *Annales. Economies, Sociétés, Civilisations* 27, 373-395.
- Lavedan, P. & J. Hugueney. 1974. *L'urbanisme au Moyen Age*. Droz, Genève.
- Lefèvre, P. 1942. *L'organisation ecclésiastique de la Ville de Bruxelles au Moyen Age*. Bibliothèque de l'Université catholique de Louvain, Leuven.
- Leguay, J.-P. 2009. *Terres urbaines: places, jardins et terres incultes dans la ville au Moyen Age*. Rennes, Presses Universitaires.
- Lelarge, A. 2001. *Bruxelles, l'émergence de la ville contemporaine: la démolition du rempart et des fortifications aux XVIIIe et XIXe siècles*. CIVA, Brussels.
- Lilley, K.D. 2002. *Urban life in the Middle Ages: 1000-1450*. Palgrave, New York.
- Limberger, M. 2008. *Sixteenth-century Antwerp and its Rural Surroundings. Social and Economic Changes in the Hinterland of a Commercial Metropolis (ca. 1450 - ca. 1570)*. Brepols, Turnhout.
- Macphail, R. 1981. Soil and botanical studies of the 'Dark Earth'. In M. Jones & G.W. Dimbleby (ed.), *The Environment of Man: the Iron Age to the Anglo-Saxon Period*, 309-331. BAR Ltd., Oxford.
- Maesschalck, A. & Viaene, J. s.d.: *Het stadhuis van Brussel*, s.n., Kessel-Lo.
- Martens, M. 1953. *L'administration du domaine ducal en Brabant au moyen âge (1250-1406)*. Académie Royale de Belgique (Classe des Lettres), Brussels.
- Martens, M. 1973. Bruxelles, capitale de fait sous les Bourguignons. *Westfälische Forschungen* 15, 180-187.
- Martens, M. 1976. *Histoire de Bruxelles*. Privat, Toulouse.
- Nachtergaeel, I. 1997. Sauvetage archéologique dans le quartier des Marolles à Bruxelles, rue des Chandeliers, n° 12-16. *Vie Archéologique*, supplément 47, 7-72.
- Nicholas, D.M. 1971. *Town and Countryside: Social, Economic and Political Tensions in Fourteenth-Century Flanders*. De Tempel, Bruges.
- Pinol, J. (ed.) 2003. *Histoire de l'Europe Urbaine. I. De l'Antiquité au XVIIIe siècle. Genèse des villes européennes*. Seuil, Paris.

- Rapp, G. Jr. & C.L. Hill. 1998. *Geoarchaeology, The Earth-Science Approach to Archaeological Interpretation*. Yale University Press, New Haven/London.
- Reynolds, S. 1992. The writing of medieval urban history in England. *Theoretische Geschiedenis* 19, 49-50.
- Schofield, J. & A. Vince. 2003. *Medieval Towns. The Archaeology of British Towns in their European Setting*. Equinox, London-Oakville.
- Smolar-Meynart, A. 1985. Bruxelles : l'élaboration de son image de capitale en politique et en droit au moyen âge. *Bijdragen tot de Geschiedenis* 68, 25-45.
- Smolar-Meynart, A. 1991. *La justice ducale du plat pays, des forêts et des chasses en Brabant (XIIe-XVIe siècle): sénéchal, maître des bois, gruyer, grand veneur*. Société Royale d'Archéologie de Bruxelles, Brussels.
- Thoen, E. 1993. The count, the countryside and the economic development of the towns in Flanders from the eleventh to the thirteenth centuries. Some provisional remarks and hypothesis. In E. Aerts, B. Henau, P. Janssens & R. Van Uytven, *Studia Historica Oeconomica. Liber amicorum Herman Van der Wee*, 259-278. Universitaire Pers, Leuven.
- Tits-Dieuaide, M.J. 1975. *La formation des prix céréalières en Brabant et en Flandre au XVe siècle*. Editions de l'Université de Bruxelles – Centre d'Histoire économique et sociale, Brussels.
- Tits-Dieuaide, M.J. 1981. L'évolution des techniques agricoles en Flandre et en Brabant du XIVe au XVIe siècle. *Annales. Economies-Sociétés-Civilisations* 36, 362-381.
- Vannieuwenhuyze, B. 2007. Le pavage des rues à Bruxelles au Moyen Âge. In Actes des VIIe Congrès de l'Association des Cercles francophones d'Histoire et d'Archéologie de Belgique (AFCHAB) et LIVE Congrès de la Fédération des Cercles d'Archéologie et d'Histoire de Belgique. Congrès d'Ottignies – Louvain-la-Neuve (26-28 August 2004), 299-307. Editions Safran, Brussels.
- Vannieuwenhuyze, B. 2008. *Brussel, de ontwikkeling van een middeleeuwse stedelijke ruimte*, unpublished Ph.D thesis, Ghent University, Ghent.
- Vannieuwenhuyze, B. 2009. *Wegen in beweging. De in- en uitvalswegen van middeleeuws Brussel vóór de 13de eeuw*. *Cahiers bruxellois* 41, 7-29.
- Vannieuwenhuyze, B. 2010. *Wegen in beweging. De in- en uitvalswegen van middeleeuws Brussel van de 13de tot 15de eeuw*. *Cahiers bruxellois* 42, 3-32.
- Verhulst, A. 1990. *Précis d'histoire rurale de la Belgique*. Editions de l'Université de Bruxelles, Brussels.
- Verhulst, A. 1999. *The Rise of Cities in North-West Europe*. Maison des Sciences de l'Homme – Cambridge University Press, s.l.
- Verniers, L. 1934. Les Transformations de Bruxelles et l'Urbanisation de sa Banlieue depuis 1795. *Annales de la Société Royale d'Archéologie de Bruxelles* 37, 84-220.
- Vrydaghs, L., Devos, Y., Fechner, K. & A. Degraeve. 2007. Phytolith analysis of ploughed land thin sections. Contribution to the early medieval town development of Brussels (Treurenberg site, Belgium). In Madella, M. & D. Zucol (eds.), *Plants, people and places. Recent studies in phytolith analysis*, 13-27. Oxbow Books, Oxford.
- Whitehand, J.W.R. & P.J. Larkham. 1992 (eds.). *Urban landscapes: international perspectives*. Routledge, London.
- Wilkinson, K. & C. Stevens. 2003. *Environmental Archaeology. Approaches, techniques and applications*. Tempus Publishing Ltd., Stroud, Gloucestershire.