

# Non-Intrusive Methodologies for Large Area Urban Research





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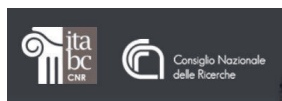
This volume is dedicated to the memory of our  
friend and esteemed colleague,  
Daniela Zamuner.



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# Introduction

I. P. Haynes

At the time of writing, 4.4 billion people (56% of the world's population) live in cities and, according to the World Bank, as many as seven in ten will do so by 2050.<sup>1</sup> Cities, central to so many lives and debates, look set to play an increasingly dominant role.

While the global challenges associated are now rightly attracting ever more concern, scholarly interest in cities is hardly new. The defining role of cities in driving the development of civilisations, creating new forms of society, and shaping communication and exchange have long been widely discussed. A growing body of research into pre-modern cities sets the trajectories of contemporary urbanism in broader context and illuminates long-term trends in powerful ways. Just as cities are growing exponentially, so too are the ways in which they can be studied.

This volume brings together contributions by scholars committed to illuminating ancient and medieval cities through the application of non-intrusive methods. Several of the exciting projects here speak to the extraordinary results that these methods can yield at sites which were partially or entirely abandoned. Here the capacity of remote sensing systems to visualise topography, and sometimes, to capture the pulse of urban development, can create remarkably vivid insights. Such work is driving archaeological approaches to cities in an exceptionally powerful way.

In an increasingly urbanised environment, however, the capacity of cities to veil and destroy evidence for their own creation and evolution continues to introduce challenges. In temporal terms, the most successful cities are often the ones that are most problematic. Longevity is frequently characterised by radical changes in ground surface and the widespread truncation or obliteration of vital evidence. Archaeological excavations that pursue evidence for the stories of cities have developed methods to manage work at depth within intercutting multi-period deposits.<sup>2</sup> Yet for all the information that it does bring, excavation is expensive, and in many fast-moving urban areas, impracticable. At the same time, the quantities of other data relevant to a city's history can be remarkably diverse, and – along with the rapid pace of development – potentially overwhelm attempts to catalogue and synthesise.

Non-intrusive, and less-intrusive forms of data acquisition have a vital role to play, but in living cities their deployment must also factor in the needs of contemporary residents. Evolving and growing need for key services, for utilities, road infrastructure, and housing must all be considered. Such growth can limit the areas available for research, but it may also facilitate it. The same is true of data integration, the complex process whereby diverse sources of information can be brought together in ways that can illuminate the past and facilitate the development of the present.

The papers assembled in this volume spring from a larger conference held in association with the Rome Transformed Project. This project aims to use largely non-intrusive methods to understand the development of Rome over eight centuries (from the first to eighth centuries CE). It explores 68 hectares of the city in an area that includes, alongside multiple other structures, a 1.5 km long tract of the Aurelian Walls and 0.67 kms of the Claudio-Neronian aqueduct. To achieve its goals, it integrates an extensive array of documentary sources, architectural analysis, and the investigation of 12 sub-surface excavated areas with the largest unified laser scanning and geophysical survey programme (the latter over an area of 12.5 hectares) ever conducted in Rome.

<sup>1</sup> The World Bank 2022 'Urban Development Overview'.

<sup>2</sup> Perhaps the best known such example is that of the Museum of London's Single Context Record system (Westman 1994).

Rome Transformed has received funding from the European Research Council (ERC) under H2020-EU.1.1., the European Union's Horizon 2020 research and innovation programme (Grant agreement No.: 835271) and as part of its mission, it emphasises the dissemination not simply of research output, but also of ideas of best practice. To that end, the Rome Transformed team facilitated a major conference in July 2021 to exchange ideas with leading practitioners about how to take non-intrusive work in urban areas forward. The papers here stem from that event, but for various reasons not all of the contributors to the conference were able to present their papers for publication.

It falls to me here to thank all those who took part in the conference, together with those colleagues who worked on the organisation of the event, notably the IT services at Newcastle University, Drs Thea Ravasi and Francesca Carboni, together with Phyllida Bailey, Elettra Santucci and Roxana Montazerian, and also those who have shared the work on the editing of this volume, Prof. Paolo Liverani, Dr Thea Ravasi, Stephen Kay and Dr Salvatore Piro. Finally, it is a pleasure to record our debt to our colleagues at Archaeopress for their generous collaboration.

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