

IN SEARCH OF “UNDERGROUND URBAN GEOSITES”. THE CITY OF MODENA “UPSIDE-DOWN”

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ABSTRACT: M. Bertacchini, *In search of “Underground urban geosites”. The city of Modena “Upside-Down”*. (IT ISSN 0394-3356, 2005).

A rich cultural heritage is hidden in the subsoil of many Italian cities. This underground heritage could tell the story and the evolution of the urban environment through the traces of natural and anthropogenetic components which shaped it in space and time and are now interwoven in the physical landscape that surrounds it. Underground urban Geosites are the historical and territorial memory of this evolution since they are the buried traces of urban environment components. The aim of the “Sottosopra” (upside-down) Project is to appraise the cultural heritage buried beneath the city of Modena. There is a network of cultural itineraries following the underground town’s canals, inviting visitors to discover and enjoy all the underground urban Geosites which have stratified in the subsoil of Modena during nearly two thousand years of history.

ABSTRACT: M. Bertacchini, *Alla ricerca di “Geositi sotterranei urbani”. La città di Modena “Sottosopra”*. (IT ISSN 0394-3356, 2005).
Un ricco patrimonio culturale è nascosto nel sottosuolo di molte città italiane. Questo patrimonio sotterraneo è in grado di raccontare la storia e l’evoluzione del paesaggio urbano attraverso le tracce delle componenti naturali e antropiche che lo hanno plasmato nello spazio e nel tempo e che ora sono intessute nel paesaggio fisico che le circonda. I Geositi sotterranei urbani rappresentano la memoria storica e territoriale di questa evoluzione, in quanto tracce sepolte delle componenti il paesaggio urbano. Il progetto “Sottosopra” intende valorizzare il patrimonio culturale sepolto sotto la città di Modena grazie ad una rete di itinerari culturali che virtualmente seguono i canali sotterranei cittadini e invitano i visitatori alla conoscenza e alla fruizione di tutti quei Geositi sotterranei urbani che si sono andati stratificando nel sottosuolo modenese nel corso di quasi duemila anni di storia.

Keywords: Cultural landscape, Natural components, Anthropogenetic components, Underground urban Geosites, Appraisal, Fruition.

Parole chiave: Paesaggio Culturale, Componenti naturali, Componenti antropiche, Geositi sotterranei urbani, Valorizzazione, Fruizione.

1. FOREWORD

The Italian landscape – one of the most important components of national cultural heritage (Panizza & Piacente, 2003) – is an amazing assemblage of nature and history, formed by both natural and human elements which intertwine, condition each other and eventually settle by interacting with the pre-existing environment, albeit in diverse ways and with varying intensity. Historical phenomena and human vicissitudes tend to shape the landscape at ground level, whereas natural components – particularly geological components – can affect its evolution through various and sometimes remarkable processes, even involving large rock masses at considerable depths.

The memory of past geological events which influenced the landscape’s evolution is preserved in the form of either visible traces above the Earth’s surface or as hidden remains buried in the subsoil.

Therefore, Geosites represent the territorial memory of these geological processes. Among the various types of Geosites found above or below sea level, those located in the subsoil include both geological, geomorphological, pedological etc. elements which are at present below the line of the horizon and many underground cavities which are the object of speleological exploration and research.

2. GEOSITES IN THE URBAN CONTEXT

Numerous Italian, European and non-European cities preserve a rich hidden world in their subsoil; an underground world comprising “unusual, buried environments constructed by man through the centuries” (Ardito, 2003) interwoven with the physical landscape that surrounds them. Houses, aqueducts, bridges, river quays, streets, necropoles, baths, mosaics, old pavements etc., they all are real buried monuments witnessing the history, life and culture in general of old towns (Bertacchini *et al.*, 2001; 2002). All these elements combine and merge with the natural elements of the underground landscape they belong to. Together with abandoned river courses, paleosols, sedimentary sequences etc., they make up considerable “geo-archaeological” complexes, since they are the embodiment of geological, archaeological, historical, artistic and socio-economic information.

The strong and ever-growing public interest in the rediscovery of scientific, historical, tourist and cultural aspects that characterise many Italian urban centres, has recently aroused also the interest of the mass-media (Fig. 1). The term “Urban Speleology” has now become commonplace, indicating the discipline which studies caves, tunnels, narrow passages and underground shafts buried under the towns. In order to main-

tain a connection with the terminology already in use and by analogy with the definition of underground Geosites, the natural and anthropogenetic components of the urban landscape which are hidden in the subsoil will be defined as “Underground Urban Geosites”.

3. THE “SOTTOSOPRA” PROJECT

The city of Modena is built on top of the remains of “Mutina”, a Roman colony whose urban development was strongly influenced and conditioned by the morphological evolution of water courses which in ancient times flowed near or even through it (Bertacchini, 2003a). Geosites are the testimony of this evolution.

In order to promote awareness and information regarding the cultural heritage of the city of Modena and, in particular, of its buried heritage, the “Sottosopra” (upside-down) Project has been planned and implemented. This is a virtual cultural pathway which was presented in Modena at “The Invisible Town” Congress, during the International Day for the Environment (Bertacchini, 2003b). This project is now



Fig. 1 – Excerpt from an article published on 30th May 2003 in “Il Venerdì”, supplement of the Italian paper “La Repubblica”, concerning a new form of urban tourism: “underground tourism”.

Stralcio di un articolo comparso il 30 maggio 2003 nell’inserto “Il Venerdì” del quotidiano “La Repubblica”, relativo ad una nuova forma di turismo urbano: il “turismo underground”.

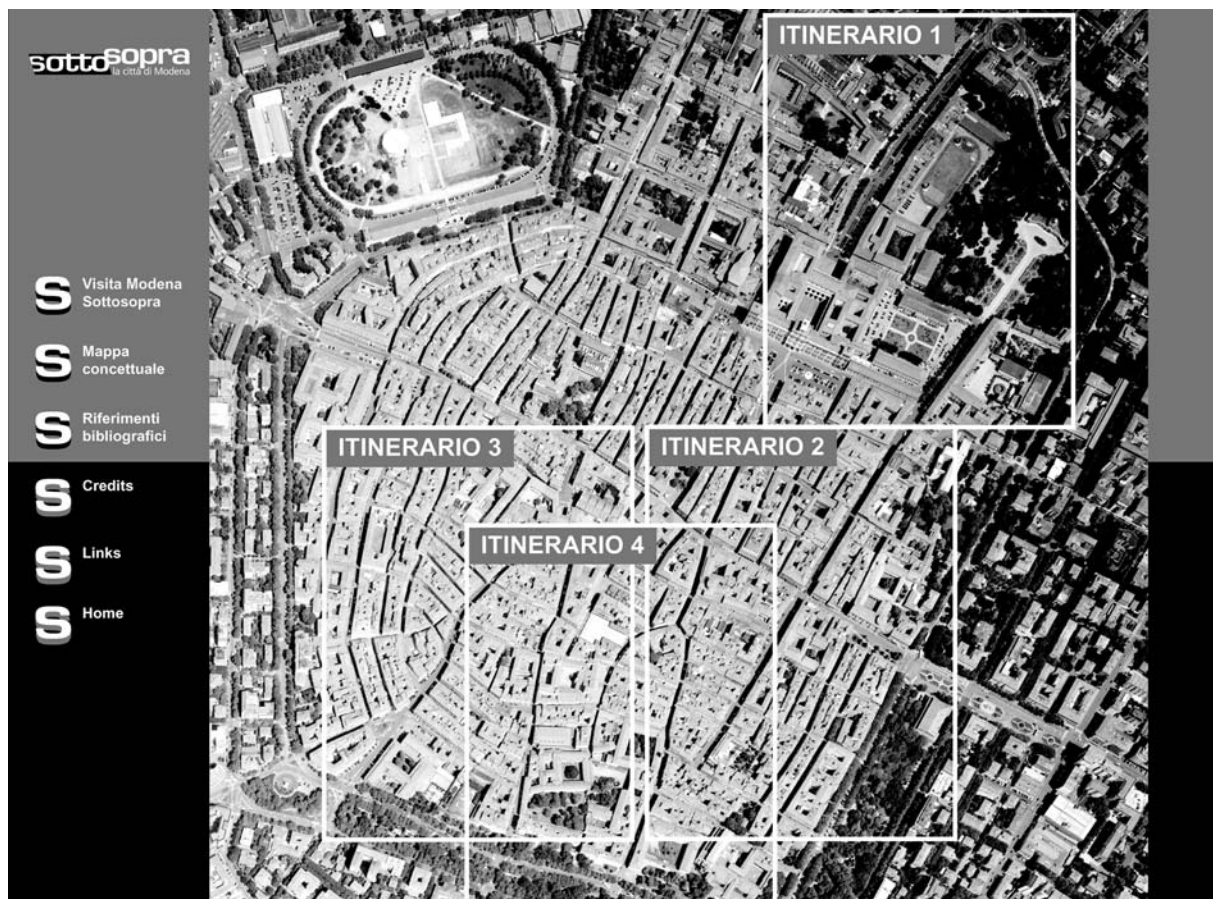


Fig. 2 – “Sottosopra” is a virtual cultural pathway composed of a series of interlinked itineraries that wind through the city of Modena, following the courses of underground canals. In this initial phase of the project, four itineraries coinciding with the city’s main canals have been identified: 1. Naviglio; 2. Canal Grande; 3. Canal Chiaro; 4. Modenella. The figure shows the areas considered by each itinerary (modified after Bertacchini, 2003).

“Sottosopra” è un percorso culturale e virtuale composto di una serie di itinerari tra loro dialoganti, che si snodano all’interno della città di Modena seguendo la traccia dei canali sotterranei. In questa fase iniziale del progetto, sono stati individuati quattro itinerari coincidenti con i principali canali della città: 1. Naviglio; 2. Canal Grande; 3. Canal Chiaro; 4. Modenella. In figura sono visualizzate le aree considerate da ciascun itinerario (modif. da Bertacchini, 2003).

taking shape, thanks to the collaboration between the Department of Earth Sciences of Modena and Reggio Emilia University and the Environmental Office of the Municipality of Modena (Bertacchini *et al.*, 2003). It is particularly suitable for spreading basic information about the city’s physical territory and its historical, architectural, artistic, etc. components by means of their appraisal and more immediate fruition.

“Sottosopra” reconstructs the story that the underground urban landscape can tell us by means of the natural and anthropogenetic remains which have shaped it in time and space (Piacente, 1999). In particular, “Sottosopra” underlines the presence and evolution of a dense network of natural water courses, springs and artificial canals which have always characterised the territory of Modena. These waterways have always controlled and sometimes constrained the development of this city, leaving traces in the Urban Geosites hidden in the subsoil.

For about two thousand years, the action of these waterways was so intense as to cause the accumulation of thick sedimentary sequences, which contributed to hiding and obliterating the remains of Roman Mutina and the subsequent Early Medieval and Late Medieval town, right up to relatively recent times. Confirmation of this can be found in Lugli *et al.* (2002) which records that paleosoil from the Roman era is found at depths of 2.5 to 11 m below the present ground level in the historical town-centre of Modena.

In order to learn more about the history of the city of Modena and its territory, visitors are invited to follow the path of its underground waterways, discovering and observing selected urban Geosites, most of which have contributed to modifying the urban landscape over the years. This is the case of old pavements, streets, houses, mosaics, river quays and city gates, as well as sedimentary sequences rich in remains of daily life, witnessing past environmental conditions and paleosoils with plant remains which point to climatic conditions different from the present ones.

From a practical viewpoint, the territory of Modena has been subdivided into a series of itineraries (Fig. 2) connected to each other. They wind through the underground courses of the main canals that still flow beneath the city centre today: the Naviglio (itinerary 1), the Canal Grande or Canale di San Pietro (itinerary 2), the Canal Chiaro (itinerary 3) and the Modenella (itinerary 4) (Bertacchini *et al.*, 2003).

A series of sensitive elements, graphically differentiated according to the types of urban Geosites identified (Fig. 3), marks each urban Asset found along each itinerary and interactively directs users to specific, detailed descriptions (fig. 4a, b): old pictures, recent photographs, reproductions of works of art and archaeological finds related to a specific Geosite and/or to other components of the urban landscape.



Fig. 3 – Legend of some sensitive multimedia connection elements between the different forms of detailed description contained in the “Sottosopra” Project.

Legenda di alcuni elementi sensibili di collegamento multimediale tra le diverse forme di approfondimento contenute in “Sottosopra”.



Fig. 4 – Two examples of specific descriptions found in the virtual pathway. Background colours of boxes indicate: a) black = underground urban Geosites; b) grey = urban Geosites still linked to visible elements appearing at street level (modified after Bertacchini *et al.*, 2003).

Due esempi di schede di approfondimento tra quelle presenti all'interno del percorso virtuale. Il diverso colore di fondo delle schede differenzia: a) nero: i Geositi sotterranei urbani; b) grigio: i Geositi urbani ancora legati ad elementi visibili “sopra” la città (modif. da Bertacchini et al. 2003).

Visitors can navigate through this multi-media hypertext from their computer desks and discover the cultural heritage hidden beneath the city of Modena contained in the underground urban Geosites that have progressively stratified during nearly two thousand years of history.

The continuous possibility to update and implement the project with new data and detailed information makes the "Sottosopra" Project a multi-medial tool that can be adapted to changing needs and interests (Bertacchini *et al.*, 2001; 2002) and that can grow alongside the city and its cultural heritage.

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