Abstract
The dominant perceptual sense in western culture is that of sight: the “vision” of the world, even in everyday language, tends to coincide with what is perceived as reality. Our being in the world is increasingly defined from the perspective of a single “point of view”. The first consequence is the progressive absorption of the multisensory component, which inevitably characterises every act of perception, within the arrangements of an ever more debased and impoverished image. Landscape is an interface consisting of objects, situations and configurations that localises of resources and meanings. Spatial configurations that allow the identification of a resource or a meaning can be both structural (such as a row of trees) and a type of energy (such as acoustic configurations or soundscape, or the light intensity, e.g. light spots within of a forest, or olfactory, e.g. smelling traces left by an animal). In this paper a case study is provided of some material contexts, examined through the conceptual lens of “soundscape”. The examination relates to pre-Roman Italy and involves the definition of “soundscape” as a subject of archaeological research. Soundscape frequently denotes the natural sound environment through its primary physical components such as the sounds of nature (wind, water, forests, birds, insects, animals), but it is also produced by human activity, phonic instrumental artefacts and mechanical actions. The lens is moved, therefore, from what is observed to what is heard; as regards archaeological analysis, data is project-ed onto culturally-contextualised acoustic scenery.

Keywords: Soundscape, Latium, Rattles, Ornaments, Perception.

Introduction
What do we mean by the term “soundscape archae-ology”? A definition of soundscape was provided in the late 1960s by R. M. Schafer, composer and environmental researcher (Schafer, 1977). The idea of soundscape refers to both the natural acoustic environment (consisting of natural sounds, including animal vocalisations and, for instance, the sounds of weather and other natural elements) and environmental sounds created by humans, through musical composition and other ordinary human activities including conversation, work, and sounds of mechanical origin resulting from the use of technology. Over time the original concept has been considered through the filter of various discipinary perspectives, including musical, acoustic and auditory archaeology. In the first case (musical archaeology), a considerable bibliography is being produced according to the tendency to investigate the instrumental music repertoire (e.g. Castaldo, 2012). In the second case, with the definition of “archaeo-acoustics”, we can refer to the acoustics of archaeological sites, or the study of the acoustics of archaeological artefacts (Scarre & Lawson, 2006), focusing on the particular results of the physical and mechanical processes. In the latter case the potential contribution of everyday, mundane and unintentional sounds in the past and how these may have been significant to people, especially through perception (Mills, 2014) is considered.

The soundscape theory developed by Schafer has focused attention on material sound components of the landscape: keynote sounds, sound signals and soundmarks. According to Schafer those three main elements define the sound environment. Tonics (keynote sounds) represent a
musical term that identifies the key of a piece, not always audible (the key might stray from the original, but it will return). The keynote sounds may not always be heard consciously but they 'outline the character of the people living there' (Schaefer, 1977). They are created by nature (geography and climate) – wind, water, forests, plains, birds, insects, animals – but in many urban areas, traffic has become the keynote sound. Sound signals are foreground sounds, which are listened to consciously; examples would be warning devices, bells, whistles, horns, sirens, etc. Soundmarks (the term is derived from the term landmark) is a sound which is unique to an area.

To date, there exists limited documentation on systematic surveys regarding the auditory within which a listener is immersed, especially for an assessment of the environmental context. The most recent and significant research activity is by Steve Mills, applying 'new technologies and widening the theoretical and methodological approaches to the study of the past' (Mills, 2010). Based on an interdisciplinary approach, these studies have
begun to shed light on how sound is significant for the interaction between man and environment in everyday life. On the other hand, a phenomenological approach based on analysis of spaces and artefacts has produced a level of interpretation qualitatively suitable to interpret soundscape as a cultural product (King & Sánchez Santiago, 2011).

The work proposed in this present paper starts from a phenomenological point of view to create a research project that addresses the matter with a systematic methodology, in keeping with the tradition of archaeological studies providing taxonomic categories. Despite the diversity of archaeological classifications in proto-historic Italy, and in spite of significant research activity related to archaeological music, there is no known attempt to define different anthropogenic systems of sound interaction. The survey outlined here therefore aims to define a basic methodology for archaeological research, just the beginning of an epistemological analysis.

In doing so, it is necessary to take into account environmental and perceptive approaches, indicating some underlying topics: can distinct hearing categories be identified on their cultural significance related to the archaeological soundscape? What relationship can be established between different auditory categories, involved senses, perceptual condition, sensory context, sources of sound, individual or shared experience? Finally, a proposal for a synthetic evaluation of the archaeological data is outlined.

**Materials and Methods**

The investigation has involved an exemplar case study of ancient Latium, in particular the territory between the Tiber river and the coastal area (see fig. 1) of Fidenae, Rome, Ficana, Lavinium, Ardea and Satricum. It has taken as its database the distribution of burial sites in settlement areas, which has allowed both the spatial arrangement of ancient inhabited sites and the recording of sound objects placed in tombs within the settlement to be taken into account (Modica, 1993; 2007b).

The study took place initially with the intention of making evident the diachronic development of burial rituals in the village, the interconnections between grave goods and the documented occurrences of material culture, both in town and in the necropolis, in addition to the peculiarities of
the ritual. Subsequently, the survey was further oriented to investigate the different social, cultural and anthropological components (Modica, 2005; 2007a). The developed survey method is based on a typological and comparative system giving account of some ethnographic implications, as proposed in other areas (see King & Sánchez Santiago, 2011). Remains of musical instruments and many other artefacts or ecofacts carry information on the auditory environment and soundscape (fig. 2). The study of all these aspects provides elements to learn about ancient society in Latium, both in a sensory and cognitive context. In the end, the survey highlighted a remarkable documentation of artefacts related to a sound in the depositional contexts from an urban environment (Modica, 2011).

Taking an overview of the sound categories documented through the historiographical and literary sources, a sound horizon can be culturally defined in the early stages of the Latial culture. Both in the necropolises and in urban environments, some artefacts testify during the Late Bronze Age to a deliberate use of sound tools connected to a ritual soundscape (Modica, in press). This is the case of the so-called “Ancilia”, bilobate shields, mentioned by the Latin tradition and identified in the bronze types found in some Latial graves. In addition to the connections with the Greek world, it is interesting to note the correspondence with the description of a ternary dance (tripudium) conducted as part of the process of definition of urban territory (Modica, in press).

In parallel with this documentation linked to male ritual actions, in the same chronological context is an unusual ferule in a tomb of a little girl from Guidonia-Le Caprine which suggests that she was given a specific religious role, connectable to the function of the rattle vessel found in female graves, particularly from Early Iron Age contexts (Modica, in press; Bietti Sestieri, 2000: 231). Other forms of rattles continue in use in the Latial culture during the Iron Age, finding prevalent attestation in female and also in infant burials deposited outside the necropolis in urban areas (fig. 2 D). Documentation of such vessels in votive contexts reinforces the interpretation of their ritual functions even if in infant contexts the significance may also be attributable to a recreational use.

During the Archaic Age, particularly in the Orientalising period, the presence of sound objects, among which are elements of clothing ornament both metallic, ceramic and other materials (fig. 2, C/b, E) acquires further importance (Modica, in press). From the context of the late eighth century BC comes the mouthpiece of a wind instrument, whose morphology is identified with a panpipe (fig. 2, A-B) known from literary and iconographic sources (for the oldest attestation in Italy see the nuragic bronze figurine of the “syrinx player”, dated to the eighth–seventh centuries BC: Thimme, 1980, n. 122); the same core materials provided other mouthpieces (fig. 2, C/a), perhaps whistles, but they may also be related to elements for a wind instrument like the “aulos” (Modica, 2011).

Between the full Archaic period and its final stage there are several known occurrences in burials of iron lituus-rattles: in an infant burial in an urban area, with a similar type of lituus recorded from a cemetery at Fidenae, in phase with a building of the seventh–sixth centuries BC (Cifani, 2008: 178-79) and from “Colle del Forno” comes an iron lituus, dating to the second half of the sixth century BC (Alvino, 2009: 58, 59, fig. 16). The ritual value of the lituus is known, in addition to the practice of sacred border demarcation, for a sound use, not only civil but also in warrior practices (e.g. Virgil’s description of Misenus, the trumpet player of the Trojan army, can be mentioned, Aeneid, 3, 239-40; 6, 162-74). While the presence of such objects suggests a sound dimension in a balance between musical function and symbol of power, however, the variety documented in literary and historiographical sources should indicate caution with regard to a uniform reading for the use of these tools (see the remarks in Berlinzani, 2007: 80 ss.).

Results

The series of "sound objects" known through a diachronic sequence make it necessary to recog-
nise sound categories in relation to the perceptual context of an ancient Latial settlement. An analytical palette of a field of interactions, between various components of sound events, indicates, in a proto-historic settlement, defined categories of auditory environment which surrounded the ancient listeners as they worked through their daily tasks and lives (fig. 3). As indicated elsewhere ‘the auditory system places the body in the centre of activities as sounds reach us from all directions’ (Mills, 2010: 180).

Considering the prevailing distribution patterns of huts and activities in prehistoric settlements, as known in Tiberine and coastal areas, a division between an area of tonic dissemination and a sector of signals, consisting of craft and production activities in domestic urban contexts, can be recognised (Figs 4, 5). A synthetic view of different soundscape categories in proto-historic Italy shows the prevailing experiences related to the source of sound that is introduced, the senses that are activated, the state of users (if they are active or passive), the spatial context (domestic, urban, extramural) and the number of people needed to participate for the best performance. Each experience has a value, a reason for its implementation and by which it contributes to people’s empathy with the sound energy production (Fig. 3).

The sound categories identified are those of the traditional structure of an ancient cultural and socio-economic system. These include productive activities (with economic value in the marketplace), domestic works (a variety of household

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<th>CATEGORY</th>
<th>SENSES</th>
<th>STATE</th>
<th>SPATIAL CONTEXT</th>
<th>SOURCE OF SOUND</th>
<th>PEOPLE</th>
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Fig. 3. Analytical palette of a field of interactions between various components of sound events, indicating, in a proto-historic settlement, defined categories of auditory environment which surrounded the ancient listeners (by author).
services for an individual or a family, military action (measures or resources protecting against potential enemies), ritual functions (ritual behaviours, established or fixed by traditional rules), ludic purpose (playful action in an aimless way) and finally displacements (moving someone or something from its natural environment). In this classification, the primary role of the auditory component is evident, while, depending on the status (active/passive) assigned to recognisable individuals, the action of one or other sensory perception can be considered as a secondary component. Regarding the spatial context, apart from productive and domestic activities concentrated in distinct or internal spaces of the inhabited sector, the environment of the event is more variable. The number of participants in the performance, with the exception of military activity, is variable and dependent on several identifiable subtypes.

Conclusion

Focusing on the evolution of the soundscape through the lens of landscape means making clear that the set of technological changes and productive settlement (metallurgical activity, carpentry,
pottery production, etc.) not only affects the overall structure of an ancient site but also the acoustics inside the village, creating areas with well-defined values of sound. The persistence and invasiveness of those sounds determined a different positioning of housing units compared to those of production and public activity. Similarly, certain types of contexts (cemeteries, shrines, sacred groves) connoting the sacredness of silence as a factor of great semantic significance, had to have their heart in detachment from production areas. Such avenues for further inquiry, focussed on both primary characteristics and local variety, are being studied in relation to possible, significant, exceptions.

In summary, this contextual, iconographic and acoustic analysis of whistles, bells, flutes, costume ornaments and rattles from the sites of the Tiberine and coastal area in ancient Latium, Italy, reveals that sound-production created a participative spatial landscape that linked community members to one another. With or without visual perception, soundscapes had a fundamental role, constituting a crucial element of daily life and creating a link between natural, spiritual and cultural dimensions. These findings indicate a possible way forward in the current studies on soundscape. It is only the beginning of a study through multi-sensory investigations, analytical data and related

Fig. 5. Areas of tonics and of signals (by author).
materials: further studies need multi-disciplinary and multi-factorial support.

In this sense, the quality of the ancient soundscape, based on multisensory perception, can constitute an important element for the reconstruction of the living environment based on a dimension of “high fidelity”. In his 1977 book, *The Tuning of the World*, Schafer wrote, ‘Once a Soundmark has been identified, it deserves to be protected, for soundmarks make the acoustic life of a community unique’. The preservation of sound prints represents the responsibility of a comprehensive historical investigation but also the consciousness that soundscape is a part of collective and intangible cultural heritage.

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