
ARCHAEOLOGY AND URBAN SUSTAINABILITY: CAN THE PAST PROVIDE A KEY TO THE FUTURE?

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It is argued that we have much to learn from history, that the past can be applied in the present to create a better future. But can archaeological knowledge of ancient cities contribute to the discussion of modern urban development and sustainability? In this paper I explore the potential of using archaeology and archaeological knowledge when addressing modern sustainability issues by using Västergarn, today a small rural community on the island of Gotland (Sweden) which rest upon the remains of a prosperous early medieval urban settlement, as case study. In order to illustrate the assertion that archaeological knowledge of prehistoric cities and urban settlements make a useful tool illustrating long-term consequences and effects of urban strategies, some key factors that posed challenge to Västergarn's medieval development trajectory are highlighted. Furthermore, two methods that may be used in an analysis of ancient urban sustainability are introduced and briefly discussed. The paper show that archaeology can provide valuable perspectives on current urban sustainability issues such as coexistence, social cohesion and community dynamics.

Keywords

urban sustainability, sustainable urban development, urban growth, resilience, archaeology, Västergarn, Gotland

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INTRODUCTION

It is often said that we have much to learn from history, that the past can be applied in the present in order to create a better future. But what can something as specific as archaeological knowledge of ancient cities contribute to the discussion of modern urban issues such as urban development and sustainability?

It has been argued that a key to understanding modern cities and general processes of urbanization can be found within the unique long-term perspective that archaeology can provide on these questions¹. Regarding that, there are in fact a number of writers who have studied ancient cities and civilizations and compared their development and lifestyle to contemporary society. However, the main focus of these studies have been the collapse of these civilizations and how to avoid a similar fate in the future². Within historical and archaeological disciplines, a few scholars have set forth programmatic articles showing that there are in fact some aspects of modern urbanity that could gain from a comparison between ancient and modern cities³. Drawing upon an article by Michael E. Smith, Professor of Anthropology at Arizona State University, this paper build on the assertion that archaeological research on variations in the durability of prehistoric urban settlements may be one of the most useful contributions that archaeology can make to the discussion and general understanding of urban sustainability⁴.

This paper explores the potential of the archaeological long-term perspective by presenting the longevity of Västergarn, a small rural community on the southwestern coast of the island of Gotland (Sweden) which today rests upon the remains of a prosperous and dynamic early medieval urban settlement. In order to illustrate the above mentioned assertion, I will briefly discuss some of the factors that posed challenge to Västergarn's medieval development trajectory and introduce two methods that could be used in an analysis of ancient urban sustainability. My aim is that this paper will launch a wider discussion and provide a starting point for comparative research between ancient and modern cities or urban settlements in the light of sustainability issues.

Research that investigates the contemporary interplay between archaeology and modern urban planning in relation to sustainability issues is much needed. Different views on what constitutes a sustainable city and ways of communication could potentially curb the ability to create interdisciplinary cooperation on urban sustainability⁵. The first consideration of this paper is therefore the relations between archaeology and urban planning and how the concept of sustainable cities is conceived by archaeologists.

THEORIZING THE ARCHAEOLOGICAL APPROACH TO SUSTAINABLE URBAN DEVELOPMENT

Sustainability is a guiding principle of much contemporary development policy and a popular concept in both scholarly and popular discourse today. To connect archaeology and cultural heritage to sustainability would be quite logical since both deal with change and preservation in a global context⁶. Some recent attempts to approach the concept and challenges of sustainability have been made within the field of Heritage Studies.

Diane Barthel-Bouchier's study *Cultural Heritage and the Challenge of Sustainability*⁷ make a much desired contribution on the topic. Based on interviews with heritage professionals as well as written sources, the book provides an analysis of current trends in the cultural heritage sector. However, it is noteworthy that the most part of the book is devoted to threats to the preservation of cultural heritage due to environmental challenges induced by climate change. Even though the writer recognizes the so-called three pillars of sustainability (environment, economy and social) little is said about the potential of cultural heritage in regard to economy or social sustainability. A more recent contribution on the topic is *Perceptions of Sustainability in Heritage Studies*, edited by Mari-Theres Albert⁸. The book consists of a large number of disciplinary and interdisciplinary perspectives on heritage and sustainability that aim at providing insights on how to better understand the significance of heritage

as well as its function within the transformation processes that come with sustainability issues. Albert initially notes that the various and at times conflicting conceptualizations of sustainability have led to heritage-related activities that are anything but sustainable and that heritage have become more of a highly valuable marketable product rather than being a common good of human society⁹.

However important these contributions on cultural heritage and sustainability are, they lack a discussion on how to bridge potentially different views on sustainability between different practitioners. The fact is that within archaeological research the issue of sustainability still remain fairly unexplored¹⁰.

IDENTIFYING A PROBLEM AND ILLUSTRATING A WAY FORWARD

Today there are a number of initiatives and networks that discuss and explore the role of archaeology in relation to architecture and contemporary urban planning¹¹. Some aim at launching new dialogues and building closer relations between these experts as well as finding new ways to incorporate or invest archaeological and heritage values in current or future planning programs¹². The contribution of such an approach is said to be the generation of alternative interpretations of ancient settlements and new ways of handling the challenges of contemporary urbanization. This is of course important. Mapping out different perceptions on planning issues and investigating how archaeology can contribute to current or future planning programs would not only improve communication but point to common interests that are valuable to the development of both disciplines. In this ambition there is also a need for research that explore how archaeological knowledge may contribute on a broader scale to modern sustainability issues.

One main problem for archaeologists trying to approach urban development and sustainability is that archaeology tend to conceive and define the term 'sustainable' differently than, for example, urban research and planning. Archaeologists usually classify cities and urban settlements that survive for long periods as 'sustainable' while those abandoned or destroyed as 'unsustainable'. In trying to find out what made a city or civilization unsuccessful or unsustainable, an archaeologist would probably investigate the cause for the failure or collapse. A researcher of modern cities or urban life would probably never calculate the risk of collapse, seeing that modern cities are perceived as virtually indestructible¹³. Another aspect is that archaeologists hitherto seem to know more about the outcomes of development of ancient cities than about the processes that lead up to it. This could also easily be seen as disincentive for any contributions on the issue. These differences may partly be what creates difficulties for archaeologists to take part in the general debate on urban sustainability and make archaeological knowledge seem irrelevant to contemporary urban discourse.

So how do we go about that?

In a paper focusing on how archaeology and modern urban development, Michael E. Smith draws upon his research of the Aztecs in Mexico to illustrate how archaeological knowledge can be useful to research on modern urban issues such as sprawl, informal housing and urban sustainability¹⁴. The conclusion he makes is that archaeological research of ancient cities will not only improve our understanding of some of the social dynamics at play in the cities of the past, but it has also considerable potential to increase our understanding of modern urban issues and that archaeology can provide a wide range of examples and data that move beyond those that researchers of modern cities normally use. The question, he says, is finding the methods to analyse them and then making the results available to a wider, interdisciplinary audience¹⁵.

The question of how to plan and develop communities that will meet long-term human needs is often pointed out as particularly important to address when exploring issues of urban sustainability¹⁶. Even though the contemporary world doubtless is and will be quite different from that of the past in countless ways, we can assume

that some of those human needs almost certainly were the same in prehistoric and medieval communities. Hence a study based on how basic needs and social conditions were met and sustained in the past could provide insights on how to meet them in the future. To be able to make an assessment on prehistoric urban sustainability through such a perspective we could lean on another definition of sustainability as noted by Smith:

[...] sustainability as reducing the ecological footprint (energy, water, land materials, waste) while simultaneously improving quality of life (health, housing, employment, community) within the capacity constraints of the city¹⁷.

The archaeological method of site catchment could be used in assessing ecological footprint of past societies. The method allows a reconstruction of a sites economy by identifying the resources available within a reasonable distance from it, e.g. the catchment area. This area is defined by drawing a circle around the site; the radius often set at 5 kilometres (i.e. 1-hour walk) for agriculturists and 10 kilometres (two hours) for hunter-gatherers. Resources such as fresh water, arable and pastoral land as well as material for different types of craft production is then calculated within the area¹⁸. As such, site catchment offers a valuable method for analysing the relationship between site location, technology and available resources – all which play an important role in measuring the urban sustainability.

Another method for analysing the sustainability of past societies is presented in a recently published book edited by Paul James¹⁹. Focusing on the intersection between sustainability and basic conditions of human social life, the book emphasizes the need for a new paradigm that move beyond the current focus of the sustainability debate and introduces a new methodology, the Circles of Sustainability (Figure 1). The approach challenges the usual conception and assessment method put forward in three pillars of sustainability and splits the social pillar into two, renaming one politics and introducing a fourth aspect to the trinity: culture. Each of the four domains are divided into seven subdomains to which different types of questions can be directed. The answers are then assessed on a nine-point scale reaching from ‘critical sustainability’ (first step) to ‘vibrant sustainability’ (ninth step). The benefit of this method is that it is flexible and modular and intended to work across time and on different places. The concepts, methods and principles connected to it is designed to either be used singularly or in relation to the other. Or as the writers’ state, it

[...] can be used as the base from which to build an integrated planning approach useful for your city or urban settlement²⁰.

As so, it might be a useful method in analysing urban sustainability in the past. In the following section I will use Västergarn, an early medieval urban settlement, as an example of to illustrate some of the types of archaeological results that can be explored using these methods in relation to contemporary challenges for urban sustainability.

Urban Profile Process

ECONOMICS

Production & Resourcing
 Exchange & Transfer
 Accounting & Regulation
 Consumption & Use
 Labour & Welfare
 Technology & Infrastructure
 Wealth & Distribution

Organization & Governance
 Law & Justice
 Communication & Critique
 Representation & Negotiation
 Security & Accord
 Dialogue & Reconciliation
 Ethics & Accountability

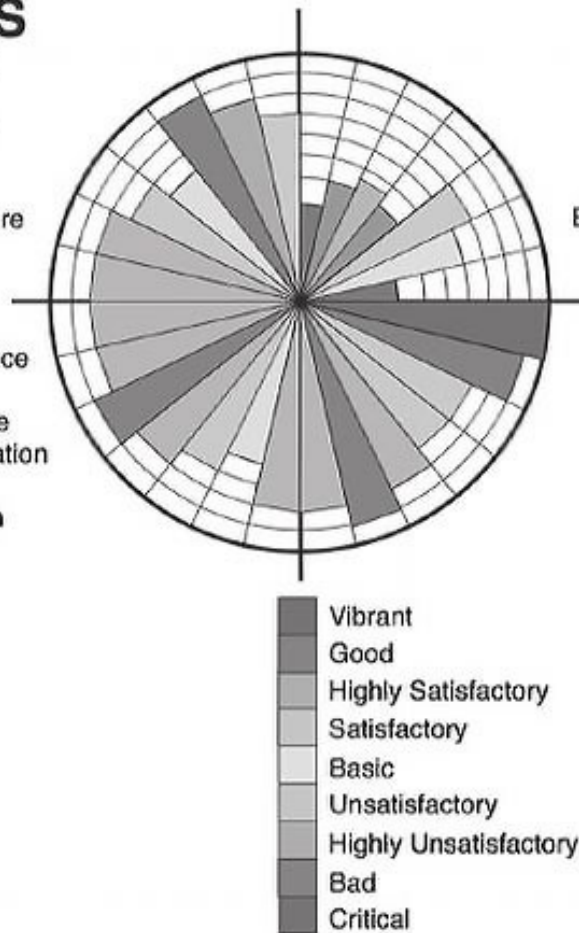
POLITICS

ECOLOGY

Materials & Energy
 Water & Air
 Flora & Fauna
 Habitat & Settlements
 Built Form & Transport
 Embodiment & Sustenance
 Emission & Waste

Identity & Engagement
 Creativity & Recreation
 Memory & Projection
 Belief & Meaning
 Gender & Generations
 Enquiry & Learning
 Well-Being & Health

CULTURE



Circles of Sustainability

FIGURE 1 Circles of Sustainability. The four dimensions of sustainability and the seven subdomains accompanying them.



FIGURE 2 Map of Northern Europe and part of Scandinavia. The location of Västergarn, on the south western part of the Swedish Island of Gotland, marked on map by red dot.

THE VÄSTERGARN EXAMPLE

Västergarn is situated on the southwestern coast of Gotland (Figure 2) and the easy access to water probably contributed to the site's importance during the Middle Ages. As many other settlements that arose around the year 900-1000 AD in Sweden, Västergarn grew rapidly in an urban-like fashion over the next couple of hundred years. The remains of the massive, 1000-meter-long semi-circular wall, the overgrown base of a round defence tower and the foundation ruins of the Romanesque church that lie alongside the standing Gothic church are today the only visible evidence of the prosperous and dynamic early medieval settlement. The modern houses and farmsteads that make up the small rural community of Västergarn today are to some extent enclosed by the arms of the wall and the area which is interpreted as the location of the early medieval settlement are now mostly undeveloped land. However, the location on the seafront make it highly interesting from a developmental point of view and often contribute to clashes between development and cultural heritage interests.

The written sources mentioning medieval Västergarn are scarce but the archaeological material collected during decades of archaeological work speak of an urban ambition in line with more prominent cities in Scandinavia such as Visby, Sigtuna and Ribe²¹. Although only about 0,9 % of the total area within the wall has been subject to excavations, the rich archaeological record make an invaluable source to understanding Västergarn's medieval development and urban life²².



FIGURE 3 House under excavation at Västergarn in 2012. Houses in residential area were built on a frame and resting on stone sill plates.

The remains of ten medieval house foundations have been detected within the wall area, indicating a complex settlement area. Based on specific artefacts found in and around the foundations, the settlement seems to have been used during a period from 1000 to 1400 AD. The architecture is dominated by houses built on a frame and resting on stone sill plates (Figure 3), some may have been dovetailed or bole houses with a hearth bricked against one of the outer walls. The expansion phase of the residential area that seem to coincide with the construction of the gothic church (which probably began in the middle of the 13th century²³) suggest, together with a large collection of coins, that Västergarn was at its urban peak during the period 1200-1350 AD²⁴. The rich artefact material consisting of ceramics and luxury goods speak of a population with a distinct urban consumption and widespread network connections reaching todays Russia, northern Europe and England²⁵.

Like many of the cities around the world today, the medieval urban settlement in Västergarn showed remarkable resilience as its development trajectory was challenged by a number of contemporary occurrences, some most likely more disruptive than others. The Hanseatic emergence in the middle of the 12th century, whose purpose was to maintain trade relations and guard trade privileges, surely had a gradual effect on the trade and production. The restrictions on the freedom of trade possibly led, as in so many other urban areas of the time, to an unrest that probably affected the population²⁶. From analysing the archaeological material from Västergarn we can recreate sequences of different spatial states and observe changes in location and distribution of imported (traded) goods and study changes in local production patterns of material such as ceramics or combs²⁷.

The agrarian expansion, 1000-1200 AD, was facilitated by new inventions such as the plough but the climate was also unusually warm, especially in northern territories. In the early 1300s a long period of cold and wet weather subsequently led to crop failure and starvation among the populations of Europe. From England we know that the rains were so heavy in 1315 AD that people hardly harvested any crops for sales or storage in the barns²⁸. Accumulations of fish and animal bone, as well as residues of nuts and berries, at Västergarn could provide valuable information Västergarn's possibilities to meet food needs over longer periods of time or in times of crises such as rapid climate change.

A city is only as resilient as its citizens, Thomas J. Campanella notes²⁹. Resilient citizens have enabled urban resilience and development throughout history and this probably goes for Västergarn as well. One factor that most certainly affected the resilience of people during the medieval period was the breakout of the Black Death in the 14th century. Even though we do not have hard numbers testifying to how many died of the plague in Västergarn, we must assume that it affected the population to a significant extent here as well. The skeletal material found during excavations have been analysed to some extent³⁰ but more need to be done in order to explore how resilient the population was to different kinds of disease.

However, we know that the population of Västergarn was not able to sustain the urban development initiated in the early medieval period. The archaeological material so far indicate that by the beginning of the 15th century, Västergarn had lost its former importance³¹.

CONCLUSION

The significant similarities that events of the past carry to those of today make it possible to use archaeological knowledge as a tool to illustrate the effects and long-term consequences of different urban strategies in a way that is often hard, or nearly impossible to do, only by using contemporary conditions³². Even though archaeology cannot provide ready solutions to current planning challenges and answer exactly how to achieve urban sustainability in the future, archaeological knowledge on prehistoric cities can offer a variety of urban examples that move beyond the mega cities that often are used as examples in the global discussion on sustainable cities³³.

A full-scale case study of Västergarn, focusing on spatial organisation in relation to developmental trajectory over time by using the site catchment analysis or Circle of Sustainability method, could make an excellent starting-point for exploring different aspects that help create sustainability today. It may for example provide valuable perspectives on sustainability issues such as coexistence, social cohesion and adaptation that is significant to an understanding of the urban dynamics of modern cities³⁴.

Archaeological research that uses concepts of modern urban studies will promote the potential of the archaeological material to other scholars if published outside the traditional archaeological domain. Opening up for a multidisciplinary approach on urban issues might help break down the artificial barriers created by current disciplinary structures that possibly curbs the ability to achieve the goal of creating sustainable cities.

An increased interaction between archaeologists and urban scholars, historical or modern, could very well mean that the past will be able to provide one of the keys to the sustainable future of our cities.

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Notes on contributor

Ulrika Söderström is a PhD student at GRASCA, at Linnaeus University in Kalmar, Sweden. Her PhD project investigates how archaeological knowledge of ancient cities and urban settlements can contribute to sustainable urban development now and in the future.

Endnotes

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- 2 See Jared Diamond. *Collapse: how societies choose to fail or survive*, London, 2005.
- 3 Christian Isendal, 'Med facit i hand?: hur arkeologisk kunskap kan bidra till en hållbar stadsutveckling', In: Daniel Nilsson & Krister Olsson, *Det förflutna i framtidens stad: Tankar om kulturarv, konsumtion och hållbar stadsutveckling*, 2014, p189-201.
- 4 Smith, 2010a, p246
- 5 See Franscesco Bandarin et. al, 'Why development needs culture', *Journal of Cultural Heritage Management and Sustainable Development*, Vol. 1 Iss 1 p 15 – 25; also Erika Avrami, *Making Historic Preservation Sustainable*, *Journal of the American Planning Association*, 2016.
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Image Sources

Figure 1: Paul James, *Urban Sustainability in Theory and Practice*, Circles of Sustainability, Routledge, 2015.

Figure 2: ArcGIS map of Scandinavia and Sweden, ESRI 2013.

Figure 3: Photo author Ulrika Söderström, 2012.