UrbNet
Centre for Urban Network Evolutions

A Centre of Excellence under
the Danish National Research Foundation
Aarhus University

Photo: Rubina Raja

UrbNet
THE DANISH NATIONAL RESEARCH FOUNDATION
CENTRE FOR URBAN NETWORK EVOLUTIONS

Danmarks
Grundforskningsfond
Danish National
Research Foundation

AARHUS
UNIVERSITY

Photo: Rubina Raja

"*Now in earlier times the world's history had consisted, so to speak, of a series of unrelated episodes, the origins and results of each being as widely separated as their localities, but from this point onwards [after the Second Punic war] history becomes an organic whole: the affairs of Italy and Africa are connected with those of Asia and of Greece, and all events bear a relationship and contribute to a single end.*"

Polybius, Histories 1.3

Centre for Urban Network Evolutions (UrbNet) explores the archaeology and history of urban societies and their networks from the Ancient Mediterranean to medieval Northern Europe and to the Indian Ocean World.

We are an interdisciplinary research initiative, which integrates new methods from the natural sciences with contextual cultural studies rooted in the Humanities.

Approaching urbanism as a network dynamic, we aim to develop a High-Definition Archaeology to determine how urban networks catalysed societal and environmental expansions and crises in the past.

UrbNet is a groundbreaking archaeological research initiative exploring the evolution of urbanism and urban networks. The centre is based at Aarhus University, School of Culture and Society, and is funded as a Centre of Excellence by the Danish National Research Foundation.

UrbNet was inaugurated 30 January 2015.

Network Urbanism and High-Definition Archaeology

Becoming urban is widely recognised as one of the great turning points of history. The innovations, cultural entanglements and environmental exchanges afforded by urbanism led to social and material complexity, which make up the core of today's civilisation. The complex stratigraphies of urban archaeology form a uniquely rich archive of this process. This evidence – the single most data-rich material archive of anthropogenic change in the last five millennia – remains vastly underexploited.

UrbNet aims to advance the understanding of the historical process of urban evolutions, and this will be achieved by developing the ability of archaeology to characterise the scale and pace of events and processes. A series of recently developed scientific techniques afford unique potential for archaeology to refine the precision of dates, contexts and provenance ascribed to excavated materials. These will be integrated to form a new "High-Definition" approach to the study of global and interregional dynamics.

Photo: Sarah Croix

Methods

The provenance of materials is clarified through the application of chemical, isotopic and biomolecular analysis of organic and inorganic materials. The characterisation of contexts is augmented by the application of soil chemistry, analysis of ecofacts and micromorphology, and this is then used to reconstruct high-precision chronologies through increasingly sophisticated statistical modelling of radiocarbon dating and other fast-developing methods, such as optically-stimulated luminescence.

AMS 14C dating and modelling

UrbNet will seize the potential of the radiocarbon "revolution" and the new market leading facility at the AMS 14C Dating Centre at Aarhus University. This will enable entire urban sequences to be made comparable to written records and other groups of evidence.

Existing data does not allow us to sufficiently challenge existing paradigms about e.g. the impact of natural and human destruction phases or known politico-military and environmental events. High-precision dates carry the potential to reveal that assumed consequences were not temporally connected to the assumed causes, and by applying high-resolution chronologies, it will therefore be possible to explore dynamics and short-term fluctuations in urban development and fundamentally alter the understanding of political events and cultural developments.

Photo: ScienceNordic

Photo: Gry H. Barfod

ICP-MS isotope analysis

By combining ICP-MS (inductively coupled plasma mass spectrometry) isotope analyses with laser ablation, it is possible to sample objects in a minimally destructive way and thus facilitate the identification of archaeological material that would not otherwise be amenable to such analysis. The analysis programmes will focus on iron, copper alloys, animal bone, ivory and antler, as well as glass. UrbNet will also identify geo-archaeological "fingerprints" of specialised manufacturing, which might provide a reliable index of activities, such as metalworking or tanning for which traditional archaeological proxies are vulnerable to shifting patterns of waste disposal and preservation.

UrbNet is the first initiative to integrate these techniques in a systematic research programme. By harnessing these rapidly-evolving analytical techniques and combining them with site biographies and artefact studies, this initiative takes a bottom-up (empirically-based) approach to the study of cultural and economic networks in the past. By multiplying the amount of data, i.e. by combining micro-scale sampling and multi-parameter analyses, we aim to improve the quality of the "grand picture" of comparative archaeological and historical models.

UrbNet Projects

UrbNet's work will comprise projects that intersect questions and problems concerning urban development and networks in the regions from Northern Europe over the Levant to the East Coast of Africa. It involves elaborate work on empirical material from a number of existing excavation projects, which concurrently investigate a) material culture, including built structures; b) micromorphology; c) archaeobotany, including microbiology and d) soil geochemistry, and the centre aims to make substantial contributions toward theoretical and methodological developments in the field. Individual projects may also arise from other bodies of data.

Danish-German Jerash Northwest Quarter Project

The joint archaeological project between Aarhus University and Ruhr University Bochum under the direction of Prof. Rubina Raja and Prof. Achim Lichtenberger commenced in 2011. The project is funded by the Carlsberg Foundation, H. P. Hjerl Hansens Mindefondet for Dansk Palæstinaforskning and the German Research Foundation (DFG).

The aim of the project is to examine the settlement history for the, until now, largely unexplored North-west Quarter in the ancient city of Gerasa, modern Jerash in Jordan. Gerasa was a Hellenistic-Roman influenced city, which was refounded in the 2nd century BC. The Northwest is densely covered with building structures laid out on a terrace system and stretches over the entire hill (app. 4 hectares). The area which is located within the walled ancient city is the highest point in the ancient city. One specific research focus is the settlement history of the hill and the continuities and changes this area underwent over time.

Photo: Rubina Raja

Photo: Sarah Croix

The Ribe Rosenallé Project

The project is directed by Prof. MSO Søren M. Sindbæk, Aarhus University, and Morten Søvsø, Head of Archaeology at The Museum of South West Jutland.

Excavations, commenced in 2014, aim to chart the changing topography of Scandinavia's earliest urban site. The excavations will provide the first large-scale open-area excavation of one of Europe's best-preserved Early Medieval towns, reaching from the northern rampart and adjacent cemeteries into the town centre. The rich artefact assemblages and ecofact collections also form a point of departure for a number of specialised studies. Ribe is a prominent site among the emporia to emerge in the 8th century around the North Sea and a hub for the developing maritime networks that formed the matrix for the Viking-Age expansion of seafaring and exchange.

Photo: Søren M. Sindbæk

UrbNet Projects (continued)

Unguja Ukuu, Zanzibar

Geophysical prospection and excavations conducted by Dr Stephanie Wynne-Jones and Tom Fitton, University of York.

The aims of the fieldwork, commenced 2013, are to gain a clearer understanding of the maritime fringe of the 7th-15th century archaeological settlement at Unguja Ukuu by establishing layout, building plans and materials, with special regard to wattle-and-daub architecture; to test the boundaries and extent of the site, defined, until now, primarily by ceramic sherd scatters; and to assess the potential for using geophysical survey to locate and map archaeological sites across the Zanzibar archipelago. Unguja Ukuu on Zanzibar island's southern coast was one of the most important East African settlements of the 7th to 10th centuries. It has been excavated only in small part but bears an immensely rich assemblage of goods relating to both local production and trade during that period.

Photo: Søren M. Sindbæk

Conservation and Archaeological Science

In combination with studies involving advanced material analysis, the classical approach to investigating archaeological features will be developed. From X-ray to micro-stratigraphic excavation under a microscope, the utilisation of conservation expertise will be used in the project. In addition, a range of methods, such as investigating charred and waterlogged plants and animal bones will be used in recreating the events that took place at individual archaeological sites.

Photos: Rubina Raja

Centre Core Group

The centre is headed by Centre director Rubina Raja, professor of Classical Archaeology, and Deputy director Søren Sindbæk, professor MSO of Medieval Archaeology. Furthermore, the centre consists of a strong, interdisciplinary core group.

Rubina Raja
Professor, Centre director
School of Culture and Society, Aarhus University

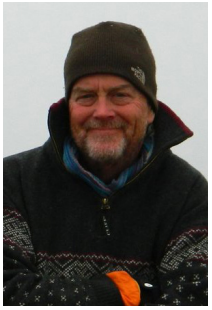
Rubina Raja's research revolves around urban development and culture, particularly in the eastern Roman provinces and the Levant. Her work focuses on regional and religious identities from the Hellenistic to early Medieval periods.

Søren M. Sindbæk
Professor MSO, Deputy director
School of Culture and Society, Aarhus University

Søren M. Sindbæk's research focuses on early urbanism and urban archaeology in Viking-Age Scandinavia and Early Medieval Europe. He has a special interest in Early Medieval communication and social networks.

Søren M. Kristiansen
Associate professor
Department of Geoscience, Aarhus University

Søren M. Kristiansen's work revolves around soils, and he works across a wide range of scientific and professional fields, including geoarchaeology, soil science, groundwater chemistry, medical geology, soil chemistry and geomorphology.



Charles Lesher
Professor (Niels Bohr Professorship)
Department of Geoscience, Aarhus University

Charles Lesher's research revolves around geochemistry and experimental petrology, and he is an expert in Plasma Mass Spectrometry and volcanic rocks. He is Niels Bohr Professor and director of the Danish Interdisciplinary Centre for Plasma Mass Spectrometry (DK-ICPMS).

Peter H. Mikkelsen
Head of Department
Department of Archaeological Science and Conservation, Moesgaard Museum

Peter H. Mikkelsen is an expert in archaeobotany, and his work focuses mainly on the Iron Age and Medieval agriculture and consumption.

Centre Core Group (continued)

Jesper Olsen
Associate professor
Department of Physics, Aarhus University

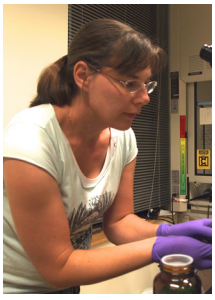
Jesper Olsen's research focuses on radiocarbon and stable isotopes. He specialises in a number of statistical methods used in earth/archaeological sciences, including 14C analysis.

Bjørn Poulsen
Professor
School of Culture and Society, Aarhus University

Bjørn Poulsen's work revolves around Viking-Age and Medieval Denmark/Northern Europe with respect to cultural, social and economic history. He specialises in towns, trade networks, town-country relations and agriculture.

Stephanie Wynne-Jones
Lecturer
Department of Archaeology, University of York /
Pro Futura Scientia Fellow, SCAS
Department of Archaeology and Ancient History, University of Uppsala

Stephanie Wynne-Jones specialises in early urbanism and urban archaeology in East Africa. Her work focuses on the Early Islamic expansion and interaction networks, as well as materiality and object studies.



Gry H. Barfod
Assistant professor
Department of Geoscience, Aarhus University

Gry H. Barfod specialises in isotope geochemistry and geochronology. Her work applies trace metals (Hg, Pb, As) and non-traditional isotope systems (e.g. Fe) to medical and archaeological sciences. She has worked in a number of projects at the interface between archaeology and geochemistry.

Photo: Søren M. Sindbæk

"*Mother of cities and seat of Pharaoh the tyrant, mistress of broad regions and fruitful lands, boundless in multitude of buildings, peerless in beauty and splendour, the meetingplace of comer and goer, the halting-place of feeble and mighty...*"

Ibn Battuta, Travels 1.1

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