

COMPLEXITY TAKES MANY FORMS: THE NEOLITHIC *VILLAGGI TRINCERATI* OF THE TAVOLIERE PLAIN, SOUTHEAST ITALY

Introduction

When archaeologists write about complexity they are normally referring to *social* complexity. This usage refers back to social evolutionary models of the development of society, whether the band-tribe-chieftdom-state model of Elman Service (Service 1962) or the egalitarian-ranked-stratified-state model of Morton Fried (Fried 1967) and all their ancestors and relatives. Social evolutionary ways of thinking are unfashionable these days, but have nonetheless left their mark on the language still in use in our discipline and perhaps on the ways we investigate the past. Yet, in everyday language, the term “complex” is much more general in meaning: it can be considered the equivalent of “complicated” and can refer to almost anything, such as things, systems, language, beliefs and values. However, because of the history of our discipline, there is rather little investigation of complexity in aspects of past societies other than social organisation, usually interpreted in terms of the degree and type of hierarchy present. And yet organisationally simple societies can demonstrate great complexity in some aspects of culture. An excellent example is provided by Fredrik Barth’s (Barth 1987) study of the Mountain Ok of highland New Guinea. These are (or were in the 1980s) small communities of a few hundred people each, constituting a total of c.15000. They shared closely related languages and material culture and practised a subsistence economy based on shifting horticulture, hunting and collection of forest products as well as the raising of domestic pigs; their social systems showed little hierarchy, with authority being based mainly on age and religious roles. What Barth showed in his study was that religious practices and beliefs varied dramatically between groups and communities; moreover, the cosmologies generated were of a detail and elaboration that would give medieval theologians a run for their money.

In other words, these organisationally and technologically simple societies had developed complexity in their religious systems. Another example of religious complexity can be found among the Sami of the Arctic region who were traditionally semi-nomadic reindeer herders (Helander-Renvall 2000).

Complexity in religion is just one example of complexity in non-hierarchical societies. We are not arguing for religious complexity in our case study of the Tavoliere Neolithic, but rather in the organisation of settlement, which is remarkable and, to our knowledge, without parallel in Neolithic communities elsewhere, at least in Europe.

The Neolithic of the Tavoliere

The *villaggi trincerati* of the Tavoliere are among the best known sites of the Italian Neolithic, famous both for their number and their iconic plans, first identified from the air and invisible at ground level (fig. 1). They usually consist of ditched outer enclosures and internal smaller C-ditched enclosures (fig. 2). While best known from the aerial photographic cover, going back to World War II (Jones 1987; Seager Thomas 2020), there have also been numerous excavations over the years, especially at the major sites of Passo di Corvo (Tinè 1983) and Masseria Candelaro (Cassano, Manfredini 2004), and an increasing number of smaller interventions in recent years, many of them rescue excavations in advance of work on roads or railways or installation of wind turbines. Radiocarbon dating shows that the ditched village form was in use for about a millennium (c.6000–5000 BC), a timespan that comprises most of the Early and Middle Neolithic phases of traditional typologies. In our project, the Tavoliere-Gargano Prehistory Project, we have been able to identify, and accurately georeference, 774 Neolithic sites on the Tavoliere, the vast majority of which were ditched

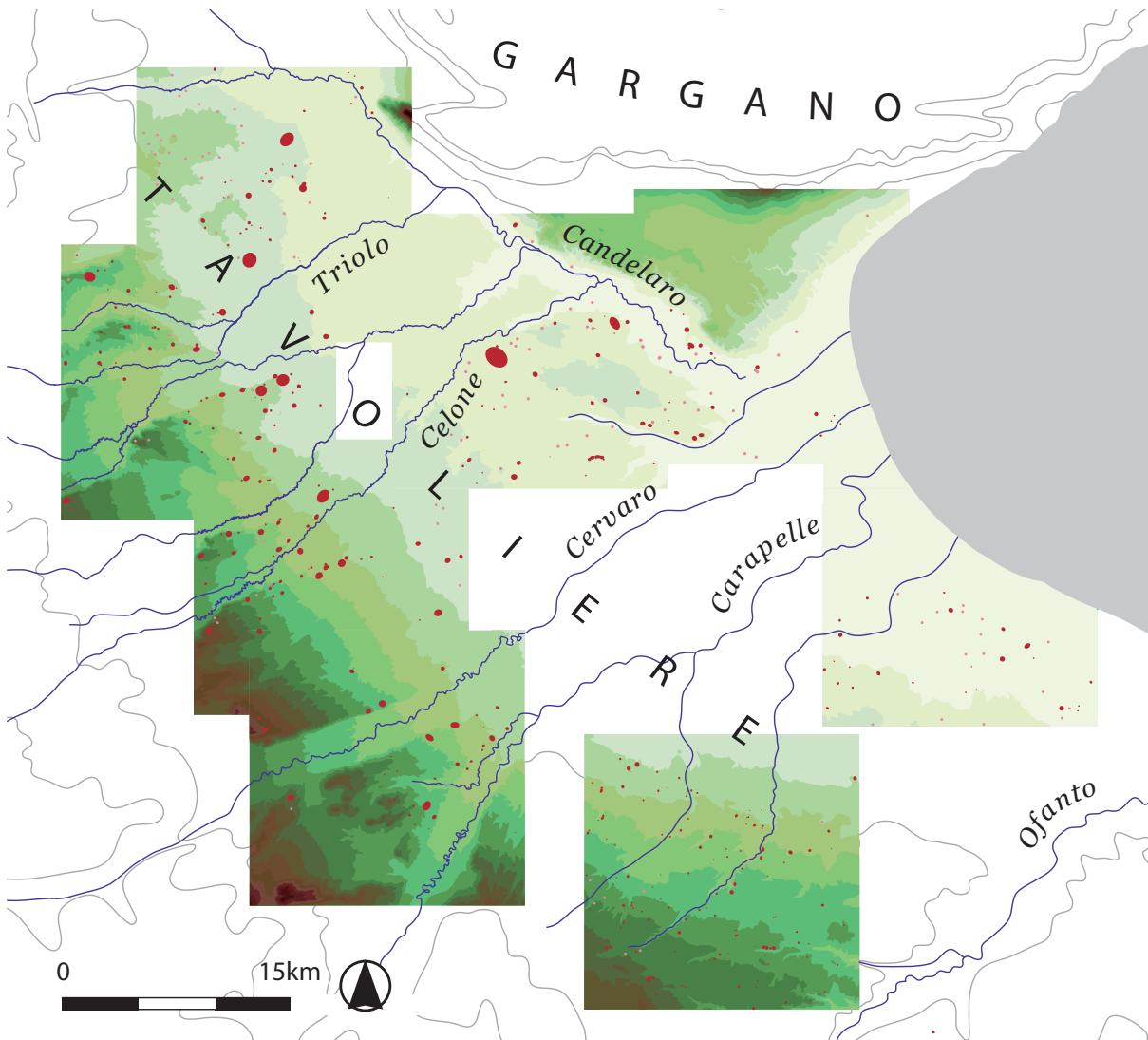


Fig. 1. Map of Tavoliere showing sites recorded from WWII aerial photographs (created by Mike Seager Thomas).

settlements (Hamilton, Whitehouse 2020; Seager Thomas 2020). Given that not all parts of the Tavoliere have equal aerial coverage and that GoogleEarth satellite photos continue to reveal new sites even in those areas already well known from aerial photography, it is likely that the original total is even greater than the 1000 sites estimated by Odetti (Odetti 1975).

The complexity of the settlement system

While the Tavoliere Neolithic settlement system is generally recognised as distinctive in terms of the *density* of settlement, it is less often observed how unique it is in relation to settlement *form*. There is a tendency to refer simply to “ditched villages” and to assume/imply that they are similar to ditched settlements in other areas. However, this is not accurate: apart from entirely spurious compari-

sons to the “causewayed enclosures” of the British Neolithic (Whittle 1996, p. 311; see Skeates 2000, pp. 176-177 for a comprehensive dismissal of this argument), the Tavoliere sites are not even very similar to other Neolithic settlements in Southeast Italy, such as Murgia Timone and Murgecchia in the Matera area, identified by Rellini (Rellini 1919) and Ridola (Ridola 1926) early in the 20th century. While these sites do have village ditches, cut into solid limestone (rather than into *crosta*, as found in the Tavoliere), they are surrounded by single ditches only and lack any internal ditched structures. The Tavoliere sites are unique in the occurrence of internal C-ditches, the presence of multiple village ditches and the great variety of settlement forms and arrangements. In this paper we concentrate on three aspects of settlement complexity: a) a generative model of settlement construction; b) the fractal reproduction of settlement structure and c) inter-visibility, or otherwise, of settlements.

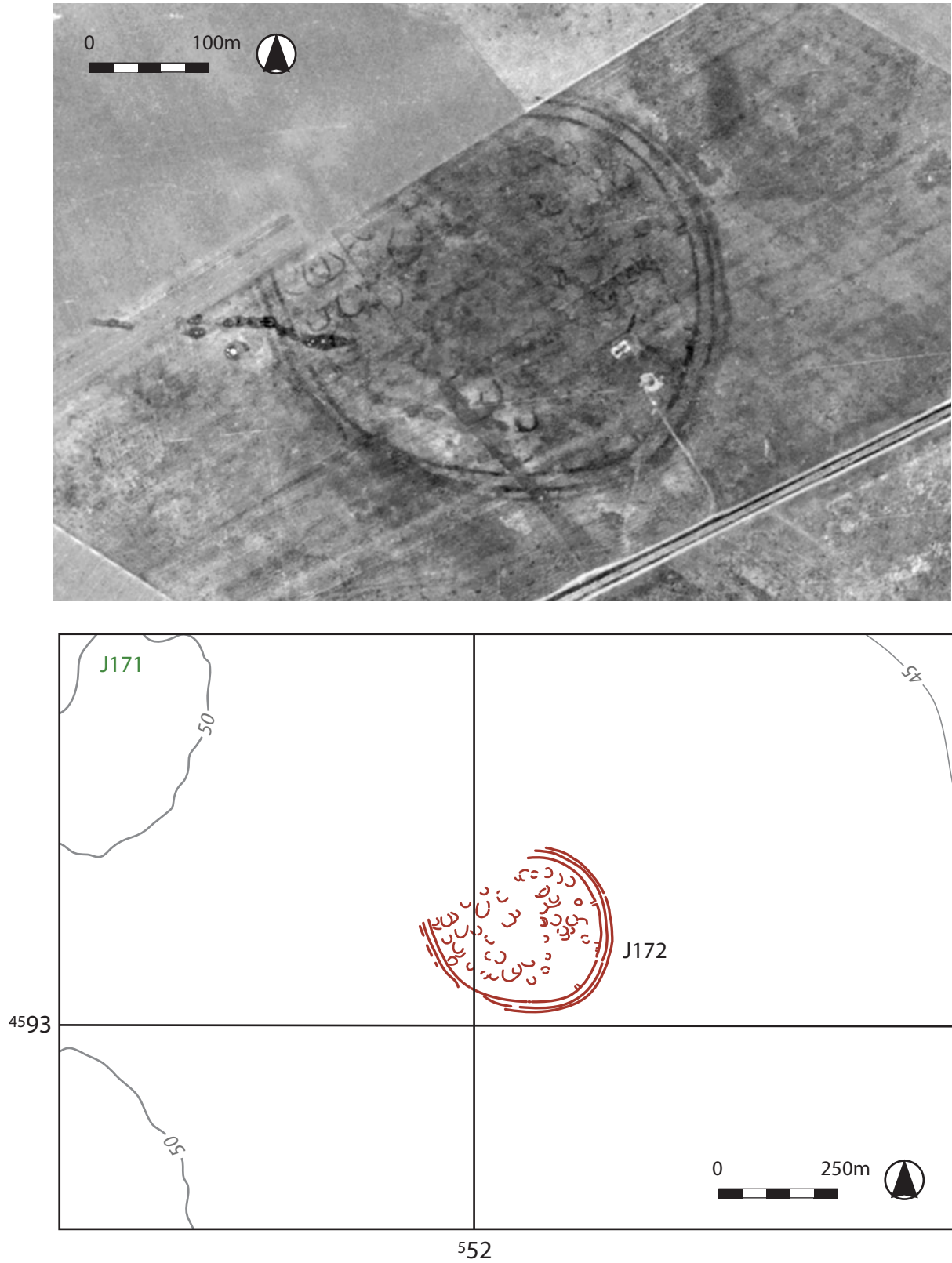


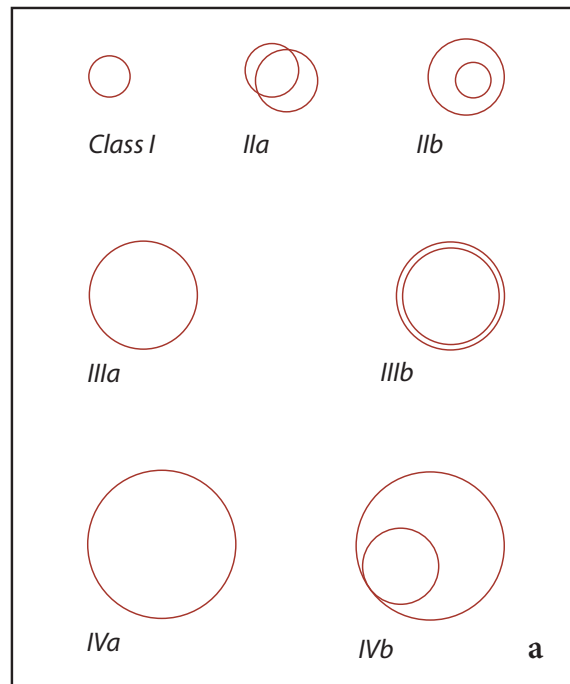
Fig. 2. Aerial photograph and plan of a villaggio trincerato. The site is Castiglione III (Jones 1987, site 172) (mapped and drawn by Mike Seager Thomas).

A generative model of settlement construction

Our new model of settlement construction in the Tavoliere Neolithic, defined below, arose as a response to a specific problem we encountered in our study of the sites. We found that the *villaggi trincerati* are rather resistant to being forced into typologies of site plans. While Tiné and Jones both produced site typologies (Tiné 1983, p. 24; Jones 1987, p. 180) (fig. 3) these are simplistic, being based primarily on site size and numbers of village ditches and on these bases they fail to separate sites that look entirely different in plan. When we tackled the classification issue in our recent publication (Seager Thomas 2020, pp. 12-14), we brought a number of other factors into consideration. As well as site size and number of ditches, we considered spacing of ditches, the presence of C-ditches and of nuclei (defined as single-ditched enclosures found within larger settlements but themselves the size of a small site, i.e. a sort of site within a site) and whether sites comprised part of a group. By attributing different letters to these different factors, each site was described in terms of a string of letters. The explicit aim of this approach was to produce a variety of different classifications, each designed to suit a particular research need. While we regard this as a considerable improvement on previous approaches, allowing us to consider many more factors, it did not produce a neat typology of distinctive classes of site. The conclusion we came to is that, while the presence of ditches – or perhaps the practice of ditch-digging – was clearly of great importance to the Neolithic occupants of the Tavoliere, neither the number of ditches nor their layout seems to have taken a canonical form (Hamilton, Whitehouse 2020, p. 175).

We think we can now go further and suggest a reason why it is so difficult to force the site plans into neat typologies. We suggest that the Tavoliere farmers employed a generative model of settlement construction. By this we mean that they did not build to a specific mental template of an ideal *villaggio trincerato*, but rather they had in their heads a number of architectural components and practices that could be selected from, manipulated and combined in many different ways, to generate the final site plan. The components in their repertoire included architectural forms (C-ditches, nuclei, settlement ditches), as well as numbers and modes of configuration (spacing and placing).

Of the architectural forms, the C-ditches are small enclosures surrounded by a single ditch, with a wide “entrance” gap on one side; they vary in diameter from 12 m to 90 m. The majority are found inside larger settle-



	1	2	3
A			
B			
C			

Fig. 3. Site typologies based on site size and number of ditches: a) Jones; b) Tiné (from Jones 1987, p. 180; Tiné 1983, p. 24).

ment enclosures, but a few sites have C-ditches without an external ditch and occasionally C-ditches are found both inside and outside a settlement ditch. We assume that C-ditches generally surrounded individual houses (we know this to be true in some cases, although examples of houses outside C-ditches have also been recorded). Nuclei are small settlement enclosures within larger ones. Settlement ditches are the larger ditches surrounding either areas with internal C-ditches or sometimes areas without traces of structures (in these cases they are sometimes labelled “annexe” ditches).

The meaning of the term “numbers” is self-evident and in this context can be applied both to architectural forms, e.g. C-ditches, and to individual architectural components such as enclosure ditches. Because of the limitations of the aerial photographs, the numbers we have identified must be regarded as minima, relating to what can be seen on the surviving photos. In terms of settlement ditches, the numbers on a single site range from none (three or four sites only) to eight at Masseria La Quercia; most sites have one or two. In relation to C-ditches, the numbers we have recorded range from none to a maximum of 129 at Passo di Corvo (120 in the main enclosure and a further group of 9 in the outer enclosure or “annexe”).

In terms of configuration, we distinguish *spacing* and *placing*. Both refer to the location of an architectural form in relation to others, but we use *spacing* to refer to the intervals between components of the same kind, such as settlement ditches, which when they occur in multiples can be closely or widely spaced. The same is true of C-ditches within a settlement enclosure, with some examples of quite widely distributed C-ditches within an enclosure, while in other cases they seem to be packed closely together. Here we need to add the provisos that we may sometimes be missing examples because of the limitations of the aerial photographs, and that we normally lack chronological evidence of how many were in use at any one time. *Placing* is a broader term and refers to the general location of a structure or combination of structures; for instance, a C-ditch could be inside or outside a settlement ditch; a nucleus could be placed centrally within or at the edge of a settlement enclosure; a settlement enclosure with or without internal features could be adjacent to another, either a matter of metres away, or actually abutting it. Clearly, these are examples only and many other possibilities could be suggested. We could, for instance, add other factors, such as the absolute size of the enclosed area or arrangements of concentricity or eccentricity. This is the virtue of thinking in terms of a generative model of settlement construction. Even with a few variables only, the number of combinations that can be generated is very large and this helps to explain both the great variety of settlement plans recorded and the fact they are all readily identifiable as typical Neolithic Tavoliere villages (see fig. 4)

The fractal reproduction of settlement structure

The settlement structure that we have documented through our work in the field and the study of the aerial photographs was of a type that is fractal in its reproduc-

tion. Despite the variety of site plans just discussed, we can recognise a repeating pattern that displays itself through every scale, from the smallest (the house) to the next level (the C-ditched enclosure) to the outer village enclosure. Beyond the village enclosure there is another zone that we have labelled the “home territory” (equivalent to the “site catchment area” of previous types of economic analysis), where crops would have been grown, animals pastured, water and other resources collected. This fractal reproduction of architectural space can be understood as “nested” in having a concentric sequential containment of space from the micro local scale to community spaces and regional landscapes. A parallel can be found in Ron Eglash’s work (Eglash 1999) on African villages, where he documented both rectangular and circular fractal architectural layouts, arising from bottom-up patterns rather than top-down impositions. Interestingly Eglash emphasised that the fractal pattern represents a distinct and successful form of village organisation, but not a world-wide form, which echoes our understanding of the Tavoliere settlement pattern as unique in the European Neolithic. For the Tavoliere, we suggest that the fractal structure was based on sustainable levels of social coherence reliant on body-based communication and that it arose from a scaled process of self-organisation.

We have explored and resolved the nature of these scaled zones through “sensory archaeology” work (for our methodology, see Hamilton *et al.* 2006; Hamilton, Whitehouse, 2006, 2020, Chapter 4). We can demonstrate that each of the concentric Tavoliere spaces identified correlates with distinct scales and parameters of human communication. For instance, in terms of the human voice, the house would be associated with quiet conversation, the C-ditched enclosure with conversation and stressed speech, while in the village enclosure shouting would be necessary for communication across the totality of the space. In terms of visual gestures, little could be perceived in the darkness of the house, while small-scale gestures would have been visible in the C-ditched enclosure, but only wide sweeping arm gestures could have been seen across the village space. That these were real and important zones and sequential parameters for the Neolithic people, and not simply artefacts of our own research approach, is indicated by the fact that all but the outermost zone are marked by manufactured boundaries: house walls in the case of the house, ditches and associated banks in the case of the C-ditched enclosure and the village. Whatever the practical functions of these features, they also marked the importance of transition from one zone to another, zones

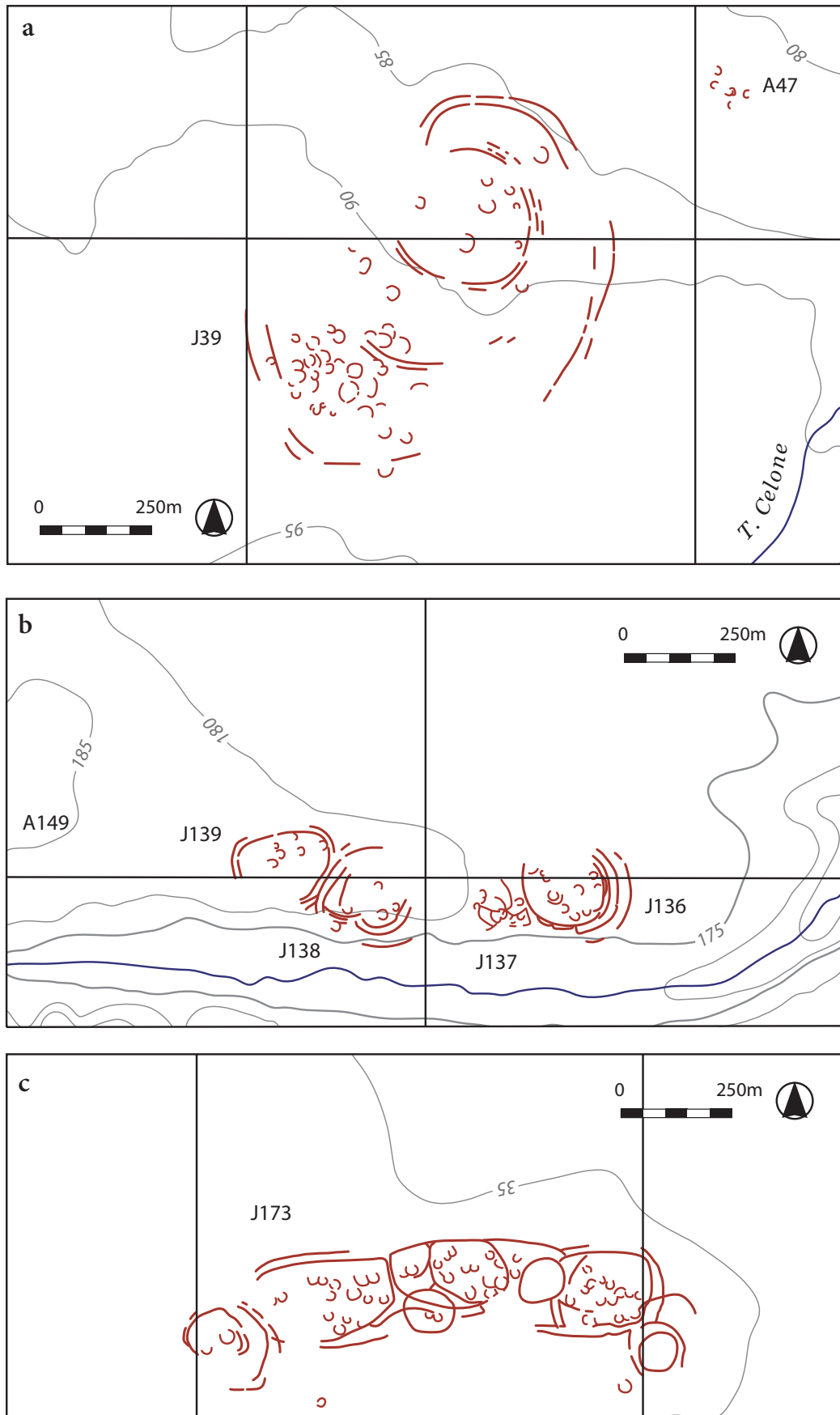


Fig.4. Examples of plans showing markedly different configurations of elements: a) Masseria Fragella (Jones 1987, site 39); b) Marana di Fontanafigura complex (Jones 1987, sites pp. 125-139); c) Tavernola Complex (Jones 1987, site 173) (mapped and drawn by Mike Seager Thomas).

that would have had different sensory characteristics and have involved different practices and behaviour. Our field-based method involved multiple sensory experiments and a decade of data collection *in situ* in the Tavoliere at the *villaggi trincerati* locales. This work encompassed all the main senses such as sight/visibility, sound, smell, auditory characteristics and is fully detailed and tabulated in our recent publication (Hamilton, Whitehouse 2020, Chapters 4 and 8); here we provide a brief summary of our conclusions.

The innermost zone, that of the house, would have provided a sensory cocoon, largely though not totally insulated from the outside. Visibility would have been poor, through absence of external illumination and the likely presence of smoke, and the other senses would have dominated: *sounds* of conversation, babies crying, snoring, breathing, small-scale domestic tasks, *smells* of bodies, food, clothing and furnishings and the *feel* of bodies, clothing, furnishings, pottery containers and stone and wooden tools. There would be little light or sound penetration from the outside world though some outside sounds could probably be heard through the wattle and daub walls – conversation close to the house or shouting further away, babies crying, rain on the house roof.

At the next scale, that of the C-ditched enclosure, daylight would have provided good conditions for carrying out many domestic tasks and artefacts like brightly coloured painted pottery would have been seen to good advantage; in terms of social signalling, individuals could be identified and understood through small-scale body actions and details of clothing such as form, colour and texture. In terms of sound, local noise would have dominated: conversation, crying babies and sounds from tasks such as cooking and tool-making. Sounds penetrating from outside the C-ditch might include dogs barking, screams and shouting from adjacent C-ditch enclosures. Smells inside the enclosure would include cooking smells, such as baking bread or grilling meat, while external smells penetrating the enclosure might include those emanating from nearby sheep flocks and dung-laden deposits in village ditches (as evidenced by the micromorphology of ditch sediments).

The next scale up is the village enclosure, the open spaces between the C-ditches but enclosed by the village perimeter ditches; we assume that this space was public and would have been used by all members of the community. This space could be easily walked around or across, in less than 30 minutes, even in the largest sites; visual communication could have been achieved from centre to periphery by large-scale sweeping arm

movements and people could be identified by coloured clothing or distinctive hat shapes throughout all but the very largest sites. Shouting could be heard across most sites, while emphatic conversation and sounds of domestic tasks emanating from inside C-ditched enclosures could be heard in areas close to those enclosures. Smells of dung in village ditches and domestic animals, if they were present within the village enclosures, would have been present, experienced variably, depending on wind conditions.

Moving further outwards, beyond the village enclosure there is the “home territory”, where crops would have been grown, animals pastured, water and other resources collected. In this zone, up to approximately a kilometre from the site, the settlement itself was visible and the louder sounds (such as the use of a wooden drum – *semantron*) audible.

We suggest that this organisation and replication of spaces has a specific type of social organisation at its root: one based on the nuclear or extended family, even on the largest sites. Because of the similarity in form of the boundaries of the *villaggi trincerati* and those of the C-ditches and their coincidence with distinct sensory parameters of social communication, we argue that there was a close relationship between the C-ditch “compound” enclosures, which we assume contained individual houses and were occupied by small kin groups, and the larger “village” enclosures. This observation was first made by Morter and Robb, who suggested that it may indicate «a structural understanding of the smaller group as isomorphic with the village on a smaller scale» (Morter, Robb 1998, p. 87). We, however, turn this observation on its head, to make the C-ditched enclosure the basic unit, arguing that the village is isomorphic with the house enclosure. In sum, the village might have been conceived as just one big family. This would effectively materialise an ideology based on the non-hierarchical nature of society, even in the largest villages. If the isomorphy of house and village enclosures symbolised this social structure, it may explain the importance of the construction of ditches in Tavoliere Neolithic society: the almost obsessive effort put into ditch-digging may have been about preserving this form of social organisation. Elsewhere (Hamilton, Whitehouse 2020, pp. 288-289; forthcoming) we argue that the Tavoliere material, and architectural use of space suggests an “expansive egalitarianism” – a form of materialising social reproduction that allows for dense populations (and their expansion) through the prolific uptake of new spaces and the viability of establishing *both* very large and small *villaggi*, without the development of social hierarchies.

The intervisibility of settlements

Our third example of complexity in settlement organisation relates to the intervisibility, or otherwise, of the different sites. Because of the very large number of Neolithic sites on the Tavoliere, “nearest neighbours” are very often close (Hamilton, Whitehouse 2020, pp. 163-165) and for this reason, combined with the predominantly flat topography of the plain, our expectation was that there would be a high level of intervisibility between settlements and their nearest neighbours. In fact this proved not to be the case. This issue was addressed by the use of GIS (Duf-ton 2020, pp. 149-151). Taking a radius of 1150 m, defined as the near distance in terms of our survey, the zone where sights, sounds and smells could still be noted and corresponding to the area where most activities would have taken place in the Neolithic, a viewshed was produced to record the visible range of sites. Very interestingly, only 26.8% of all the sites had a direct line of sight to their nearest neighbour in the 1150 m range and even in the immediate 470 m radius zone, the majority of sites were not in visible range of each other. This is a counter-intuitive finding, but reliably based. The conclusion of the GIS study in this respect is repeated here. «The clustering of settlements thus seems to result in many areas of shared taskscapes without a direct local link between settlements. Neolithic inhabitants would have been aware of their neighbours throughout their daily activities, the smells and sounds of nearby homesteads carried on the wind or neighbouring homes occasionally passing into view while tending sheep or fields. Adjacent settlements exist within the immediate sphere of everyday life and yet remain perceptually hidden; neighbours are within the range of an easy visit but distant enough to allow for a degree of privacy» (Duf-ton 2020, p. 149). Of course, not all sites would have been occupied contemporaneously, so interpretation needs to take this into account. However, the figures are so striking that it is clear that this lack of intervisibility between nearest neighbours was a real feature of settlement organisation; it was especially relevant perhaps in the later stages of the 6th millennium BC when we assume that the occupation of the Tavoliere was at its most dense. In the predominantly flat Tavoliere, the Neolithic communities enjoyed wide views over their own and neighbours’ agricultural land, often extending to the mountainous backdrop of the Gargano and/or the Apennines, but they went to some trouble not to overlook their neighbours’ settlements directly. Whether they were most concerned with their own privacy or that of their neighbours is unknowable and is perhaps not a meaningful distinction.

What we can say that is relevant to the current topic is that this feature represents another aspect of complexity, but not social hierarchy, manifest in the settlement system of the Neolithic Tavoliere.

Discussion

In the account above we have aimed to demonstrate that the settlement system of the Tavoliere Neolithic was complex in at least three different ways: in its generative construction model, in its fractal reproduction of built structures at different scales from the smallest (the house) to the largest (the village) and in its careful placement of settlements, so as to largely avoid any one settlement overlooking another.

It is important to emphasise that the complexity in this settlement pattern does *not* reflect social complexity, in the sense that the term is most often used, to indicate the development of societies characterised by centralised settlement patterns and hierarchical social organisation. If we look for the usual kinds of archaeological indicator of complex societies of this kind in the Tavoliere Neolithic data, they are largely missing. Brown’s study (Brown 1991) suggesting the development of nucleation of settlement over time is not very convincing. Although she does show that, at least in the northern part of the Tavoliere, there was a move towards living in larger communities over time, there seems to be little indication of the emergence of a hierarchical settlement pattern where smaller sites are distributed around the larger ones, demonstrating some dependence on the larger ones – as one would expect if these were serving as “central places” of any kind (see Hamilton, Whitehouse forthcoming for a fuller version of this critique). We also lack evidence for a structured layout of the interior of the large sites; some of them enclose very large numbers of C-ditches but these seem to be crammed into the space without any obvious structure. There may be spaces without C-ditches, which could have been used for “public” activities but we do not find arrangement of the C-ditches in rows or concentric circles, nor obvious paths between different parts of the settlement, nor central larger enclosures/structures (when the air photos show a larger enclosure this usually turns out to belong to a different chronological phase e.g. at Passo di Corvo). In fact, they look very much like the small sites, just larger. It seems that, while these large *villaggi* certainly would have housed more people than the smaller ones, there is no evidence that they were based on a different type of social organisation. Lacking too is any kind of evidence of

social hierarchy manifest in burials. Although the Tavoliere sites have yielded individual burials from a variety of contexts (ditches, pits and other locations within the villages), there is virtually no evidence that any of them were accompanied by distinctive grave goods – a feature that is often taken to indicate the emergence of social hierarchy. In Southeast Italy such burials start to appear in the ensuing Late and Final Neolithic and develop further in the Copper Age.

Instead, the complexity of the settlement pattern, and especially the fractal organisation and replication of

structures and spaces, reflect a non-hierarchical type of social organisation, based on the family, that was nonetheless able to accommodate an expanding overall population and the development of (some) larger settlements. If we revert to evolutionary thinking at this point, we should recognise that this type of organisation represents a successful adaptation to the specific conditions of the Tavoliere during the Neolithic, that lasted for at least a millennium. How it developed in the first place and how it came to an end remain topics for future research.

ABSTRACT

This paper describes a version of complexity that does not correlate with social hierarchy but is associated with egalitarian organisation. The *villaggi trincerati* of the Neolithic of the Tavoliere plain, Southeast Italy, demonstrate complexity in the variety and elaboration of their plans, in the fractal reproduction of settlement structure and in the deliberate location of settlements so as not to overlook their neighbours. We suggest that the social organisation represented is based on the nuclear or extended family, even on the largest sites. This effectively materialises an ideology based on the non-hierarchical nature of society, even in the largest villages.

Il contributo descrive una versione di complessità non correlata alla gerarchia sociale bensì associata a un'organizzazione egualitaria. I villaggi trincerati neolitici del Tavoliere, in Italia sudorientale, dimostrano complessità nella loro varietà e nella loro pianificazione, così come nella riproduzione frattale e nella localizzazione arbitraria delle strutture insediative tenendo conto dei centri vicini. Si propone in questa sede che l'organizzazione sociale rappresentata si basasse sulla famiglia, nucleare o allargata, anche nei centri di maggior entità. Ciò concretizza efficacemente un'ideologia basata sulla natura non-gerarchica della società, anche nei villaggi più grandi.

KEYWORDS

Complexity, egalitarian, Italy, Neolithic, village

Complessità, ugualitario, Italia, Neolitico, villaggio

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